

The  
*Emerging  
Markets*  
and Higher  
Education

Development and Sustainability

*Editors* Matthew S. McMullen  
James E. Mauch  
Bob Donnorummo

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THE EMERGING MARKETS  
AND HIGHER EDUCATION

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THE EMERGING  
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DEVELOPMENT AND  
SUSTAINABILITY

EDITED BY  
MATTHEW S. McMULLEN  
JAMES E. MAUCH  
BOB DONNORUMMO

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*This book is dedicated to Diana McMullen, my mother. My struggles were her struggles and my successes were her successes. Her impenetrable faith and belief that the impossible was possible and that perseverance and effort could break down any wall made dreams become reality. She was my best friend, my confidante, and the person who believed in me when few others would. She was my hero. Her strength of character made this book possible.*

*So often it is said that the impact one makes on those who were a part of one's life determines one's success in life. There is no doubt my mother was a success far beyond her expectations. Her love, caring, and understanding cannot be replaced. She will be missed.*

M. M.



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# Series Editor's Foreword

Higher education is a multifaceted phenomenon in modern society, combining a variety of institutions and an increasing diversity of students, a range of purposes and functions, and different orientations. The RoutledgeFalmer Studies in Higher Education series combines research-based monographs, analyses, and discussions of broader issues and reference books related to all aspects of higher education. It is concerned with policy as well as practice from a global perspective. The series is dedicated to illuminating the reality of higher and postsecondary education in contemporary society.

Philip G. Altbach  
Boston College



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# Introduction

This volume conceptually unites a number of critical issues facing higher education and emerging markets. Its most basic theme is, How can institutions of higher education in emerging market countries more effectively prepare their citizens for the rapid pace of change confronting them in the highly integrated global economy of the 21st century? In addressing this question, participating authors were asked to focus on the economic, political, and cultural changes in various emerging markets and to analyze how these changes relate to higher education. This complex question was both difficult and essential. In effect, it asked educational specialists to investigate the impact of economic globalization, as well as political and cultural openness, on higher education. In the interconnected, or ‘wired’, world of the 21st century it is not sufficient to study higher education without considering the totality of the global environment in which a country’s higher education system must function.

The book’s focus on emerging markets was a response to the relative absence of research on this topic in the existing literature, the growing importance of emerging market countries, and the fact that they provide a global setting which the authors hold is essential to a study of higher education in the 21st century. The countries covered in the book—the Czech Republic and Poland in Central Europe; Taiwan and South Korea in Asia; and Brazil, Chile, and Mexico in Latin America—are presently key trading partners and recipients of foreign direct investment from the world’s wealthier nations. These countries were chosen in an attempt to create a geographical spread of emerging market countries and because we were able to find accomplished authors who had the background to handle these complex topics. These countries also have a significant impact on international political stability and global economic growth, and their importance will be even more noticeable in the new millennium. They also share a complex, multidimensional transitional process that is rapidly transforming their cultures, political structures, and

economies. The issues that confront these countries in the transition to a more open political and economic system include: the need to balance domestic concerns with such global economic developments as currency fluctuations, foreign trade, or investment patterns; the demands made on higher education in facilitating a more competitive, technologically advanced economy; job growth; quality of life improvements; an expanding middle class; the integration of minorities; and the increasing importance of regional political and economic integration.

Both the economically advanced and the emerging market countries have vested interests in economic growth and political openness. The emerging market countries analyzed in this volume need to develop effective infrastructures so they will achieve sustainable economic growth, as well as political reforms and cultural attitudes which contribute to stable and open societies, which in turn are also prerequisites for sustained economic growth. Higher education institutions are a key element in this transition, as they affect, and at the same time are affected by, these changes. Higher education must train leaders with the vision to establish viable policies and organizations in the public and private sectors capable of meeting the challenges of the new millennium. It is held that among the newly emerging market countries the most successful are those that have educated their workforce and whose political leaders will implement programs that will result in economic, political, and cultural “openness.” In the 1990s a clear pattern was established that will prevail well into the next century; those societies that have opened their economies and political systems, and that have adopted cultural attitudes that embrace change (but without denying their traditional core values) have been rewarded. Higher education is an important part of these necessary economic, political, and cultural changes. It is an agent for change and simultaneously is affected by the changes.

Using an interdisciplinary approach, this volume analyzes the relationship between higher education, the economy, government, and society in the development of capitalism and democracy in seven emerging market countries. The authors analyzing these emerging market societies demonstrate how higher education plays an important role in their quest for sustainable economic development. Yet sustainable economic growth is not only an economic issue. It also requires political and cultural openness. By definition, emerging markets have “emerged” from their previous underdeveloped status and now have the possibility of achieving sustained growth because they have undergone a multifaceted transformation. Each of the countries selected for this volume has experienced economic growth and political openness as a result of its leaderships’ decisions to embark on a process of meaningful transition from closed to open societies. The role of higher education in that process was, and remains, central to the sustainability of their transformation. The editors have consciously decided on an interdisciplinary approach and have made causal

connections between open political *and* economic systems, since the presence of *both* is necessary for a successful and enduring transformation.

The authors represent a wide range of disciplines (education, history, economics, sociology, and business) and come from eight different countries. This disciplinary mix and wide geographic reach are responsible for the interplay of a variety of paradigms and perspectives. This scholarly breadth provides broad theoretical constructs and helpful transnational comparisons that are brought to bear on countries undergoing political and economic transformation. This format is also designed to enrich the reader's thinking regarding the contexts in which higher education contributed to, and was itself changed by, radical transformations. These transformations vary from the "democratization" process in Latin America, to the overthrow of communism in eastern Europe, to the rejection of Asia's closed development model. Yet they all have a similar source: the challenges involved in more effectively tapping the resources of one's own population and at the same time benefiting from the opportunities presented by an increasingly integrated and technologically advanced global economy. The relationship between higher education and the needs of emerging market countries is an under-studied subject. Furthermore, research to date has focused primarily on the economic and political transitions, with too little attention paid to the methods by which the emerging markets need to be restructured to meet the challenges of a constantly changing and more global future. This work aims to inform readers of events in specific emerging market countries, and to suggest a different way of conceptualizing the problems and challenges these societies must face.

This book is divided into four parts. The first part comprises two chapters that place the subsequent country studies in perspective. In Chapter 1, Bob Donorummo defines emerging market countries and analyzes the atmosphere in which emerging markets and their institutions of higher education must operate. This includes the high-tech world of global economics, as well as the growing saliency of regionalism and the seemingly ubiquitous threat of conflicts fueled by resentful and distrusting nationalities living in the same political state. In Chapter 2, James Mauch applies his vast experience in studying higher education administration in a number of countries to the interface of higher education and emerging market societies. He takes a broad and integrative approach, raising a number of issues that need to be addressed if we are to fully understand the complexity of the relationship between education and emerging market countries seeking to achieve sustainable growth.

The next three parts of the book present country-specific studies in three world regions: eastern and central Europe, East Asia, and Latin America. The authors relate existing economic, political, and cultural changes to higher education. They first describe the dynamics of their respective transformations and then analyze how higher education has reacted to these changes.

The results vary, but there appears to be a broadly discernible pattern. The authors of the chapters on East Asian countries can readily point to examples of higher education's contribution and successful adaptation to the opportunities presented by the global economy, while the results are mixed in Latin America. Those scholars dealing with eastern and central Europe note that higher education needs to be significantly restructured if it is to be an effective agent in a successful transformation process.

In 1989, eastern Europe experienced a unique and profound revolution: the overthrow of communism and a transition to democracy and capitalism. For social scientists studying these countries it was similar to an astronomer's being present at a star burst. Their long-held views about this part of the world were blown away, and they were left without helpful theoretical guideposts. After decades of dormancy, the pace of change was overwhelming—for the people and institutions of higher education. In Part II, Matthew McMullen and Jiri Prucha effectively portray the dilemmas of the Czech Republic, and Wieslaw Oleksy does the same for Polish higher education in the 1990s. In both cases it is noted that although substantial progress has been made, the transformation is a long and complex process and additional changes in higher education are required.

In Part III, Hsiou-Hsia Tai's study of higher education in Taiwan is perhaps the clearest example of how higher education played a positive role in transforming an agricultural country into a global high tech leader in five decades. South Korea's recent political openness and changing economic landscape are analyzed by Namgi Park. Both authors skillfully invite the reader to evaluate the relationship between higher education and the transition to political openness and economic growth.

The authors in Part IV, Latin America, also challenge the reader to define political and cultural openness, as well as economic globalization, and then to analyze how higher education can be a positive force within that environment. The region faces numerous challenges inherent in an increasingly interdependent global economy. Given their comparatively low savings rates, the countries of Latin American need external investments, yet, justifiably, also want to control their own destinies. In the last two decades these countries have become much more politically open, but they still must confront the problems related to a citizenry with a wide gulf between rich and poor, or those who stand the best chance of benefiting from a high tech, global environment and those who are most likely to suffer from these developments. Elizabeth Balbachevsky demonstrates the dynamics of educational change in Brazil and relates it to both the global economy and the regional diversity found in Brazil. Oscar Espinoza details the changes in higher education in Chile, providing the reader with the framework necessary to more fully comprehend the transformation of that country. Elsa-Sofia Morote and John L.

Yaeger effectively integrate the changes in the Mexican economy with higher education.

The editors have attempted to harness the powers of a number of different disciplines, as well as global comparisons, in order to more clearly demonstrate the connection between higher education and the ongoing transformations in emerging market countries. When all is said and done, the status of higher education is one of the most accurate barometers of the successes or failures of emerging market countries in meeting the challenges of the high tech, global economy that so forcefully burst on the scene in the 1990s and that is setting the pace for the new millennium. This new reality can be very rewarding for those countries with the proper educational infrastructure to take advantage of its powers, or it can take no prisoners in punishing those who are not ready for it. It is hoped that this volume will encourage additional research on what the editors believe is a critical component for success in emerging market countries in the new millennium.



PART I

# Background



# The Emerging Markets and the Process of Globalization

BOB DONNORUMMO

## DEFINING EMERGING MARKETS

The goal of this volume is to present a conceptually comprehensive but country-specific study of the role of higher education in emerging markets. The authors justifiably maintain an important connection between an emerging market country's system of higher education and how it affects and is affected by the transforming nature of these countries as a function of an increasingly global economy. In this chapter, I first define the term *emerging markets* and then describe and analyze the atmosphere in which emerging markets countries and their institutions of higher education must operate.

The countries discussed in this volume are considered emerging markets, a concept which includes numerous broad and diverse characteristics, often causing the category to lack clarity. Since wide economic and political differences exist among emerging markets, a precise definition is not possible. It is, however, important to attempt a definition in order to establish a framework for the chapters that follow.

Emerging markets are countries that are on a continuum between advanced or underdeveloped economies. They possess viable financial, communication, technological, and legal infrastructures, and are active participants in the global economy. Emerging markets have the potential to reach sustainable economic development. They also have open, or at least opening, political systems, the presence of a viable middle class, and a culture that accepts change and innovation.

As this definition suggests, I am attempting a broad and multifaceted approach to the study of emerging markets. This approach is necessary to avoid the shortcomings inherent in research that does not holistically define and then analyze the interlinking component parts of emerging markets.

In terms of economic criteria, emerging markets are sometimes incorrectly classified as any country that is not one of the large, mature, industrial, and wealthy countries comprising the economic elite in the G-7 or a smaller but equally wealthy and mature industrial economy of western Europe. This characterization is inaccurate, because it lumps emerging market countries together with developing market countries. Emerging markets fall somewhere in between advanced and developing economies. Although they do not have advanced economies, they have significant industrial output and services, income per capita, and financial, technological, and legal infrastructures—characteristics not common in developing countries.

Defining an emerging market country based on the size of its economy is of little help. China's economy, if computed in terms of Purchasing Price Parity, is the world's second largest, yet it is not an advanced economy. Luxembourg, Norway, and Switzerland are smaller economies that are correctly considered advanced because of their high per capita wealth and active involvement in the global economy. On the other hand, one is justified in classifying some highly populated countries with low gross domestic product (GDP) per capita, such as India or China, as emerging market countries because their large size causes their economies to be globally active in terms of trade and investments. Hence, the classification of some large but relatively poor countries as emerging market economies creates a wide GDP per capita gap between wealthier and poorer emerging market countries. For example, Taiwan and South Korea are much wealthier than China or India. Furthermore, the level of international economic activity also varies considerably among emerging markets. Taiwan and South Korea are more active than Poland or the Czech Republic in the global economy. In fact, South Korean firms invest in eastern Europe as a way to expand their markets and enhance profits. The superior size of the South Korean *chaebols* allows them to play a relatively active role in the global economy. It does not mean, however, that *chaebols* are more efficient.

While emerging markets lack the wealth, maturity, and global involvement of industrially advanced G-7 countries, they are also not underdeveloped economies with limited industrial production and weak infrastructures operating in the relative isolation of the global economy. While international trade is an important vehicle for growth in emerging markets, some are overly dependent on the export of a few natural resources, such a copper for Chile or oil for Russia and Mexico. Nonetheless, emerging market countries have a level of production, and a combination of global economic activity and natural resources, that has created the potential for continued economic expansion.

Sustainable growth is an important part of the definition of emerging markets. Emerging markets must be self-improving and not dependent only on capital inflows from advanced countries for growth. This is a serious challenge for many emerging markets, such as those of Latin America, which

have low savings rates and are often dependent on capital inflows for growth (Kim, 1998). Emerging markets are not embryonic economies, and are capable of growth from within. It would make little sense to classify very poor countries like Rwanda, Ethiopia, North Korea, and Sudan as emerging markets, since they lack most of the characteristics associated with emerging markets as noted above.

The emerging market umbrella also covers an exceptionally broad range of economies which have undergone radically different experiences in the second half of the 20th century. Poland and the Czech Republic were relatively poor socialist, command economies until 1989, and thus were not able to advance along the same path as South Korea, the eleventh largest economy in the world, or Brazil, the world's ninth largest economy. Comparisons of these eastern European countries with less than a decade of experience with open markets and global economic activity to other emerging markets can only be done with an understanding of their communist past and the experiences of their decade-long transformation. While few would deny that Poland's economic growth was severely stunted by almost half a century of communism, it is still much wealthier on a per capita basis than an existing communist country which is also classified as an emerging market—China. The reasons for China's emerging market status are twofold: its very large economy offsets its poverty on a per capita basis, and since 1978 it has radically opened its political and economic system. Countries labeled "emerging" vary widely in their past and present political and economic structures, and the range of per capita wealth stretches from very wealthy Hong Kong or Singapore, to moderately wealthy South Korea and Taiwan, to Latin America and eastern Europe, down to the poverty of China and India.

This is a syndrome list of characteristics and not meant to be a precise definition. If some lists exclude Singapore and Hong Kong because they are too wealthy, or include Pakistan and Vietnam because they are poor but large countries, one should be willing to accept these arguments and not attempt to dogmatically construct a rigid list of emerging market countries.

In summary, emerging markets are large and/or relatively wealthy compared to poorer developing economies, are active in the global arena, and have infrastructures adequate for sustained growth. They are also societies that are politically open, or are at least in the process of opening, since this is seen as a condition for sustained growth. Needless to say, the definition of "open" is vague and inexact, and will be applied only in a broad and inclusive manner. Yet this inclusive approach is not the same as accepting countries which are only formally politically open, that is, they have multiparty elections but little else. Active citizen participation in decision making is required. There is also the need for cultural openness, reflected in educational systems that must not only produce a technically skilled workforce, but also graduates who are not restricted by an excessively antichange mentality.

In this chapter I attempt to walk a fine line between extolling the virtues of openness and the acceptance of change, while avoiding criticisms of cultures that uphold traditional values, often related to the dominant religion, as more important than the willingness to accept change at all costs. Nonetheless, it is held that economic progress is beneficial to the general population and that a few universal principles do apply to human activity in the area of politics and economics. Thus when the views presented in this chapter slip off that fine line, they fall onto the side of openness and the acceptance of change as prerequisites for emerging market societies to obtain sustainable economic growth, thereby bringing material benefits to the majority of the population. It is a truism that the particular cultural values of all societies are to be respected. The purpose of this discussion is only to note that some extremely orthodox and intolerant variants of specific religious-cultural traditions have negative economic consequences.

However, one value system is rejected and viewed as incompatible with the definition of emerging markets: the ideology held by the communist leadership in the countries of the former Soviet Union and eastern Europe before the 1990s. Given the dismal economic performance of these countries from the late 1970s until the termination of communism, rejection is not a difficult decision in terms of their poor economic performance and relative isolation from the global economy. However, rejection is also based on the fact that these were politically and culturally closed societies where the leadership—and its control of the media and educational systems—promoted an orthodox view of the populace's behavior and norms (Glenn, 1995). Change and innovation were not priorities, and this negatively impacted those economies that were not able to take advantage of advanced technologies or the skills of their highly educated labor force.

Rejection or acceptance of the emerging market label is also complicated by the fact that some closed societies have generated short-term growth, while some open societies have stagnated and damaged their economies with policies that have promoted political instability and sometimes explosive centrifugal forces. The closed economies of eastern Europe grew rapidly in the 1950s and 1960s, yet their political and economic policies were not conducive to sustainable longer-term growth. Conversely, until recently Hong Kong and Taiwan were politically closed countries but their economies were open and their educational systems provided advanced skills and a sense of inquiry, albeit not oppositional, for example, Taiwan's pre-1986 authoritarian government. Taiwan is a country that made the transition from an agricultural, to consumer-industrial, to high technology economy in fifty years, and it has enjoyed excellent growth since the 1960s. Once again, distinctions are sometimes blurred.

Latin American countries present a different set of definitional problems. Many of these societies had formally open political systems at the macro

level, yet the bulk of the population was caught in a web of poverty that prevented meaningful participation in the country's economic growth. Upward social mobility was beyond the reach of the vast majority of the population which failed to obtain the skills needed to advance in a successful emerging market, or to accept risk-taking entrepreneurial attitudes as virtuous or even possible. As anthropologists have demonstrated, people living subsistence lives cannot be expected to embrace risk taking because a failed experiment may result in consequences much more serious than bankruptcy. Since the 1980s there have been important changes in the economic policies of Latin American countries, as well as improvement in the quality and openness of many educational systems, although much more remains to be done (Lapper & Dyer, 1998).

The potential for sustained economic growth and political openness are related, although it is not always an easily identifiable connection, and the linkages between the two have time lags, which cause some to deny this connection. This denial often comes from those who stress that stability, not openness, is the key to sustained economic growth. Others have noted that the liberal concept of openness is virtuous but highly rarefied, and the causal ties drawn between political openness and growth are too simplistic. These analysts often note the need for significant state intervention in the economy, and focus on the mixed economies of economically advanced western Europe, which they view as preferred alternatives to economies with little state intervention and ownership (Freeman, 1989). These mixed economies are open and democratic societies, and effective state intervention in the economy can result in positive developments. The connection between capitalism, market relationships, and democracy is complicated. The liberal perspective presented in this chapter does not categorically reject alternative approaches such as mixed economies, but strongly posits that there is a correlation between political openness and sustainable economic growth, and that this positive relationship is reinforced by educational systems that advance skill levels and extol the virtues of inquiry.

While the positive relationship between openness and economic growth is not always readily apparent, the connection between the absence of economic growth and closed political systems has often been noted by scholars conducting research on eastern Europe or the former Soviet Union. Some have made the case for the poor economic performance of these countries based on communism's stress on equality rather than efficiency (Hewett, 1988). Others have noted that the communist system was based on the "economies of shortages" and lacked rewards for risk taking, hard work, and innovation necessary to promote sustainable growth (Kornai, 1992). Still others located the problem in the flaws of the communist systems with its penchant for control in order to keep a politically illegitimate leadership in power, regardless of the detrimental impact on the economy (Brzezinski, 1990).

However, analysts who have focused on Asia or Latin America have not been provided with such clear and overt cases of politically closed countries whose economies have performed poorly. Asia, for example, contains countries that were, or in some ways remain, only partially open in political terms but have performed well in terms of GDP growth. In addition to the dramatic growth in the People's Republic of China (Nolan, 1995), other Asian economies have grown by opening themselves to international trade and foreign investments, yet maintaining many features of a closed political system, for example, Taiwan before 1986, South Korea before 1997, Malaysia, or Indonesia. Since the failure of Thailand's currency in 1997, there has been a great deal written about the economic problems associated with the relatively closed Asian model. The most notable victim of the "Asian crisis" is perhaps Indonesia, where rapid growth was not accompanied by political openness, and where in 1998 there was a severe economic collapse. The connection between political openness and economic growth is not absolute, and other factors play determining roles. Nonetheless, some Asian politicians themselves have made the connection between closed economic and political structures and declining economic indices (Burton, 1998). This is certainly a different attitude from the late 1980s or early 1990s when the semiclosed Asian political and economic model was placed on a pedestal and seen as the preferred model for promoting economic growth and political stability.

It is true that the relatively closed systems of many Asian countries do assist in fostering a certain amount of political stability, at least in the short term, and this has some positive implications, especially in the area of foreign portfolio and foreign direct investments (FDI). China's stability is a positive factor contributing to its huge FDI inflows, while Russia's instability is a negative factor. Stable governments are perceived (not always correctly) as more able to prevent or control internal conflicts, and hence reduce the risk involved in investing. Stable and strong governments are also viewed (again, not always correctly) as more effective in controlling inflation and directing expenditures (often public) to economically beneficial projects. While stability is important, and chaos is not a recipe for growth, this focus is rejected. Analysis should adopt a wider time frame and take into account that some forms of stability are not long-term solutions. Instead, it is held that successful emerging markets are economically and politically open and have educational systems that reflect that openness. Growth has come most often to those countries that have accepted risk, opened their economies to foreign investments, and increased the freedom and opportunities for their populations; and not to those that have focused on political control.

As previously noted, the use of the word "open" implies more than the right to participate in multiparty elections. It has a cultural dimension in which the leadership and the general population perceive change as both

acceptable and positive. This notion is not new (Millikan & Blackmer, 1961), but it is contentious and risks being viewed as culturally insensitive and as a tactic for eliminating the particularistic cultures of many emerging market societies. This is certainly not the intent, nor is it seen as an inevitable consequence of either economic growth or globalization. While growth and globalization almost inevitably include the ubiquitous McDonald's, Coca-Cola, and shopping malls, there is also often a powerful backlash to this homogenization which defiantly celebrates the particularistic aspects of a culture experiencing growth and globalization. If economic growth and increased global influences, together with political openness, develop along with a celebration of what makes a culture unique, without an accompanying superiority (or inferiority) complex and the tendency to increase the distance between "us" and "others," so much the better.

While the list of descriptors is already long, one additional limitation is required: successful emerging markets have started the process of establishing a viable middle class. As with the definition of emerging markets itself, the concept of a middle class has both economic and political implications. Economically, consumption by a middle class is the backbone of a dynamic domestic market, and is needed for sustainable growth. The emerging market India, for example, is the home of the world's largest middle class (150 million), and analysts must pay greater attention to the impact of its middle class and broaden the scope of their investigations beyond India's impoverished peasantry and urban poor. Politically, the middle class requires the services of a functioning legal infrastructure and to this end has been a champion of the rule of law. This offers protection from political leaders who might impose a closed system on the society that would limit the people's ability to protect their political rights and material gains.

Indonesia is an instructive example of this relationship between economic growth, globalization, political openness, and the rise of a middle class. Reporter Nicholas Kristof (1998) insightfully notes that the closed, elitist regime of President Suharto was toppled after thirty-two years by "capitalism, markets, and globalization." Asian leaders are being forced to open up their economies and political systems. "(An) historic shift (is) now underway, signifying a landmark in the decline of the old order in Asia, in the way that the popular uprisings of 1848 marked the eclipse of the old social and political order in Europe" (A8).

Globalization presents formidable challenges and opportunities to emerging markets, and countries that have open political, economic, educational, and social systems are better equipped to deal with internal and external environments and achieve sustainable economic growth. The remainder of the chapter will focus on the impact of globalization on emerging market countries, concluding with a brief discussion of education as it relates to the needs of emerging markets.

## IMPACT OF GLOBALIZATION ON EMERGING MARKETS

Surely a world where each day E-mail and the Internet connect billions of individuals, products, and ideas, in different countries—with a speed that past generations could not imagine even in science fiction literature—is indeed globally linked. An important part of globalization is the integration of the world's economy, especially as manifest in FDI and international trade, which have expanded about seven and five times, respectively, since 1980. While this upward trajectory is the dominant trend for the foreseeable future, it was not always the case. While foreign trade rose steadily throughout the course of the 19th century from about 4 percent to 11 percent of the world's GDP, autarky and high trade barriers during the 1920s and 1930s caused that figure to drop significantly, only to return to its 19th-century levels in the 1970s. Yet since the 1970s the increase has been steep, with foreign trade equaling about 15.5 percent of the world's GDP, even though the world's GDP has itself increased sixfold since the 1960s (Scott, 1998, pp. 25–29).

International trade has been given a huge boost by the lowering of quotas and tariffs worldwide and within specific regions, most notably the European Union (EU), the North American Free Trade Agreement (NAFTA), and Mercosur, but also other organizations, including the Asian Pacific Economic Cooperation and the Association of Southeast Asian Nations. The future expansion of the EU, and possibly NAFTA and Mercosur, as well as the growth of less integrated associations like the Black Sea Economic Cooperation Pact or the Caribbean Community and Common Market should reduce trade barriers within specific geographic regions.

Much of the credit for lowering trade barriers on a global basis goes to the General Agreement on Tariffs and Trade and its successor, the World Trade Association. In the last two decades, lower barriers to international trade, together with increased FDI stocks and therefore increased foreign trade between the affiliates of the same multinational firm, have helped to increase foreign trade and expand the opportunities for economic growth in both advanced and emerging markets. However, growth is far from guaranteed, and it comes with a strong risk factor as much of Asia, Russia, and Brazil experienced between 1997 and 1999.

In addition to foreign trade and FDI, the 1990s were also characterized by a generally cooperative international atmosphere that has provided positive conditions for both increased portfolio investments in foreign countries and expanded aid from international lending agencies. The activity of agencies like the International Monetary Fund (IMF), World Bank, European Bank of Reconstruction and Development (EBRD), Inter-American Development Bank, and the Asian Development Bank have provided timely assistance to emerging market countries. Sometimes this support has been judged successful (Mexico, 1995), sometimes unsuccessful (Russia, 1998), and it is too early to evaluate the effectiveness of the complex \$41.5 billion aid pack-

age given to Brazil in 1998. Nonetheless, this cooperative international atmosphere is much different from that which followed World War I, or the Cold War after World War II. In eastern Europe, for example, the positive international atmosphere of the 1990s is one of the most distinctive elements of its transition to capitalism and democracy, creating a situation very different from that which existed in two other years of radical transition, 1918 and 1945 (Donnorummo, 1992, 1998).

With no guarantees and with substantial risk, it is held that emerging markets, indeed all markets, are only going to be successful if they are open and active participants in the process of globalization. The privatization of state-owned enterprises in eastern Europe, Russia, China, and Latin America, lower trade barriers, increased regionalization, and economies more open to FDI are all ingredients for sustained economic growth. Economic isolationism is a short-term prescription that contributes to stagnation in the long term.

Increased FDI and international trade were also helped by the fall of communism in 1989 and the implosion of the Soviet Union in 1991 (Meyer, 1998). The end of the Cold War shattered the encasement of the region's economy within the Council for Mutual Economic Assistance and greatly expanded the opportunities for foreign trade, especially with EU countries, and policies encouraging foreign investment in newly privatized firms. In the 1990s the transforming societies of eastern Europe implemented a dramatic reversal of trade and investment patterns from East to West. This trend is manifested by the fact that two eastern European countries covered in this volume have become members of NATO and will be members of the EU in the near future. The political leaders and populations of these countries have opted to end the isolation that served them so poorly in the past. They have endured the pains of transition with relatively few collective backlashes partly because the populace was aware that countries like nearby Austria and Finland grew their economies as a result of being open and active in the global economy. Yet, as the examples of the Czech Republic in 1997, and present day Russia and Ukraine demonstrate, the transition must be transparent and be consistently implemented over a long period of time. Growth does not move in a straight upward line.

Emerging markets have infrastructures (financial, technological, and legal) that are less equipped than those of the G-7 countries to effectively process the potentially beneficial components of a more global economy. The rapid movement of capital around the world means that lowering interest rates to stimulate one's domestic economy may cause capital to flee elsewhere (Kim, 1998). Also, importing necessities like higher priced consumer goods and food into emerging markets will cause hardships for pensioners and unskilled workers who previously purchased less expensive domestic goods. Open markets and globalization are going to lead to deprivations for some; a cure for poverty has not been found.

In 1998 the world was jolted by a strong dose of reality concerning the impact of the global economy on domestic economies. There were almost daily reminders about the ill effects of the “contagion from the Asian melt-down,” which began in 1997. In August 1998, most of the world’s stock markets fell sharply following the decision of the Russian government to devalue its currency and default on its loans. Fears of global depression were raised (Wolf, 1998) as “the spillover effects, initially from Asia and now from Russia, have hurt countries regardless of their economic policies” (Plender, 1998, p. 17). There were calls for protectionism, lead by American and European steelmakers, against the importation of inexpensive steel from emerging markets like Brazil, Russia, and South Korea, as well as recession-ridden Japan, all of whom faced steeply shrinking domestic demand (Brown & de Jonquieres, 1998). Furthermore, in the late summer and early fall of 1998, portfolio investments in emerging markets were sharply curtailed and investigative spotlights were turned on these now seemingly fragile economies, particularly Brazil. The point is that the “new world order” of the 1990s does not offer a cure-all, and contains ample pitfalls for both advanced and emerging markets. The fast-rushing stream of globalization offers the potential for the populations of emerging markets countries to improve their standard of living; however, there are also substantial risks.

Suggestions that these risks can be managed by instituting policies which reduce a country’s involvement in the flow of global economic activity are often shortsighted and harmful in the long run. There are many reasonable calls to regulate the rapid flow of electronically transferred investments, which can bring severe deprivations to millions of people. The debate over whether Malaysia’s 1998 rejection of IMF solutions to its crisis and the imposition of capital controls contributed to its economic rebound in 1999 demonstrate that this is a complex subject which is not well served by strict liberal dogma (Montagnon & McNulty, 1999; Landler, 1999). Hence, while one should agree that calls for restrictions and expanded regulations are sometimes needed for protection against unbridled speculation and extreme market swings, the proponents of enhanced state interference frequently draw misleading conclusions. Some posit that currency and capital controls are needed because “the global financial crisis has thrown twenty million Asians back into poverty over the last year, made 40 percent of the Russian population poorer than ever, and produced growing unemployment in Brazil, a country already wracked by some of the greatest disparities between rich and poor in the world” (Cohen, 1998, pp. B1, B4). Free trade and open international investment policies have brought prosperity to many countries, but they have also created serious dislocations and deprivations. Yet the root cause of the economic problems that many emerging markets are presently experiencing are often internally determined and only partially the result of external or international forces. Nonetheless, one cannot deny that external

forces can contribute to the difficulties facing emerging markets. After the collapse of Thailand's currency, capital flight helped plunge Indonesia's economics into a powerful downward spiral, and the battle to maintain the value of Brazil's currency put great pressure (higher interest rates and budget reductions) on the economy and the populace, at least in the short term. In 1998, low prices for oil and other commodities were acute problems for Russia and Mexico, who relied on oil exports for about 45 percent and 30 percent of their respective tax revenues. However, these external problems were magnified because of internal political and economic weaknesses. In summary, policies that ensure transparency and protection from speculation are necessary, but these policies should not eliminate openness and risk, and thus much of the profit incentive, for trading and investing.

This same principle applies to *both* emerging and advanced market countries. Policies in economically advanced countries designed to protect specific interest groups threatened by international activities are unacceptable. The American steel companies and their workers, Japanese rice growers, and French farmers all face some negative, shorter-term consequences from open international trade. While their concerns are legitimate and must be addressed, implementing policies that promote economic isolation must be avoided. The December 1999 demonstrations against the World Trade Association in Seattle raised important questions that must be addressed, but their antiglobalization positions are misplaced.

In 1998 the emerging markets of Russia and Malaysia heightened the barriers between themselves and the reach of the global economy. If their policies are borne out of short-term necessities and are temporary, the damage will be minimal, and will perhaps help them weather the storm (Friedman, 1999a). Yet the necessary longer-term path for emerging markets remains one that is open to trade and investments from other countries. In Russia, the former Stalinist model of economic autarky was the problem, not the solution. Foreign investments in Penang and Kuala Lumpur grew almost fivefold between 1975 and 1995, and played a major role in advancing the economy of Malaysia in the 1980s and the first seven years of the 1990s. To institute policies unfavorable to FDI would be unwise.

At present, FDI is expanding rapidly, a trend that greatly effects emerging markets. Improved technological capabilities, the increased activities of multinational companies, and the privatization of state firms will continue to promote FDI for the foreseeable future. Expanding FDI stocks have become an important hallmark of an increasingly integrated world economy. "The strongest evidence of the globalization of industry comes from the rapid growth and geographic deconcentration of FDI flows since the early to mid-1980s. . . . (It) has become the principal vehicle of the deeper integration of the world economy" (Reinicke, 1998, p. 3). FDI increased almost sevenfold between 1980 and 1995, or from \$700 billion to \$1.7 trillion in FDI stock in

this fifteen-year period. After a slowing of the rate of growth in the early 1990s, the world's FDI increased to about \$350 billion in 1996, and in 1998 worldwide FDI is expected to be an unparalleled \$430 billion, despite slower global growth (de Jonquieres & Peel, 1998).

The driving forces behind these explosive FDI growths are increased mergers and acquisitions, widespread privatizations, and the liberalization of laws on foreign investments. The most recent available UN World Investment Report, compiled *before* the August 1998 flight of capital from emerging markets, shows that FDI into emerging markets, especially China, had declined for the first time since 1985. A *Financial Times* article about the UN report sagaciously noted that "geographic location, low costs, and home-market size are becoming less important. . . . Instead, decisions increasingly depended on the access to technology and capacity for innovation which countries were able to offer" (de Jonquieres & Peel, 1998, p. 6). While developing countries received 37.2 percent of all inflows of FDIs in 1997, there is always the possibility that capital flows will be more concentrated in technologically advanced countries with only a few emerging market countries participating.

The reduction or geographic constriction of FDI would be harmful to emerging markets as it helps "link markets for capital and labor and raise wages and capital productivity in recipient countries" (International Financial Corporation and Foreign Investment advisory service, 1997, p. 5). Economic growth in emerging markets has coincided with a fivefold increase in FDI inflows to developing and emerging markets between 1990 and 1995. While almost three quarters of that increase has gone to only ten emerging markets, with China's inflow totaling \$167 billion in these five years, increases to all emerging market countries has been substantial. In general, emerging markets have benefited from ending their over reliance on international loans in the 1970s to the mid-1980s, and by implementing policies that welcome FDI as engines of growth. FDI inflows to emerging markets have been profitable for both recipient countries and multinational companies, and developing and emerging markets increased their share of FDI inflows from 12 percent in 1990 to 36 percent in 1995 (International Finance Corporation and Foreign Investment advisory service, 1997, p. 14).

While developing and emerging markets have received their share of the world's FDI, the amount invested in advanced economies has also kept pace over the last decade. For example, from 1983 to 1988 the average annual inflow of FDI to the relatively wealthy fifteen-member European Union countries was \$27.4 billion, but between 1989 and 1991 the amount ballooned to \$89.3 billion (Gundlach & Nunnenkamp, 1998), and was almost \$107 billion in 1998. It should be noted that the United States is first and the United Kingdom third in the amount of FDI inflows (emerging market China is second). The example of the advanced economy of Austria shows that even

though it is a major exporter of capital to eastern Europe, in the mid-1990s it became a net recipient of FDI with inflows increasing about fivefold between the mid-1980s and mid-1990s (Stevens, 1998).

Hence, FDI need not always flow into emerging markets, and investments by multinational firms could construct a financial web that works to reduce relative inflows to emerging market countries, thereby potentially weakening these economies. Emerging markets must position themselves to receive FDI funds, and then use these funds to obtain maximum and sustainable benefits. Positioning for beneficial impact of FDI is heavily dependent on governmental policies. The example of the Indian software industry is instructive because it demonstrates that even in a country that, until the 1990s was not a large recipient of FDI, investments in higher education and an infrastructure for high tech industries, when combined with modest FDI, produce positive dividends. Software technology is an important and growing Indian export, and in 1998 these companies (foreign and domestic) employed about 200,000 software engineers (Taylor, 1998).

The principal agents of FDI are the more than 45,000 multinational firms. The foreign investments of these firms have come to represent an important source of job growth in emerging market countries. It should be noted that in high tech industries in Singapore, Taiwan, Malaysia, and India the jobs created for workers with advanced skill levels are high-paying jobs. The trend is for FDI to increasingly flow into the service area, especially technology and financial services. In 1985, 41 percent of U.S. investment abroad was in the service sector, but in 1994 this had risen to 52 percent (Reinicke, 1998, p. 21).

Firms invest in countries other than their own in order to maximize efficiency and increase profits, but today's FDI is not as dependent on the host country having natural resources, a large domestic market, or lower wages as it was in the past (Meyer, 1998). It would be incorrect to deny that low wages are not a factor in the motivating German, Italian, American, Korean, and Japanese carmakers to invest in eastern Europe, Mexico, Brazil, Malaysia or Thailand. Yet it should be noted that the emerging markets in eastern Europe, for example, had something else investors needed—a well educated workforce. The communist legacy in eastern Europe has been correctly blamed for many things, but the education of the masses was one of its positive accomplishments (Phillips & Kaser, 1992). FDI will not be a “kick-starter to economic development” unless countries prepare the way for effective utilization of FDI inflows (Meyer, 1998). A key ingredient is the education of its workforce.

“There is no reason to expect that the poorer country will enjoy competitive advantage in hosting FDI. . . . Efficiency-seeking FDI will, therefore, tend to be located in those countries which are able to supply a skilled and trained workforce and a good technology and physical infrastructure” (Gay, 1998, p. 24). This presents a formidable challenge to emerging markets since

there are ample powerful barriers working to limit their acquisition of the latest technology (Contractor, 1998). Yet providing effective infrastructures and human capabilities compatible with modern technology is money well spent; not just to attract FDI, but to enhance internal growth opportunities for the economy and its people. Some see this as excessively wishful thinking (Suda, 1994), while others view it as realistic and part of the puzzle for improving and expanding the technological base for emerging market countries (Gundlach & Nunnenkamp, 1998).

A dizzying \$1.5 trillion flies around the globe each day, and multinationals are increasing their already substantial level of FDIs. This has important consequences for emerging markets. Emerging market countries sometimes have valuable natural resources and relatively large domestic markets which invite FDI, but increasingly, multinationals are selecting emerging markets which provide for enhanced efficiencies and profits in the areas of technology and finance. In addition to FDI, emerging market countries may also seek international lending in the forms of bonds, and have recently become more open to foreign equity investments (Choi & Doukas, 1998). While FDI is a positive factor for emerging market countries, portfolio investments by themselves do not provide a secure base for sustained growth.

One of the more dramatic examples of the negative consequences of international financial portfolio inflows was Russia in the summer of 1998. After 1992 Russia had privatized much of its industrial base, but had not restructured its industrial firms or farms in order to achieve increased efficiency and production. Without profits from unstructured firms or farms, but with lower global oil prices and considerable tax evasion, the government found itself acutely short of tax revenues. The ill-conceived solution was a short-term bandage—to borrow from domestic and foreign banks as well as the International Monetary Fund. The disastrous results were compounded by a lack of political and economic transparency. In August 1998 Russia devalued its currency and defaulted on its loans, portfolio investments fled the country, and additional foreign capital is going to be difficult to secure until the Russian economy has been restructured and recovery is at least in sight.

It is difficult to think of a country that is not affected by FDI, international trade, the flow of private portfolio money, or the largesse (with conditions attached) of a variety of public international lenders. Nonetheless, the blame for the economic failures of any one country usually does not reside only with external factors, and the root of the problem often lies within the domestic economies. Hence, the cures for Russia or any emerging market economy must be found at home, not abroad. Global financial flows have domestic impact, yet “it mainly depends on domestic economic policies whether DCs can successfully grasp the chances for catching up involved in globalization” (Gundlach & Nunnenkamp, 1998, p. 154).

The impact of a positive international atmosphere is helpful, but it is not a cure (Soros, 1998). The IMF, World Bank, Inter-American Development Bank, the Asian Development Bank, and the EBRD are willing helpers, but improvements must start from within. The political and economic systems of emerging market countries must be open, and its people trained and able to participate in a changing and expanding global economy.

### **POLITICAL IMPACT OF GLOBALIZATION: REGIONALISM AND NATIONALISM**

The undeniable expansion of globalization has reduced the economic powers of the individual state in a variety of ways. The introduction of the Eurodollar, or euro, in 1999 is the most dramatic example of reduced control over a national currency, but in the 21st century most countries will have less control of their own economic destiny. The risks are great, but so are the opportunities. Resistance to globalization is often proclaimed by those shouting “our country first.” Their fears are misguided in that the economic and political powers of individual states are going to remain paramount for the foreseeable future (Reinicke, 1998). However, more states are entering into regional alliances, at first economic and perhaps later political. The European Union is a driving force for the economic and political changes in Poland and the Czech Republic. Regionalism in Latin America is also important in that NAFTA and Mercosur are likely to expand.

Yet regionalism is neither unanimous nor all-powerful, and, equally important, it could result in divisions that may not be appreciated by those who place a high priority on the need for global problems to be solved by global institutions. The development of so-called regional fortresses will promote the transnational movement of labor, capital, and goods and services *within* a specific bloc of countries, but they could also be a counter force to the spirit of global problemsolving (Falk, 1994), or even free world trade, and this would be a negative development.

In this chapter I take the position that regionalism will continue to contribute to the integration of global economies, and not produce walled fortresses. Computer technology and the profit motives of multinational firms are among the compelling reasons for economic activity to expand on a global, not just regional, scale. However, the political impact of regionalism is more difficult to predict.

The causal sources of increased regionalism are usually attached to both the reduction of the powers of individual states and the expansion of economic globalization. Some extend this reasoning and posit that increased regionalism and weakened individual states have contributed to the raise of the collective violence by ethnic-national minorities in the 1980s and 1990s (Hettne, 1994). The connection is that regional identities have weakened the

identities and political ties of minorities to a state that contains two or more nationalities. Often these nationalities living in the same state have had problems in the past and do not share a trusting relationship. A weakened identification with the state, or a weakened state itself, creates a situation in which minorities are now more likely to engage in conflict. Examples might include Basques in Spain, Kurds in Turkey, Chaippas Indians in Mexico, Chechyns in Russia, or Muslims in China and India.

The reasoning that regionalism is a major factor in the rise of nationalistic violence contains a great many misconceptions about national identities and collective violence. Conflicts between people who speak different languages and pray to a different gods are not new, and predate regionalism. The problem is how to explain the expansion of conflicts during the last several decades, and to realize that nationalistic violence has a very salient impact on all countries, including emerging markets. Simply put, one of the greatest dangers facing emerging markets is nationalistic violence. The fact that the Czech Republic and Slovakia separated peacefully in 1993 is in itself a success story, while much of Turkey's economic and political problems stem from its 15-year violent confrontation with its Kurdish citizens.

Nationalism is an important part of the landscape within which emerging markets must function. Nationalistic violence often has a ruinous impact on developing or emerging markets. The relationship between national identity, regionalism, and globalization is complex and lacks satisfactory theoretical guides. Both nationalistic violence and regionalism have expanded significantly in the last twenty years, yet making a causal connection between the two is dangerous. They are both more numerous and powerful than before, but they are not necessarily responsible for each other's saliency. The wave of new countries established in the wake of post-World War II decolonization movements was bound to place many minorities under the rule of less than sympathetic majorities. The violence between Hindus and Muslims that created the state of Pakistan in 1947 was a harbinger of things to come. Once the drives for independence were over, the difficult task of transferring energies from the struggle against the colonial power to the governing of minorities who have traditionally distrusted the majority began. Unfortunately, an increase in nationalistic violence was predictable.

Yet political explanations for the increase of nationalistic violence have their limitations. National identities are powerful, surprisingly enduring, and sometimes defy logic. The principal source of these separate identities are cultural, and cultural divides are not easily closed, regardless of the readily discernible negative economic or political consequences. The Muslims, Tibetans, and Han Chinese in China, and the myriad peoples living in India all have deeply held values that foster separation and mistrust. Violence between these groups can erupt over issues that defy a rational explanation, but whose source is separation and mistrust.

Sudden and dramatic changes often have unintended but important consequences for two different nationalities living in the same state, or perhaps in neighboring states. Once the status quo has been upset, relations that were before relatively tolerant, or at least passive, now become tense and potentially conflictual. The creation of new states in the aftermath of decolonization, the implosion of a colonial power like the Soviet Union, or the expansion of globalization and regionalism, all upset the already precariously balanced relations between different nationalities.

Nationalistically inspired violence is an important variable that many emerging markets must confront, and the potential negative consequences of these conflicts cannot be ignored. The disruptions in India, China, and Russia from violent clashes with Muslim minorities are real and have serious ramifications. States that are open politically and culturally have a greater probability of containing nationalistic violence and of working together toward acceptable solutions. Countries that attempt to solve the problem with policies aimed at controlling their minorities are likely to fail, and their failures will have significant negative economic and political implications.

Nationalistic violence is sometimes incorrectly seen as a result of the “rule of the market” (Hettne, 1994). Deprivations for some nationalities can be the result of market forces, and relative deprivations and violence can be linked. Yet this connection is neither axiomatic nor direct, and, contrary to Marxist philosophy, the violence circling the globe today is not class warfare between relatively deprived and advantaged peoples. Instead it is between the rich and poor of the same nationality who perceive themselves as culturally distinct from the rich and poor of another nationality.

While theories of collective violence based on class warfare are misleading, wide rich-poor divides are not in the best interests of any social class or country. The intervention of state policies is needed to mitigate against the extreme swings of market forces that create acute disadvantages for a class, nationality, or country. Advanced, emerging, and developing countries all need to grow their economies by rewarding labor, risk taking, and innovation, but opportunities and effective safety nets for the disadvantaged are also required.

However, safety nets will not be sufficient if minorities perceive themselves as outsiders. Policies aimed at eliminating the minority’s sense of mistrust and exclusion are needed, and the educational system can assist in providing an atmosphere of inclusion and tolerance. This should take the form of making quality education available and affordable to all, and providing a balanced and sensitive curriculum in the languages of the minority. By itself, economic growth is not a long-term solution since it is never constant, and in the inevitable downturns, relatively deprived minorities (or even relatively advantaged minorities like the Chinese in Indonesia or Malaysia), can be a source—or target—of collective violence. A more enduring safeguard is

openness in political and cultural terms, with the country's educational system playing a leading role.

## EDUCATION IN EMERGING MARKETS

“Poor countries—and poor people—differ from rich ones not only because they have less capital but because they have less knowledge” (World Bank, 1999, p. 1). This summarizes the motivating theses of the present volume. Knowledge comprises much more than higher education, but higher education is certainly an important component of a knowledge-based society that along with compatibility with the global economy is a mandatory goal for emerging markets. The chapters that follow make explicit connections between higher education and economic and political transitions, whereas the purpose of this chapter was to define emerging markets and describe the atmosphere within which their educational systems must function in order to achieve sustainable growth. Nonetheless, the important causal connection between education and growth needs to be underscored.

As with economic and political factors, educational systems in emerging markets vary widely in their effectiveness. The high quality of education provided by Taiwan for the last half century is justifiably viewed as a key to its economic success. The same could be said for Singapore, Hong Kong, and South Korea (World Bank, 1999). The countries of eastern Europe and the former Soviet Union face a different set of problems since their education was excellent in delivering information, but weak in intellectual openness, innovation and problemsolving skills (World Bank, 1996). Other emerging markets must overcome the potent handicap of poor education systems that have failed to deliver skills and values conducive to economic growth to more than a small elite group.

Some emerging market countries also faced a bifurcated educational problem—how to reduce illiteracy and at the same provide advanced technical skills and innovation. Public expenditures on education are needed at both ends of the spectrum, that is, mass education and higher education (see the chapter on Brazil). Education can provide emerging market countries with fertile ground for economic growth, as well as political and cultural openness. However, a country's educational system could also deliver skills, *without* promoting political and cultural openness. In keeping with the theme of this chapter, sustainable economic growth in emerging market countries must be accompanied by open political systems and cultural attitudes. This is only possible when the educational systems mix the obtainment of skills with a sense of citizen participation, inquiry, and tolerance.

Subsequent chapters will demonstrate that many emerging market countries in eastern Europe, Asia, and Latin America have made progress in

improving their educational systems. These countries have recognized that improvements in education are necessary for economic growth and for improving the living standards of their people. China has placed a high priority on the acquisition of a superior technical education by sending its students abroad and establishing many new universities at home. Brazil recognizes the need for improved workforce skills to attract FDI (Schemo, 1998) and the well-educated workforces of eastern Europe and Taiwan are positive aspects for the sustained growth of these economies.

The problems and challenges confronting education in emerging market countries are multifaceted. Education includes both precollegiate and collegiate education, and the obtainment of its goals often requires public and private resources which are often difficult to secure. The conflict is that financial resources are always limited, but the educational opportunities for people in an open society cannot be limited. As emerging markets continue to adjust and reform, education must be an integral part of that process. Our definition of emerging market stresses an open, or opening, society, and that means educational systems must have agendas that promote democracy and openness for all sectors of the population. In some cases certain segments of society were or are excluded as a byproduct of traditional values, for example, a low priority on education for women in some Muslim or Hindu societies. Other countries may not always view the education of minorities as a high priority; Blacks in pre-apartheid South Africa or Roma in eastern Europe. Policies of exclusion have a negative impact on economic growth and democracy, and all too frequently serve to divide a country along nationalistic lines with potentially serious adverse consequences.

However, even when the intent to provide skills, openness, and tolerance on a universal scale is present, the resources may be lacking. Through the United Nations Educational, Scientific, and Cultural Organization, the World Bank, and so on, together with other nonprofit, infrastructure-building organizations, advanced countries must continue their support of educational improvements in emerging and developing countries. Emerging market countries are well aware of the importance of a skilled workforce, but in a global economic environment they are also under numerous other pressures, for example, to defend their currency and maintain stable exchange rates in order to provide positive economic conditions for growth. This can lead to higher interest rates, which makes borrowing for public education more expensive. Open societies generally have open borders, and this may result in increased migration from developing countries, which magnifies the strains on the emerging market's educational system. Lower commodity prices (copper, oil, coffee) caused by global market conditions lower export and tax revenues, once again creating problems for funding education. Conversely, higher or expanded exports and economic growth mean additional revenues available

for education. Globalization has created both opportunities and obstacles to funding educational improvements, and the need to place a high priority on education remains as important as ever. An emerging market requires a skilled workforce and a population willing to take risks, innovate, and observe that their skills and hard work will be rewarded with an improved quality of life.

Education innovation needs to be part of the process of continual adjustments faced by all emerging markets, but it cannot be implemented separate from the values of the society learned and revered during the socialization process. While education has an obligation to provide universally applicable skills and attitudes, it cannot hope to succeed if these skills and attitudes are placed in confrontation with the existing societal values. Instead, the emphasis should be on how improvements in education complement existing values, *and* are useful for economic growth and political openness. I favor open markets, globalization, democracy, increased education, and a general sense of openness in all societies, but I do not believe these developments must necessarily destroy those activities and values that are unique to a particular culture. This is seen as unrealistic by some, but it should be noted that while economic growth and globalization require a certain degree of openness, they do *not* require conformity.

## **INSTEAD OF A CONCLUSION**

Much has been written on why emerging markets are important (Garten, 1997). Their economic impact on the world's economy is expanding, and their size and/or relative wealth cannot be ignored by advanced market countries. They are often key elements in a stable world order, global economic growth, and the relative absence of major internal or transnational confrontations. The expanding influence of emerging markets has been felt in the areas of world trade, investments, and geopolitics. These markets are not marginal players, and they are ignored at everyone's peril.

This definition of emerging markets (those with economic, political, cultural, and social openness) is not accepted by all the authors in this book. Also the generally positive assessment of the impact of the global economy on emerging markets is not meant to provide a compromise position. Some readers will question the necessity of including a section on nationalism in a book focused on economics and education. In sum, there was an attempt to provide a meaningful and broad backdrop to the studies to follow, but not an attempt to arrive at a consensus. Instead it is hoped that these positions will be a source of further discussions and musings by the readers. The one commonly held view is that emerging markets and globalization are too important to live in relative scholarly obscurity.

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# The Impact of Higher Education on Emerging Markets

JAMES E. MAUCH

## CONCEPTUAL FRAMEWORK

In this chapter, I will examine the impact of higher education on emerging markets in an international and historical context by examining the role of higher education in relation to economic and social development and to the foundation of a strong emerging market. The principal questions posed are, What is the relationship between education and economic development? What is the relationship between higher education and development? How does development set the stage for emerging markets? I take the position that a certain amount of development must occur before a nation can be labeled an “emerging market” and that although development has many aspects, higher education plays a major role. This role has been perceived and described by many leaders and scholars from both the less developed and the developed nations.

Emerging market countries are those with certain characteristics that lead investors to perceive growing economic strength in the country and the possibility of a high return on investment. Such characteristics include a growing educational system, a stable workforce of educated and educable workers, low employment costs, rising gross national product (GNP) per capita, growing industrialization, growing sophistication of goods and services including industrialized products, a strengthening infrastructure, a relatively open economy with access to capital markets, a well-regulated and viable banking system, a relatively stable political climate that supports entrepreneurs, market-based economic growth, and a relatively open society.

In the literature, higher education often has been linked to the economic and social development of the state. Higher education prepares citizens for the future. Higher education helps to develop students with the technical capacity to support economic growth. It is expected to provide professionals

and leaders with high-level technical skills, in the hope that economic development will follow. Higher education is also expected to contribute to capacity building by training and educating the future leaders of business, government, and the professions. Universities in particular are expected to produce new knowledge by supporting research, which will help the economy and society to grow and develop in positive ways, and to disseminate the knowledge to others so it can be widely useful.

Higher education is also supposed to help countries use the knowledge generated by others and adapt it to local conditions. In terms of political stability, higher education is expected to contribute to national integration and the breaking down of ethnic discrimination and hatred, and to help encourage a unifying national identity. As Psacharopoulos (1982) pointed out, universities produce instruction, research, socialization, certification, and many other social functions, and benefits that may be either private or social, or both at the same time. The benefits may have indirect effects, somewhat ancillary to the main purposes. Certainly a substantial part of the benefits may be non-economic.

The term *higher education* as used here encompasses postsecondary education offered in formal educational institutions supported by the state or authorized and permitted to function by the state. Such institutions include universities, colleges, community colleges, technical institutes, and institutions of professional training. Such institutions may be public or private, and most are authorized to grant degrees even though they may also offer short-term courses of study recognized by a diploma or certificate rather than a degree. The term *university* will be used when it seems specifically appropriate.

*Globalization* is the process of economic, political and cultural integration into the larger world, a process not limited by political borders, geographic boundaries, time, or distance. Nation-states and economies are increasingly integrated into international organizations and the global economy. Goods, services, communications, capital, and persons move more easily and rapidly than before. Competition is now much more international, and corporate enterprises more internationally integrated than before. It is a process that, in the long term, appears difficult to avoid. Temporary walls, barriers, and other attempts to isolate the state or its economy seem eventually to be doomed to failure.

*Development* is defined here as the process of improving the social, economic, and political viability of the State and its citizens, as well as a general improvement in the quality of life. Clearly development has many aspects, including, culture, education, health, military, technology, and science. The perception of whether, and to what extent, there is in fact improvement is always an individual and group judgment call, and usually the more important and powerful the individual or group, the greater the weight of their judg-

ment. In any case, “development” as used here, implies improvement, not simply change (Horowitz, 1966; World Bank, 1997).

The term *role*, as used here, refers to the part higher education plays in society. The function, place, purpose and aims—and how these relate to other segments of society—are all a part of role definition. As in the case of individuals, how higher education fulfills its role is guided by role perceptions within the institution, as well as perceptions and roles ascribed by external political and economic sectors. Thus, with this concept of role, higher education clearly has an effect on development, whether appropriately or not, consciously or not, or even when it tries to ignore such issues.

### **What Is the Relationship between Education and Economic Development?**

The issues concerning education and development have been examined for some time. First, one must begin by asking if there is, in fact, a relationship between education and economic development. Some of the early writings did posit such a relationship, including the idea that one could cause the other. The assertion that higher educational attainment is associated with higher personal earnings has been generally accepted, but the impact on a country’s economic development was hard to measure, and not always clear. One question that concerned economists was, did higher earnings imply greater productivity, and thus economic development?

Economists such as Becker (1960, 1964), Denison (1985), and Schultz (1960, 1961, 1963), in what became known as the human capital approach, argued that individuals, by gaining useful knowledge, skills, and attitudes, became more productive economically, and thus contributed to economic growth and development. Thus, the public or private investment in educating such persons was an investment in human capital, not simply consumption, and such an investment, if wisely and appropriately made, would pay off handsomely in the future. At least this was the expectation of the individuals and the society that made the investment.

If this investment in human capital resulted in growth and development, could it be measured? Schultz (1960, 1961, 1962, 1963) and others found that the economic growth in the United States in the period they studied (the first part of the 20th century), could not be fully explained by physical capital invested and hours worked. They found that qualitative changes in the labor force had taken place, and workers were more productive because of the increased acquisition of knowledge and skills. Human capital had increased. Also, greater skill and knowledge, as well as more positive attitudes toward innovation, allowed workers to exploit the new, more productive, machinery and processes as they became available (Black & Lynch, 1996; Denison, 1985; Harbison, 1973; Schultz, 1960, 1961).

In addition, economists looked at rates of return on the educational investments, and how these rates compared with alternative investments. They did this by trying to figure the rates of return, both internal and external, from the investments, and by comparing rates for educational expenditures with the rates from other investments, for example, new machinery, and new implements, new infrastructure, and new buildings (Becker, 1960, 1964; Fukuchi, 1996; Schultz, 1960, 1961, 1963).

Psacharopoulos (1972) also sought to examine rates of return comparatively across as many countries as had useable data. The study was based on the position that the acquisition of skills and education tends to increase workers' productivity and earnings. Although increases of productivity and earnings are not the only benefit—or always the major benefit—of an education, it is possible to narrow economic research to the question of whether an investment in education is better than alternative investment possibilities for the individual and the state. In examining the data on some thirty countries, from very poor to very rich, Psacharopoulos came to several conclusions. First, most of the rates of return for educational investment are higher than conventional returns on alternative investments. In other words, investing in people provides a higher rate of return than investing in machines. Second, less developed countries obtain higher rates of return on investment in education than the rich countries.

Interestingly, in his study the rates of return seemed to decline with the levels of education, although the decline is much sharper between primary and secondary education than it is between secondary and higher. Because of this decline, Psacharopoulos (1986) took the view that expenditures for higher and secondary education in underdeveloped countries might well be held constant, while the share of the public education budget devoted to primary education be allowed to rise, especially where the enrollment ratio at the primary level is well below 100 percent.

Nevertheless, in summarizing his findings, Psacharopoulos (1982) maintained that the rates of return from higher education in developing countries are higher than the rates of return from investment in physical capital; in other words, returns from investment in higher education are higher than the returns from investment in machines.

Nothing, of course, is simple in education or economics. Methodological questions arose as a result of more detailed examination of the research. How much of the human capital is derived from formal schooling, and how much from other factors? If human capital derives from schooling, what level of schools? What kind of schools? What does the yield curve look like? In addition to formal or informal education, what other factors seem to influence the growth of human capital, such as social, political, or cultural factors?

In terms of methodology, it soon became apparent to researchers that even if one accepts the correlation between amount of formal schooling and income, the contribution of the school may be minimized if one can account

for other factors that influence personal income, such as family background, family wealth, intelligence, need for achievement, and political status.

Hansen and Weisbrod (1969) raised the question early on of whether the provision of higher education in much of the world (especially the developing world) contributed to societal equity or inequity, and who accrued most of the benefits of increased investment in education. Their point was that the average taxpayer heavily subsidized the higher education offered at little or no cost to the children of the elites, who often could well afford to pay for their own higher education, at the expense of providing universal primary education to the masses. This argument has been particularly telling in less developed countries, where universal primary education may be a distant goal, and access to free higher education is mostly limited to those who have had excellent (often private and expensive) preparation in primary and secondary schools, as for example, in Brazil.

The World Bank (1994), which has been critical of the high cost of higher education in developing countries, finds that higher education is correlated with economic development. The rate of enrollment estimated by the World Bank for the economically advanced countries in the Organization for Economic Cooperation and Development is 51 percent, that for middle-income countries is 21 percent, and that for low-income countries is 6 percent. Further, the World Bank finds that “social rates of return of 10 percent or more in many developing countries also indicate that investments in higher education contribute to increases in labor productivity and to higher long-term economic growth . . .” This hope has caused developing countries to invest heavily in higher education.

### **What Is the Relationship between Higher Education and Development?**

Higher education prepares people for the future. It does this in many ways, economically, socially, and culturally. In much of the world, there is an expectation that a university graduate will contribute to social and economic development, and that higher education will provide technically and professionally trained persons, in the hope that economic development will follow. This hope has caused countries to invest heavily in higher education, in some cases from very limited resources (Kin Bing Wu, 1992; Liu, 1993; World Bank, 1997).

Along with economic development, there are often other developments. As people gain knowledge, they become more self-directed, may be more likely to think for themselves, and are better able to understand and evaluate questions of social justice and equity. Higher education not only empowers individuals economically, but also politically, culturally, and socially. They become more sophisticated, read more widely, and apply their considerable skills to other areas.

As Psacharopoulos (1982) pointed out, universities produce instruction, research, socialization, certification, and many other social functions, as well

as benefits that may be private or social, or both at the same time. The benefits may have indirect effects, somewhat ancillary to the main purposes. Certainly a substantial part of the benefits may be noneconomic.

Bowen studied these benefits in preparing his book, *Investment in Learning*. After reviewing a vast literature on the effects of higher education, he found that the nonmonetary benefits far outweigh the monetary benefits, substantial though they may be: "individual and social decisions about the future of higher education should be made primarily on the basis of nonmonetary considerations . . ." (1980).

Sometimes the collapse of universities as instruments of economic and social change make clear role expectations. For example, in a recent article on Venezuelan universities, Albornoz (1996) wrote that their role is to produce human resources, to create and disseminate knowledge, to be a critical force in the political arena, and to be the institutional leader in the intellectual environment. Sadly, Albornoz, in describing his concept of the role of the university, finds that the university in Venezuela is no longer able to fulfill the roles he ascribes to it.

Of course, it may be that a just and lasting society not only invests in its people, but does so in an open system that strives to provide opportunities to all, to give freedom to prosper and grow, and to help to those who for some reason have not prospered. It may be that higher education is thus both a dependent and independent variable, prospering under conditions of economic support, academic freedom, a measure of institutional autonomy, and enlightened political leadership; providing the stimulus for strong economic growth, the development of an enlightened and education population, an open social structure, and a stable democratic political environment. If this is true, we need to recognize the importance of the social, cultural, and political underpinnings of sustained economic development in emerging markets.

### **What Is the Relationship between Higher Education and Emerging Market Countries?**

The relationship between higher education and the development of an emerging market economy is a question of great importance. If the provision of education can lift people and societies up by giving them opportunities they would otherwise not have, enable them to improve their lives and those of their families economically, create a relatively open society, provide greater social equity, strengthen infrastructures, expand the production of goods and services, strengthen a democratic and stable political system, and encourage citizen self-direction and desire for learning, then it would be worth the public expenditures devoted to higher education. In fact, higher education should be seen as a capital cost, an investment in human beings, which would yield a high return over many years (Mushkin, 1962; Vaizey, 1962).

In the literature, higher education has been linked with the economic and social development of the state. Higher education prepares citizens for the future. It develops students with the technical capacity to support economic growth, and it is expected to provide professionals and leaders with high-level technical skills, in the hope that economic development will follow. Higher education is expected to engage in capacity building, and to train and educate the future leaders of business, government, and the professions. These leaders are supposed to produce new knowledge by doing research which will help the economy and society to grow and develop in positive ways, and to disseminate the knowledge to others so it can be widely useful. Higher education is also supposed to help countries use the knowledge generated by others and to adapt it to local conditions. In terms of political stability, higher education can contribute to national integration and the breaking down of ethnic discrimination and hatred, and help to encourage a unifying national identity. It is the thesis of this chapter that without the level of development provided, in part, by higher education, the development of an emerging market country is unlikely to take place.

## **THE UNIVERSITY IN HISTORICAL PERSPECTIVE**

The first modern universities appeared as European institutions, as a part of the early Renaissance, first in Solerno and Bologna in the 11th century, then in Paris and Oxford in the 12th, and then in Prague, Naples, and Liege in the 13th century. The position that universities are the children of the early Middle Ages in western Europe is not intended to assert that there was no higher learning earlier or outside of western Europe or that universities sprang up without antecedents. Such assertions would be contrary to the evidence. In fact, it is clear that many earlier civilizations had ways of educating, at very high levels, leaders and scholars who would be required to lead in such areas as religion, medicine, law, and church and civil administration. Often such positions required long periods of study, examination, and apprenticeship. Egypt, China, Persia, Babylon, and India are but some relevant examples. These examples of higher learning differed, however, from modern universities in a number of respects, some of which are related to the role of universities in developing emerging economies (Cowley & Williams, 1991; Rashdall, 1936).

Universities, as they have come to be defined and understood in the West, have a permanence about them. They are generally established in perpetuity by higher civil or religious authority, and given permanent status in civil or canon law. They retain a form and substance in such matters as curriculum, faculty, permanent physical home or campus, courses of study, diplomas, certificates, and degrees; they strive to maintain an atmosphere and level of intellectual ferment and questioning that is hardly seen in other institutions. They

strive toward learning, teaching, research, and dissemination of knowledge; they exist to discover knowledge; and, by their nature, their outlook is universal in its probing and searching, rather than parochial and inward looking. And finally, universities encompass many scholarly and professional disciplines. (Haskins, 1957).

Modern universities, and their modern sister institutions, eventually comprising what we now refer to as higher education, developed and grew over nine centuries to become what they are today. As universities were increasingly put into service to the state, and as access to universities became more widespread, their roles began to change so that they were viewed and supported not only for their search for knowledge and truth, but also for the practical application of the results of that search in service to the state and to its social and economic development.

The development of modern higher education has been associated with a number of unresolved issues, issues and questions that play out differently in each country and in each era. How autonomous shall higher education be, as contrasted to the guidance of the state toward development and emerging economic markets? Who should pay for the cost of higher education? How should students be selected for study? To what extent shall higher education be concerned with values, such as the state's dominant political philosophy, rather than focused on knowledge and skill development? To what extent should the university apply its resources to pure science and knowledge generation, as opposed to the application of this knowledge? How much of the resources should be devoted to the arts and humanities as opposed to technical and science education?

Universities were guided not only by scholars such as John Henry Newman and Alexander von Humboldt, but also by the development needs of governments that paid for the universities. They began to demand that universities, and more recently other institutions of higher education as well, contribute to the social and economic development of the nation (Miller & Edwards, 1996; Singh, 1996).

Thus, universities, creatures of the European Renaissance, were carried throughout the world by the colonial powers, and deposited, sometimes grudgingly, in Africa, the Americas, the Pacific Region, and much of Asia. These are the same areas that became known, in the second half of the 20th century as the Third World, or less developed countries .

Universities were critical to the development of countries that were never *de jure* colonies, for example, Egypt, Thailand, Turkey, and Japan; they viewed themselves as economically underdeveloped, seriously behind the "great powers" in economic and military technology, and needing desperately to catch up. One of the methods used in every case to catch up was to establish a modern European-style university. Those countries that did not have a colonial model to use sought out models by sending and receiving mis-

sions of scholars, students, and administrators, initially from Germany, France, and the United Kingdom to help build a system of higher education. Later, Japan became a model for Asian countries, but even that model was European-modern-university in origin. By sending thousands of students overseas to developed, modern states, these developing and emerging countries also implicitly imported the concepts of the modern university, internalized them, and built their own universities on a European model. Thus, from the earliest times, the less developed countries saw universities as the road to economic and social empowerment (Singh, 1996).

The role of higher education in development is often treated in the literature as if it were a concept that belonged to the 20th century, as primarily an issue in the Third World, and somehow unfolds differently in the modern, developed states. That is an interesting position to examine. However, the role of higher education in development may not have changed a great deal if one examines its history.

The United States may provide an appropriate illustration of the point, since it has a highly developed economy. It is difficult to imagine, but the United States at one time did not have universities. The higher education that did exist was brought to these rude and undeveloped shores by a band of exiles, colonists from a technologically advanced 17th-century empire. Building a college, as Rudolph (1962) points out, was one of the first things these colonists did: they established Harvard College (now Harvard University) in 1636.

As rudimentary as Harvard College was, it began serving important national development needs long before there was a name for such a concept, and long before the United States existed as an independent country. One early purpose was to train missionaries to convert the Indians, clearly a move (whether intended or not) toward national integration.

In the early years Harvard served in another way to foster national integration by providing an alternative to sending the best and brightest young men to England for their college education, Harvard made it possible for these young men to gain intellectual skills and knowledge in an American rather than British cultural setting, with all the values that are passed on in such a setting. Those skills and values, learned in the rudimentary colleges of colonial America, were destined to become important, and even at times critical, for the building of an independent country on the foundation of a colony (Morison, 1935; Rudolph, 1962).

An example of the importance of professionals to development is the work of the clergy, who held very important leadership positions in early American society, where the earliest governance structure was a theocracy. As clergy, and as learned men of God, they were important molders of public opinion. Through their sermons, writings, and leadership positions, they were listened to, respected, and followed. Their views on the need to develop the new lands were powerful instruments in the molding of commonly held opinions.

Clergy were important in the development and spread of literacy through their positions as ministers and teachers. To be able to read and understand the Scriptures was an important step toward eternal salvation, and thus clergy were in a very powerful position of leading, teaching, and guiding the people. Literacy is also a key to the world of ideas and thought beyond a religious tradition. Without literacy, significant political, social, and economic development is hard to imagine.

Thus, within the context of 17th-century American society, three important factors contributed to development: Christianizing and pacifying the natives, developing an indigenous and trained professional labor force, and spreading the teaching that led to literacy. These in turn helped to build the base for a developing and emerging industrialized economy.

In recent decades, partly in response to the increasing competitiveness of the emerging markets, and to loss of market share to the new and emerging economies, advanced developed countries have restructured their higher education systems to make them more responsive to national needs. In the United States and Canada, community colleges and technical two-year colleges grew. German *Fachhochschulen* (technical higher education institutions) are considered world class. In the United Kingdom, Barnett & Bjarnason (1999) describe in detail the transformation of British higher education under Thatcher's and later conservative governments. All British higher education was brought under the central government. Through legislation, funding, and evaluation councils, the state became the dominant player, and higher education became subject to a common evaluation framework. Higher education was realigned to support a more vibrant, adaptive, and leaner structure to prepare for competition in the emerging global market (Salter & Tapper, 1994).

This background provides a historical frame of reference to view the role of higher education in contemporary emerging market countries. This role will be increasingly important as these countries strive for development, in the modern technological sense, for no other institution seems to be able to effectively replace higher education as long as it remains relevant to economic development. What might that role be if higher education is to continue to be relevant to development?

## **THE ROLE OF HIGHER EDUCATION IN THE DEVELOPMENT OF EMERGING MARKETS**

There are a number of categories one could use to classify how higher education contributes significantly to national development, so that the capacity is there for the nation to become an emerging market economy. The following categories seem to suggest themselves from the literature on higher education, development, and emerging markets.

## **National Economic Development and Political Independence**

Clearly, emerging market economies must have a degree of economic and political independence, and higher education has contributed powerfully to the achievement of independence. Perhaps the best evidence of the importance of higher education to independence may be seen in the efforts of colonial powers to avoid the provision of higher education in the colonies. The last thing the colonial powers wanted was a highly educated corps of indigenous leadership, or an emerging economy not under their control. Thus, it was no accident that many colonial powers saw no need to establish or to allow the establishment of colleges in the colony; some reluctantly changed in this policy very late in the colonial era, and in other cases, colonies won their freedom in the absence of any local provision of higher education. Where colleges were permitted, they were seen as useful because they produced a pliant and educated native class to meet the needs of the colonial administration. McCain (1980) explains that in Ghana, university education served the goals and purposes of the British, and the system of colonial administration led to the notion that occupational success is tied to the humanities and social sciences. This rarely included any high level scientific, professional, or technological education, leaving the colonial universities a classical curriculum used to prepare “native” bureaucrats, and to prepare for entrance to the higher universities in the mother country (Nhonoli, 1978). This tradition has continued to be a strong guiding force in universities from colonial times until today, and has, in some cases, stunted and perverted the growth of higher education, and its contribution to the emergence of new economies.

Higher education plays an important role in helping to address social and cultural issues, such as ethnic or racial integration and social mobility (Adams & Bjork, 1969; Coleman, 1965; Brembeck, 1962; United Nations Educational, Scientific, and Cultural Organization, 1993); and the process of becoming modern (Adams & Bjork, 1969; Coleman, 1965; Harbison, 1973; Organization for Economic Cooperation and Development, 1997). National integration is seen by many as a responsibility of governments, and higher education is expected to contribute to the goal of integration. For example, the United States, Nigeria, and Peru see higher education as providing the encouragement and reinforcement of national integration. Many countries have internal forces which tend to tear them apart: violent disagreements over religion, race, culture, ethnicity, language, tribe, or history.

Higher education can help to either reinforce or overcome ethnic, religious, or racial separation, isolation, and discrimination so common throughout the world. Working to overcome separation would assist the building of a state characterized not only by political boundaries, but also by the shared development contributions, and the aspirations of all its citizens. Some

universities do this with regional quotas, by attempting to assign students so as to mix ethnic groups (Nigeria), or by attempting to promote by law the inclusion of minorities or disadvantaged groups into higher education (Malaysia, United States). Selvaratnam (1988) shows, for example, that one of the purposes of the Malaysian government's New Economic Policy was explicitly designed to contribute significantly to promoting national unity. Elsewhere (India, China) regional institutions are encouraged or permitted to teach in a minority language. Such measures are designed to prevent possible disintegration of the state along ethnic, tribal, religious lines, by permitting access to higher education to minorities.

### **Conservation and Transmission of Cultural Heritage**

Higher education provides the element of conservation of the national culture(s) and identity through museums, libraries, scholarship, teaching, interpretation, and debate, all in an atmosphere of academic freedom and university autonomy. One of the most significant roles higher education plays is as a conservator, as well as custodian and developer of the cultural heritage of the state. Nhonoli (1978) says this is especially important where there is no shared common heritage; in this case the values, wisdom, and knowledge of the communities that make up the multiethnic state have to be transmitted from generation to generation by preparing youth for the future in a state whose citizens accept ethnic and cultural diversity.

This is done not only through libraries and museums, but also through the continuous teaching, researching, and interpreting that takes place in higher education. Governments recognize this, and it is most apparent when revolutionary governments want to erase the recent past because it conflicts with their new ideology. It seems to be no accident that once in power, revolutionary governments embark on a program against universities that either destroys them or suspends their activities (Hu, 1972). At other times, states found universities to be so essential to development that they were used to promote the interests of the state rather than be destroyed. Courses and curricula were changed, faculty intimidated, imprisoned, or driven into exile, and histories rewritten to be more consistent with the new revolutionary dogmas. The great efforts revolutionary governments with new ideologies go to, to control their universities and to set them on the new shining path, attest to their importance in preserving, conserving, revising, and even reinventing a cultural heritage and revised history.

### **Educating Human Talent and Skills**

Higher education is essential to creating an educated citizenry. In many cases, higher education prepares those who will teach the young, and pass on the knowledge and skills needed. In fact, teacher education may have a special place among the professions in economic development. Sobeih (1984), for

example, sees teacher education as the most important instrument of development because of its roles as a facilitator of learning, developer of a broad knowledge base, and source of new attitudes and values.

Every state needs a body of persons who not only have professional training and provide leadership and government service, but are also capable of higher intellectual development (Altbach, 1981, 1982). If higher education did not provide this, the state's industrial, financial, educational, medical, scientific, and governmental systems could not operate at a satisfactory level of sophistication or effectiveness.

The presence of a substantial body of knowledgeable and of educated persons in a state is important to economic and social growth, to the growth of literacy, and to the availability of skills, upon which an emerging market economy is increasingly dependent.

The role of higher education is to provide facilities and opportunities for the highest intellectual inquiry, to challenge students to develop their thinking, and to enable staff to do original research, as well as to promote intelligent discussion on issues of human concern (Nhonoli, 1978). Mosha (1986) sees that a university's role is the search for truth and advancement of knowledge. He points out that the "pursuit, promotion, and dissemination of knowledge are important so as to raise the level of intellectual development of the individual who is both the agent and object of development" (p. 68).

The role of the great universities is to develop the most important resource: educated intellectual talent. Commentators have observed, for example, that some of the most modern and rapidly growing emerging market economies, such as Taiwan, Korea, Singapore, are characterized by a lack of natural resources such as iron, coal, oil, and other minerals. In the absence of natural resources, perhaps these countries concentrated on intellectual resources. Others, such as Liberia, Guinea, and Sierra Leone gush with natural riches: diamonds, bauxite, gold, iron, rubber, and dense tropical forest. Yet in all three, the economy is characterized by poverty (French, 1995).

Hence, some of the poorest countries in the world are filled with natural resource wealth and an undereducated, poverty-stricken population. The talent is there but it has not been developed. Human capital is one of the most important variables, and the development of the intellectual ability, knowledge, values, and skills of the people who make up the country create this capital. Such development is the role of higher education, as well as of other societal institutions. The successful development of human talent may be viewed as the difference between underdeveloped and emerging economies.

### **Production and Dissemination of New Knowledge**

Knowledge is critical for developing emerging market economies (Bowman, 1962). Today's most technologically advanced economies are knowledge based. And as they generate new wealth from their innovations, they create

millions of knowledge-related jobs in many disciplines: knowledge engineers, knowledge managers, and knowledge coordinators. A higher level of education in the population means that more people can learn to use better technology. Education was surely a factor in the success of the four fastest growing East Asian economies as indicated in the chapters on China, Korea, and Taiwan.

Moreover it is now evident that education without openness to innovation and knowledge will not lead to economic development and emerging economies. The former USSR was an example of a country falling behind despite a very high level of education due to great restrictions on openness, direct foreign investments, foreign collaboration, and innovation (World Bank, 1999).

We might call this emerging economy the “knowledge society” or the “knowledge economy.” In this society higher education is not just a creator of knowledge, the trainer of young minds, but also a major agent of economic growth. Higher education has become a knowledge factory, a powerful engine of growth for emerging market economies. In such a society, ideas and the ability to manipulate them count for far more than the traditional factors of production. In such a society higher education appears to be an increasingly critical asset (“The Knowledge Factory,” 1997).

Kerr (1972) said that intellect, and the university as its most appropriate home, have become important instruments of national purpose. Knowledge is universal, and its creators generally prefer freedom. His words seem prophetic: “Knowledge has certainly never in history been so central to the conduct of an entire society . . . to serve as the focal point for national growth. And the university is at the center of the knowledge process” (p. 88).

## **Science and Technology**

Higher education investments are considered important for economic growth. They increase personal and aggregate productivity and income. They also produce significant collateral benefits not captured by such analysis, such as the long-term returns to basic research and to technological development and transfer.

As countries strive toward development there is often an attempt to move the higher education curriculum in the direction of science and technology, including agriculture and engineering. When the traditional universities do not move fast enough, there is often an attempt to create new institutions with such names as University of Science and Technology (Ghana), University of Minerals and Petroleum (Saudi Arabia), and the university institutes of technology (IUT) common throughout Latin America. It appears as if policymakers agree with Debeauvais (1981) in that economic development is mainly the

result of technological progress, which itself flows from progress in higher education.

Adams and Bjork (1969) stated that the dependence of developed societies on advanced technology is absolute. The larger number of people who must be able to manage and manipulate the technology apparatus tends to grow. Populations cannot be sustained without a large and constant stream of technically competent persons being trained in each generation.

McCain (1980) indicates that governments will continue to emphasize science and technology programs because of the need for graduates from secondary school to fill teaching positions in science, agriculture, mining, and other industrial needs, as well as in various research establishments. Habte and Heyneman (1983) observed that developing countries need a sufficient domestic scientific capacity in order to interpret and absorb foreign technology, and that any country without this capacity will suffer. People who are illiterate or who are scientifically ignorant, or ignorant of the wider world, remain underdeveloped and unable to contribute fully to future development.

Tokman (1996) stated: "The experience of recent decades is clearly showing that growth is increasingly knowledge intensive and that the more successful countries are those that have invested in educating and training their people. It is also becoming clear that the illiterate or those who do not have access to adequate education are becoming the new marginals. Investing in education and training, while always necessary, is then becoming a requirement for progress of nations and individuals in a globalized world" (p. 23).

### **Administrative Infrastructure and Professional Education: Teachers, Entrepreneurs, and Managers**

Higher education prepares people for the future. It does this in many ways, economically, socially, and culturally. In much of the world, there is an expectation that a graduate of higher education will contribute to social and economic development, and that higher education will provide technically and professionally trained persons, in the hope that economic development will follow. This hope has caused countries to invest heavily in higher education, and in some cases from very limited resources.

In all countries, the university is expected to provide professional training for future teachers, physicians, dentists, lawyers, architects, entrepreneurs, engineers, managers, scientists, and public administrators. Often this training can be provided by no other institution; in other cases, universities are the preferred venue for training, preferred even by professional organizations that have an important part of the training responsibility. The university brings a variety of relevant disciplines to such training, and includes not only

professional practice concerns, but also research, scholarship, service, and ethical concerns.

Higher education is also expected to be the principal provider of skilled professionals for the administrative infrastructure needed to operate the state and large private and state-related enterprises. Educating civil servants is a most important task because in many developing and emerging market countries the government is the largest employer of university educated persons, and the civil service has become the major supplier of technical and scientific knowledge and management. The civil service can be an important factor in development, and is one of the few professional bodies designed primarily to serve the public, and therefore is of paramount importance to the state and the emerging economy.

Mosha (1986) recognizes the role of higher education in developing the infrastructure. In speaking of African universities, he points out that they are expected to develop personnel to assume managerial, administrative, technological, and professional responsibilities in the newly emerging countries.

Higher education also provides a body of elites, political, social, military, cultural, artistic, literary, and so forth, important to the quality of life and to cultural, artistic, economic, and social growth. It also provides the body of national leadership that makes a national existence viable.

Thus, the role in the case of new states is to prepare a leadership cadre that can guide and lead emerging statehood, even though the cost is high. Speaking of Tanzania, Chancellor Julius K. Nyerere (Schutte, 1972) said, "Our nation has decided to divert development resources from other potential uses because we expect to benefit by doing so. We believe that through having our own higher education institutions in this country, we shall obtain the kind of high level manpower we need to build a socialist society, and we shall get the emphasis we need on investigating the particular problems which face us" (p. 75).

### **Transition from Youth to Adulthood**

The provision of a transition stage for the nation's youth is perhaps the state's most powerful tool for channeling young people into socially and economically productive activities. The role of higher education is to educate and socialize young people. It is a complex role, certainly involving more than knowledge acquisition. In some cases, this role provides a transition from youth to adulthood, in others an entrance to a vocation or profession, a suitable marriage partner, a chance for youth to find a positive identity. In other cases, higher education is the major public avenue for social mobility. Can one conceive of a viable society in which there are no institutions of higher education to make possible this transition? How would such a society look?

As an interesting and recent example, the new university in Somalia is clearly expected to fulfill these roles. When clan elders and academics

opened the first university in the self-declared “Republic of Somaliland,” they saw the need for a university. Their reasons for committing to so much from an economy with so little wealth are: “. . . We lack leadership cadre in government and private business . . . [and] . . . to prevent the brain drain, young otherwise leave and do not return . . .” (Useem, 1999, p. A46).

This new country has drawn expatriate academics who returned to help start the university. There are nation-building reasons, for example, the university will help Somaliland’s bid for independence. There are also social development reasons, such as providing higher educational opportunity for women—both Somali and Islamic traditions limit their ability to travel away from home. Also, Amoud University founders say their university will contribute to the security of Somaliland by keeping young people occupied, especially the restless young men; the new university provides a symbol and revival of hope in an almost hopeless situation (Useem, 1999).

## CONCLUSION

Court (1980) reminds us that the challenge of higher education is to convince governments and populations that their contribution to the development that supports emerging market economies lies in their ability to demonstrate that the process of development requires the kind of trained minds and thinking society that higher education is uniquely equipped to promote. Harbison’s description of this aspect of development is perhaps clearest: “The central thesis of this book is that human resources—not capital, nor income, nor material resources—constitute the ultimate basis for the wealth of nations. Capital and natural resources are passive factors of production; human beings are the active agents who accumulate capital, exploit natural resources, build social, economic, and political organizations, and carry forward national development. Clearly, a country which is unable to develop the skills and knowledge of its people and to utilize them effectively in the national economy will be unable to develop anything else” (1973, p. 3).

These valuable human resources, often taught in higher education, are the most important ingredients in achieving the level necessary to succeed as an emerging economic market. Without higher education it is difficult to imagine a nation reaching the conditions necessary for emerging markets.

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PART II

# Central Europe



# The Czech Republic

## A Country in Transition . . . Again

MATTHEW S. McMULLEN AND JIRI PRUCHA

The emerging market economies of central Europe, which include the Czech Republic, are very different from their counterparts around the world. Unlike many emerging markets, the Central European countries started their economic transition to an open market economy with a strong industrial base and a developed education system. As the Czech Republic makes its political and economic transition to democracy and capitalism and becomes more open in the process, it represents a country consistent with this volume's definition of an emerging market. This chapter will focus on higher education as an important tool that can help to determine the success or failure of the Czech Republic's transformation. The movement toward market principles can be observed in the Czech Republic's higher education policy, such as the decentralization from state control, more flexibility in seeking sources for funding its educational activities, and competition for research funds. As is the case with other formerly communist countries, it is critical that political, educational, and economic changes are tightly linked and coordinated.

In addition to the momentous post-1989 economic and political changes, in 1993 Czechoslovakia peacefully separated into the Czech and Slovak Republics. Their higher education systems and societies in general had to adapt to the initial political transition in 1989. The fast track economic transition began in 1991, and yet another transition occurred in 1993 at the split into two countries. We will use the name *Czechoslovakia* when describing and analyzing the country for historical events prior to 1993.

Because of its multiple transitions, the development process in the Czech Republic is still in the early stages. In this chapter, we examine higher education's relationship to the economy and government before and after the fall of communism. To delineate higher education's role in the development process, we review Czechoslovakia's economic and political evolution since World War II, as well as the unique characteristics of its communist system. Higher

education under communism (1948–1989) will be described and analyzed. We then examine the issues, problems, and challenges for higher education in the transition process, as well as the post–1989 higher education laws designed to aid in its development toward meeting the country’s political and economic needs during the transition process. Finally, we analyze new education programs being developed to address the needs of the emerging market economy and offer suggestions concerning needed changes for higher education to contribute to the economic transformation.

## **POST–WORLD WAR II CZECHOSLOVAKIA**

The “Stalinization” of both the economy and government in Czechoslovakia took place soon after the end of World War II and the beginning of the Cold War between western and eastern Europe. The nationalization of farms and industrial firms was aggressively implemented with strict central control and directive planning from Prague, but under the watchful eye of Moscow. The economy was reoriented away from its prewar structure, which was based on the export of light consumer goods, toward heavy industrial goods (steel, armaments, etc.), and sold to other communist countries (Levcik & Lukas, 1991). Hence, economic contact with the West was limited. The economic structure was designed by the communist government to offer stability in employment, secure export markets, and rapid industrialization in the Slovak region of Czechoslovakia and other previously less developed areas of the country. The decisions were political and not based on market considerations.

By 1956, Soviet leader Nikita Khrushchev had denounced the crimes of the Stalin era, and a period of relaxation from rigid, orthodox communism (Stalinism) began. Reform-minded leaders in Hungary (Imre Nagy) and Poland (Wladyslaw Gomulka) grasped this opportunity and attempted to bring about economic and political changes. They allowed for a loosening of the system that brought limited freedom in economic activities and education decision making. However, Czechoslovakia lacked a leader who was able and willing to develop this approach and it remained a tightly controlled economic and political system (Skilling, 1989). This control extended to all aspects of higher education operations.

The further decentralization of soviet control by Krushchev pressured the Czechoslovak communist party to loosen some of its control on society. The leadership began to make concessions including greater freedom of speech, less control over the press, a revival of freedom in the arts, social science research, and education. The momentum created by the initial reforms led to a virtual collapse of censorship, calls for the democratization of the political system, a review of the entire past record of communist rule, and the radical development of economic reform toward a self-managed market

economy. The absence of control by the Czechoslovak communist party and the freedoms that briefly ensued were the essence of the Prague Spring. However, the entire party leadership never accepted these freedoms, and conflict in the party over which reform avenue to pursue eventually led to the rise of a new party leader in 1968, Alexander Dubcek (Skilling, 1989).

Despite Dubcek's assurance that he had command of the situation, Soviet party leaders decided on armed intervention to stop the spread of democratic forces. Dubcek was replaced by Gustav Husak, a leading Slovak communist who effectively repressed democratic and market forces, reversing economic reforms and the limited freedom allowed in educational operations and reverting to the traditional centralist method of control (Skilling, 1989). From this period until the late 1980s (called the "time of Normalization"), the Czechoslovak leadership remained resistant to change and was one of the most repressive regimes in central Europe.

### **Economic Evolution in Czechoslovakia**

After initial post–World War II successes in economic development, central planning had exhausted much of its potential by the 1960s. After the brief experiment with increased economic freedom in the 1960s, Czechoslovakia returned to a traditional centralist model which seemed to restore modest growth in the 1970s. This growth, however, depended on favorable relations with the Soviet Union, which continued to be Czechoslovakia's main supplier of the inexpensive energy and raw materials that the country lacked. This importation, however, resulted in gross inefficiency in the rational use of capital and energy inputs into the Czechoslovak economy. There was then a slow but persistent decline in the competitiveness of Czechoslovak manufactured exports, causing a declining share of exports to Western markets (Levcik & Lukas, 1991). Increasingly, Czechoslovak economists acknowledged that the problem lay in the fundamental flaws in the economic system adopted in 1948, and especially the sectoral structure of the economy, with its emphasis on heavy and extractive industries. Advanced economies in western Europe had shifted toward lighter, technologically more sophisticated products, while Czechoslovakia was left with an obsolete product range (Levcik & Lukas). A departure from central planning was necessary for increased competitiveness and growth. Reformers claimed that, in order to restore growth, it was necessary for economic planners to reorient the focus of production away from the extraction and processing of raw materials toward more modern technologically sophisticated sectors. With the end of central planning in 1989, the Czechoslovak economy was constrained by the negative legacy of an outdated and fundamentally flawed communist system. Some of the startup conditions to economic transition in the Czech Republic were:

- an industrial structure based on manufacturing, with an excessive share in heavy industry;
- a totally suppressed private sector;
- a rigid system of management and control in industry and education;
- extremely low to nonexistent unemployment;
- a low mobility of labor with the absence of a housing market;
- a developed system of vocational training (apprenticeships) guided by the limitations of the centrally planned economic model;
- an obsolete infrastructure compared to well-developed market economies (in telecommunications, computer networks, and transportation);
- a highly underdeveloped banking system;
- a technical (engineering) background of management with little market and related skills;
- a conservative nature in the whole system of management of government, business and education;
- a lack of entrepreneurship.

Since the fall of communism, market oriented economic reform has become the priority of the Czech government. The five main features of reform, which began in 1991, have been:

1. liberalizing the prices of most consumer goods,
2. elimination of subsidies to industries and consumers,
3. restrictive monetary and fiscal policies to keep a check on inflationary pressures,
4. privatization of formerly state-owned companies, and
5. liberalization of foreign trade and the promotion of foreign investment (World Bank, 1996).

### **The Transition to an Emerging Market Economy in the Czech Republic**

Since the early 1990s, the Czech Republic has largely transformed itself into a Western market economy with more than 80 percent of enterprises in private hands (U.S. Department of Commerce, 1998). It maintains a low national debt, low budget deficit, strong foreign currency reserves, relatively low inflation, and moderate—but after 1997, rising—unemployment rates as there had been little restructuring of Czech industry prior to that time. Lagging restructuring was an obstacle to industrial efficiency that has resulted in a loss of competitiveness, weak export-oriented growth, and worsening trade and current account deficits. Table 3.1 provides an overview of general macroeconomic indicators in the Czech Republic from 1993, when it became an independent country.

**Table 3.1. Macroeconomic indicators in the Czech Republic: 1993–1998**

Indicator	1993	1994	1995	1996	1997	1998
Real growth in gross domestic product (GDP) (%)	-1	3	6	4	1	1.4
Consumer price inflation (%)	20.8	10	9.1	8.9	8.5	12.2
Unemployment (%)	3.8	3.9	3.5	3.5	5.2	6.2
State budget as % of GDP	49.4	50.7	36	31.23	29.9	29.8
Balance of trade (in millions of U.S. dollars)	+346	-716	-3,608	-5,906	-4,439	unavailable
Current account deficit (in millions of dollars)	682	-18	-1,481	-4,637	-4,383	-4,231
Foreign direct investment (in billions of dollars)	2.3	2.5	2.526	1.388	900 m	unavailable
Population (in millions)	10.3	10.3	10.3	10.3	10.3	10.3

*Sources:* World Bank (1998); *International Financial Services* (1998); U.S. Department of Commerce (1996, 1998).

Other problems in the economic transformation have been a lack of transparency in government policies to business and unclear corporate governance. The process of privatization of state-owned companies are an example of the lack of transparency in government policies that have had an impact on the restructuring of Czech industry. The privatization process represented a shift under the system in which individuals could purchase vouchers to be used to buy shares of companies listed on the Prague stock exchange. However, investment banks, largely controlled by state-owned banks, purchased 73 percent of the vouchers from individuals. Hence, companies were owned, at least in part, by state-owned banks who had little incentive to restructure their holdings.

The lack of transparency in government policies extended to the privatization of higher education institutions as well. Although it was legal, it was not encouraged through the Higher Education Act of 1990. It was difficult for a private institution to get government accreditation. Two schools that were established in the early 1990s and received support from the West—the Central European University (CEU) and the Czech Management Center (CMC)—are examples of institutions that were created in an attempt to meet

the need for business and Western-style humanities education. Neither of these institutions was able to acquire government accreditation, thus limiting its operations.

Because of problems in the economic transition (e.g., the need to restructure Czech industry and lack of transparency in policies) an austerity package was initiated by the government in early 1997. Since then the Czech economy has slowed dramatically. The crisis in other emerging market countries in Asia and Latin America in 1998 and early 1999 has also negatively affected the Czech economy, especially in trade and foreign direct investment. As indicated in Table 3.1, real growth in the gross domestic product (GDP) was only 1 percent in 1997 and is not expected to increase much until further restructuring occurs. Despite the slowdown of economic growth and restructuring problems, the levels of economic freedom are considered relatively high compared to those of many other emerging market countries. In the annual Index of Economic Freedom survey conducted by the Heritage Foundation (viewed by many as a conservative think tank) and the *Wall Street Journal*, the Czech Republic ranks first among central and eastern European countries on its scale of economic freedom. The index ranks countries on ten indicators of government restrictions on economic activity: trade policy, taxation, monetary policy, the banking system, foreign investment rules, government expenditure and ownership of businesses, property rights, the black market, economic regulation, and wage and price controls (Heritage Foundation, 1998).

Integrating the Czech economy with the West, specifically the European Union (EU), remains a high government priority. In 1995, the Czech Republic became the first post-communist state in Central Europe to join the Organization for Economic Cooperation and Development (OECD), a group of the world's leading industrialized countries. The acceptance into the OECD is a possible prelude to the country's entry to the European Union (EU).

In seeking to further integrate with the West, the Czech Republic, like other former communist countries in the region, needs to upgrade its infrastructure in such areas as telecommunications, transportation, and education. In addition to the privatization of industry and public expenditures on infrastructure projects, foreign direct investment (FDI) is of fundamental importance, and an open investment climate has been a key element of the transition process since 1989. As indicated in Table 3.1, FDI has been declining since 1995. Germany has been the leading investor in the Czech Republic since the transition began, providing 35 percent of FDI in banking and insurance, trade and services, and the food industry (U.S. Department of Commerce, 1996). FDI in the Czech Republic has remained stable throughout the 1990s, while investment from other countries has in some cases declined. Historically and economically, Germany has had a strong influence on the development of the Czech Republic. The German education model has tradi-

tionally been a guide for the development of various sectors of the education system. German was the teaching language used in Czech higher education institutions in the late 18th through the 19th century. In 1849, for example, the Czech-German Technical Institute was established in Brno, with German the language of instruction. It wasn't until 1863 that the Czech language became its equivalent, but there was still a strong German influence on the higher education system that persists today in their technical institutions (Ministry of Education, Youth, and Sport, 1998). The proximity of Germany, which borders the Czech Republic, its history of being one of Europe's most modern economies before World War II, and the educated Czech workforce all contribute to the Czech Republic's attractiveness to German investors. As a political and economic leader in the EU, Germany will have an important and direct influence on the future of the Czech Republic's political, economic, and educational development.

### **Economic Planning and Higher Education**

In the Czech Republic, as in all countries, developments in higher education are heavily influenced by the functioning of the country's economy. Before November 1989, universities in Czechoslovakia employed the same principles of centralized administration and management that all other areas of economic, political, and cultural life employed. The higher education system was guided by the central planning economic model (manpower planning). In addition to low efficiency, major problems with this model were as follows:

- *Training in a vertical rather than horizontal pattern.* The size and activities of educational programs were determined by the same parts of the public sector that controlled the economy (e.g., the Ministry of Transportation controlled the programs associated with engineers for this specialization). This top-down, centralized approach to academic training led to an overspecialization of programs.
- *Emphasis on fixed rather than dynamic skills.* Higher education institutions in centrally planned economies emphasized the acquisition of factual material. Analytical skills were deemphasized, which had a negative impact on innovative thought. This method of educating students becomes more clearly understood when viewed in relation to a society in which there was little uncertainty about the sector of future employment and little choice for the individual in academic programs, health care, and consumer goods, along with many other areas.
- *Labor hoarding.* Labor hoarding refers to the tendency for enterprises and government ministries to acquire more employees than are needed in order to meet established quotas. Labor hoarding negatively affected education in that if employment in one sector were stagnant, there

would be no incentives for the education system to teach new skills or new ways of acquiring skills (Heyneman, 1994).

Under the manpower planning model practiced in Czechoslovakia before 1989, firms demanded a certain number of graduates with a specialization and were then forced to employ that number. This mechanism had some merits in that all graduates were employed, whether they were needed or not, but more often it had the following negative consequences.

- The diploma or certificate became more important than knowledge and skills, This had a negative impact on motivation for many students.
- Serious mistakes were made in planning because of the impossibility of predicting future technological innovations and employment trends.
- This system of planning was an instrument designed to conserve the existing level of technology, not to advance it. The skill level and innovative qualities of the workforce were infrequently upgraded or rewarded (Heyneman, 1994).

As the economy slowed from 1980 to 1985, the enterprises demanded fewer university graduates than for the preceding period and again fewer for the years 1985 to 1990. As a result, from 1980 to 1989, the number of university students in Czechoslovakia decreased by 11.2 percent (Parizek, 1992). A possible reason for the decline in the demand for university graduates lies first of all with the technological level of industry. Under the conditions of central planning and low demands on the quality of production, the enterprises had little interest in technological innovations. According to statistical data, between 1977 and 1983 the proportion of fully automated machines increased by only 2.3 percent. This may help explain why in 1990 only 8 percent of the population had higher education and 20 percent completed secondary education—half the level of that in most developed countries (Parizek, 1992).

## HIGHER EDUCATION IN TRANSITION

The communist system's goals and objectives for higher education were dictated by government officials concerned with creating the "communist man," someone for whom the good of the collective was more important than individual achievements. The Socialist Countries Conference for Ministers of Higher Education, held in Prague in 1986, provided examples of how socialist education was directed by the ideology of the party. The conference concluded by demanding that new strategic guidelines should be aimed at the full utilization of a new social system requiring good professional training and political and ideological maturity, code words for conformity to party goals.

The ministers also insisted that the activity of higher education institutions be oriented toward the fulfillment of the decisions adopted by the congress of the Communist party's plan for economic and social development (Fischer-Galati, 1990).

The principles, ideals, and functions of the higher education system were organized and controlled by the Communist party officials who in turn controlled the governmental ministries. Under the communist system in Czechoslovakia there was little deviance from the expected normative behavior, and the party and government had control over the entire operations of the universities.

### **Summary of Higher Education under the Communist System**

- The aims, tasks, and resources in teaching and research were defined by the Communist party and implemented by the state.
- Planning was comprehensive and was an instrument of political control. Higher education institutions were accountable to the Communist party, and there was little institutional autonomy.
- There was almost no strategic planning at the institutional or sub-unit levels.
- The incentive system was based on the achievement of goals set by the party.
- Higher education institutions were totally dependent for financing on the state, which followed a rigid line-item budgeting process.
- The state set manpower planning with the labor market (Holmberg & Wojtowicz, 1990; Bok, 1991; Cerych, 1993; Daniel, 1991; Mitter, 1990; Rupnik, 1992).

After 1989, transitions in government and the economy had an important and immediate impact on the higher education system. After more than forty years of communist rule, the newly elected government was faced with demands of academic freedom and autonomy. For the system to be democratized and made more compatible with the needs of a market economy, many challenges had to be overcome.

### **Problems Faced by Higher Education Institutions in the Transition Process**

Although each country of central and eastern Europe has a particular set of issues in its transition process, there are also many common challenges:

- the inability to meet student demand for access to higher education;
- the separation of teaching and research, limiting the role of higher education institutions and overemphasizing the academies of science;

- the relevance of the curriculum to meet the emerging economy's needs of a well-trained populous in skills needed for a market economy and civil society;
- the transition to a different system of education finance, which includes diversifying sources of funding, increasing institutional control, and accountability of funds; and
- the decentralization and autonomy in academic governance.

All these challenges need to be addressed within the context of political and economic transition. The following is an overview of these issues in central and eastern Europe in general and the Czech Republic in particular.

**Access to higher education.** Before 1990, the number of enrolled students in Czechoslovakia was determined by the State Planning Commission. The enrollments were set by the Ministry of Education, Youth, and Sport in regard to individual institutions and subject areas. Central planning and party priorities determined access to higher education during the communist regime (Koucky, 1990; Mitter, 1990). In 1990, state planning for enrollment levels was abolished and the higher education institutions themselves began to specify their enrollment numbers, taking into account teaching capacity and their own prognosis for the demand in the labor market. They also were given the responsibility to decide independently whether they would have entrance exams or not, and to determine the subjects to be evaluated by the exams (United Nations Educational, Scientific, and Cultural Organization, 1994).

Since 1990, there has been a rapid increase in the number of students enrolled in higher education institutions in the Czech Republic. (Even before 1993 the Czech and Slovak Republics kept separate statistics.) In 1998, there were more than 170,000 students (25 percent of the 18-year-olds) studying at higher education institutions and another 6 percent enrolled at higher vocational schools (Ministry of Education, Youth, and Sport, 1998). With the new technical and management requirements needed in a capitalist economy, increasingly more students have applied and gained entry to higher education institutions in an attempt to learn the skills necessary for success. Although statistics indicate that student that numbers are increasing, financial restraints are limiting the number of students that universities can admit. It is important to note that prior to 1998, all officially recognized higher education institutions were state public institutions, and thus enrollment figures are for public institutions (see Tables 3.2 and 3.3).

In order for universities to increase income and enrollments, academic and government officials have endorsed the collection of user fees. The fees, covering food, computers, use of the library, housing, and other items, are

**Table 3.2. Applicants and accepted and registered students in the Czech Republic: 1989–1993**

School Year	1989/1990	1990/1991	1991/1992	1992/1993
No. of applicants	51,400	59,600	55,000	66,000
No. of admissions	26,700	27,500	23,900	29,600
No. of students enrolled	26,700	27,500	23,900	24,100

*Source:* Ministry of Education, Youth, and Sport (1998).

**Table 3.3. Applicants and accepted and registered students in the Czech Republic after it became an independent country: 1993–1998**

School year	1993/1994	1994/1995	1995/1996	1996/1997	1997/1998
No. of applicants	66,600	70,100	78,100	96,800	107,000
No. of admissions	31,800	36,300	40,200	44,000	44,500
No. of enrollments	27,600	34,100	38,100	41,300	41,900

*Source:* Ministry of Education, Youth, and Sport (1998).

continually being revised to meet operational costs and are paid by the students. The Czech government, however, still provides student subsidies for transportation and other educational services, although these have been dramatically reduced (Holda et al., 1994). Prior to 1998 there were no student tuition fees, but since the 1998 Higher Education Act tuition fees have been incorporated into the higher education financing scheme.

**Separation of teaching and research.** Soon after the arrival of communism in 1948, the rights of higher education teachers and students were abolished. Instead of freedom of choice, mandatory study plans were introduced. The teaching of social sciences underwent intensive and uncompromising ideological changes. Research in higher education institutions was weakened considerably, and contact with colleagues in the West was greatly restricted (Ministry of Education, Youth, and Sport, 1998). Also during the communist period, teaching and research were artificially separated. The research academies (academies of science) were allowed more freedom in their operation than were the predominantly teaching universities. The academies of science were favored with higher salaries, perks, and working conditions, which were much better than at the universities (Rupnik, 1992; Tollingerova et al., 1993). During the communist regime, research institutes had direct funding from

specific branches of the government, while higher education institutions received their funding directly from the Ministry of Education, Youth, and Sport. As a result, the academies of science with their more varied and extensive funding sources had more financing for research than higher education institutions (Amsterdamski & Rhodes, 1993).

Since 1989, the Czech government's role in research has changed. Teaching and research have gradually been combined, with research being reemphasized. Research needs are concentrated on political, economic, and educational reform in the country, in particular the reforms that will allow the Czech Republic to enter the EU. The government has designed new methods for universities to obtain research funds, which are now based more upon a competition for funds from the government, international agencies, and the business community. The competition for funds is slowly fostering a new environment within higher education institutions, emphasizing innovativeness and efficiency, and meeting the needs of the economic transition process.

**The relevance of the curriculum.** As education researchers have argued, it is important to internationalize the curriculum for the purpose of improving the ability of the university to prepare modern, scientific, and competitive societies operating within a global economy. This includes improving the abilities of the participants in the process, such as faculty, students, and researchers (Mauch & Spaulding, 1992). In the Czech Republic, changes in the curriculum are guided by the needs of a newly formed democracy and the emerging capitalist society. Courses in Marxist ideology have been eliminated, the professors in these areas are being retrained or released, and new programs are being established in Western languages, economics, sociology, and political science. The revival of the social sciences as well as an increase in business education programs are established elements of the transition process (Kozma, 1990; Sebkova et al., 1993). The previous problems in changing the curriculum have come from the unavailability of textbooks, too few qualified instructors in democratic ideology and the market economy, and the lack of funds for equipment and research materials (Kocsis, 1990; Wilson, 1993). Many of these essentials are being provided by Western aid and EU assistance programs.

For the academic year 1998/1999, higher education institutions in the Czech Republic offered almost 1,000 fields of study as compared to 173 in 1989. The number of fields for postgraduate studies is now almost 500. These fields are divided between the traditional four- to six-year program (magister) and the three-year bachelor program (Ministry of Education, Youth, and Sport, 1998). As access to higher education has become more open and is no longer controlled by the government, student numbers in each of these levels of education has gradually grown since 1989, especially in the new bachelor programs and in postgraduate studies (see Tables 3.4 and 3.5).

**Table 3.4. The number of higher education students at different levels of study in the Czech Republic: 1989–1993**

Level of study	1989/1990	1990/1991	1991/1992	1992/1993
Bachelor programs (3 years)	0	0	0	12,628
Magister or engineer programs (traditional first level of university study) (4 to 6 years)	112,980	118,194	111,990	101,557
Pregraduate (total)	112,980	118,194	111,990	114,185
Postgraduate (doctorate)	0	0	1,664	3,452
<b>Total no. of university students</b>	<b>112,980</b>	<b>118,194</b>	<b>113,654</b>	<b>117,637</b>

Source: Ministry of Education, Youth, and Sport (1998).

**Table 3.5. The number of higher education students at different levels of study in the Czech Republic after it became an independent country: 1993–1998**

Level of study	1993/1994	1994/1995	1995/1996	1996/1997	1997/1998
Bachelor programs	15,624	28,147	34,821	36,668	39,410
Magister or engineer pro- grams (first level of university study)	106,832	101,306	104,953	119,200	122,963
Pregraduate (total)	122,456	129,453	139,774	155,868	162,373
Postgraduate (doctorate)	4,681	7,113	8,659	10,267	11,453
<b>Total no. of university students</b>	<b>127,137</b>	<b>136,566</b>	<b>148,433</b>	<b>166,136</b>	<b>173,826</b>

Source: Ministry of Education, Youth, and Sport (1998).

Since 1989/1990, there has been a 53.9 percent increase in the total number of university students. This growth can be attributed to increased access, growing student demand, and the development of new programs (such as the bachelor program) and fields of study. The new fields (e.g., business administration, civic education, market economics) are designed to produce the skills necessary for an emerging economy, yet problems persist concerning students' practical training. Prior communist education policies emphasized the acquisition of math and science skills, and as a result the system produced students with high test scores in these areas compared to their counterparts globally. This high performance drops sharply, however, when students are asked to analyze factual material rather than memorizing it, and it drops again when they are asked to use scientific information in new and unanticipated circumstances (Heyneman, 1994). This is not because of poor teaching or because the math and science curriculum was poorly structured. Rather, institutions simply emphasized what central planners told them to emphasize—the acquisition of factual material—and as a result, the sense of inquiry and innovation suffered.

The higher education system in the Czech Republic needs to significantly alter its teaching methods and focus more on analytical skills. The implication is that having new subject matter, business skills for example, is not necessarily the critical missing element. The missing factor lies in the emphasis on problem solving in any curriculum or subject.

**University financing.** After 1968, enrollment figures in higher education in Czechoslovakia slowed and the financial decision-making process and method for funding higher education institutions began to change (Holda et al., 1994). The funding for higher education institutions took the form of incremental budgeting. For example, in a given year, higher education institutions received the same funding as in the previous year plus additions based on their demands and funds available. The amount was based on constant negotiations between the state administration and the individual institutions of higher education. The increments depended to a large extent on each higher education official's ability to negotiate an increase in funding.

In the years following the Higher Education Act of 1990, problems persisted in the methods used for funding higher education. These were:

- *Ineffectiveness.* The traditional scheme of “budgetary base plus increment” meant that institutions were expected to spend all of the entire current year's budget, thus preparing the way for the highest possible budget for the following year. This often meant a waste of resources since they would have been more efficiently used if they were allowed to be transferred to the next year. The negotiations on increments often took the form of political and personal arguments, rather than educa-

tional needs and concerns. The system did not reward superior performance.

- *Lack of transparency.* Although the final budget of an institution was very strict and closely monitored, there were essentially no general rules for the funding of higher education institutions. Financial allocation was the result of a great number of private and opaque negotiations. Because of unclear rules, there were many subjective decisions.
- *Lack of flexibility.* As the budget was based on the previous year's allotment, it could not respond to developments both inside and outside the institution (e.g., labor market, changing needs of the economy). Most important, the budget was not based on the number of students enrolled and thus did not reflect changes in these totals (Holda et al., 1994).

All of the problems reviewed here are important and need to be addressed in a reform process that links political and economic changes to the goals of higher education. Within the challenges previously discussed is the paramount concern of decentralizing higher education operations.

**The decentralization of higher education.** Decentralization is defined as “the institutional autonomy or organizational discretion focusing on the real distribution of decision making responsibilities within an institution or a set of institutions making up a system of organization” (Lane & Murray, 1985, p. 32). The decentralization process is often exemplified by decreasing the power to the central and state government and increasing the discretionary power to university officials (Lake & Regulaska, 1990).

There is a natural connection between higher education, politics, and the economy. In many ways the decentralization of higher education operations can be viewed as a response to governmental crisis, which can lead to a search for alternatives in the distribution of power of government functions (Lake & Regulski, 1990). University decentralization can be viewed as a response to a political, economic, or social crisis. One can argue that this crisis is a key reason for the decentralization process currently underway in many of the former communist countries of central and eastern Europe.

In the case of the Czech Republic, higher education was highly centralized and strictly controlled by the government. As with other aspects of society, there was limited freedom of decision making. Since 1989, the Czech Republic has been attempting to reintegrate with the West and its institutions, which has forced higher education institutions to make considerable changes.

### Summary of the Developing Postcommunist Model

- There is increasing importance on academic freedom, competition for students, and funding and representation of academics in decision-making bodies.

- There is less direct central state control.
- Strategic planning by governing bodies within institutions is seen as essential for the development of the institution.
- Institutions are accountable to constituencies such as students, government, businesses, and so on, and autonomy and academic freedom are determined by this accountability.
- There is a need to find multiple sources of financing and budgeting.
- There is limited line-item budgeting process with a move to a formula method based on the number of students enrolled.
- Higher education's relationship to the labor market is significant but often indirect, primarily as the result of meeting market demands dictated not directly by the government, but by the market.

Before the division of the country in 1993, government officials and academics in Czechoslovakia attempted to assist in this transition and respond to the need for academic freedom by creating the Higher Education Act of 1990.

### **The Czechoslovak Higher Education Act of 1990**

Pressure to reform higher education came from academics, higher education administrators, and students. This pressure built up throughout the 1980s and came to a breaking point in November 1989. Shortly after the student demonstrations of November 1989, which helped focus and mobilize opposition to the old regime, individual groups of educators, students, and members of the intelligentsia met to discuss how the education system could be democratized. These meetings eventually culminated in the passage of the Higher Education Act of 1990 (Daniel, 1991).

The Higher Education Act of 1990 set out a democratic structure for guidance of higher education institutions and allowed academic freedom in many areas. The Act revived the academic senate, which had been abolished under the communist system, as an important governing body within universities. The revived senates, representing faculty, students, and staff, were given a large measure of control over the curriculum choices, hiring practices, and research goals. Through the academic senate, higher education institutions have an opportunity to contribute in deciding their own educational mission.

Under the 1990 Act, universities have the freedom to make their own economic decisions. For example, in 1991 higher education institutions received financial allocations from the state, as in previous years, by the system of "basis and increment." The difference was that the money was not earmarked for a specific function. The Ministry of Education, advised by the university councils, assigns funds to universities according to estimated annual capital and other expenditures. It became the responsibility of the

individual universities (e.g., rectors, academic and faculty senates) to decide the specific distribution of these funds (Daniel, 1991). The only limits were the total amount of wages and general operating funds (e.g., buildings). In addition to these fiscal freedoms, the state allocated money to institutions without specifying how many students they should educate (Holda et al., 1994).

The importance of the law passed on May 4, 1990, to colleges and universities cannot be overstated. It put substantial decision-making power back into the hands of the university and its faculty and students. The law emphasized academic rights and freedoms as important principles of democracy, and envisioned democracy in terms of self-government and autonomous decision making within the higher education community.

### **Higher Education Act of 1998**

A new Higher Education Act was approved by the Czech parliament in April 1998 that was designed to address many of the issues in management and financing that had developed since the implementation of the 1990 Act. The 1998 Act differed from the law passed in 1990 in that it allowed for the further creation of new programs, institutional diversification, and a basic change of property rights.

The 1998 Act is a continuation of legislation on economic management of state property. The ownership of the property will be transferred from the state to the institutions of higher education, thus fundamentally altering their financial management concerning property and budgeting. The change in property rights transforms state higher education institutions into public legal entities and thus changes their internal management, making them more self-determined by having self government rights in the use of their property, such as the right to collect fees for its use. Through this new method of management and ownership came the establishment of a new body in public higher education institutions, the Board of Trustees, consisting of academic and business leaders (Ministry of Education, Youth, and Sport, 1998). Through this and other measures, the government further promotes the concept of multisource financing by making institutions more self-reliant and decentralized.

The 1998 Act also introduces the concept of study fees for students of public higher education institutions. Public higher education institutions can set the entrance fees (e.g., exams), but a maximum level is determined by the Act. As far as further fees for study (e.g., tuition), the minimum lower limit is prescribed by the Act, and the maximum amount is left to the discretion of higher education institutions. Students who stay a year longer than is determined necessary by the study program will be required to pay additional

study fees. These funds will be used as a scholarship endowment to be expended within the institution. In conjunction with the initiation of student tuition fees, government funds to higher education will be in the form of a formula funding method, based on the number of students enrolled. For private institutions, whose development is made possible through the 1998 Act, the study fees are not adjusted by the Act. The determination of their amount is completely at the discretion of the institution (Ministry of Education, Youth, and Sport, 1998).

### **The Government's New Role in the Financial Development of Academic Institutions**

Through the Higher Education Acts of 1990 and 1998, the government has provided higher education institutions with additional opportunities to obtain nongovernmental funding. Universities have been freed by the state to earn money through conferences, tourism, consulting, publishing, research, university enterprises, bookstores, lecture notes, exams, student fees, tuition fees, franchises, and licensing arrangements. Universities may keep additional income in their own institutional accounts and the 1990 Act exempts university enterprises from taxation (*Higher Education*, 1992).

A plan developed by the Ministry of Finance and implemented as part of the new tax system established on January 1, 1993 called for tax relief for private sector enterprises that donate funds to organizations or institutions with activities deemed to be in the public interest. Higher education institutions fit into this category. In this way the government is encouraging private sector enterprises to donate a portion of their earnings to higher education. While the potential is great, there are limitations. First, in the near future, funds from this source will be small, because in the early stages of the country's economic transition, firms are struggling and profits are small. In addition, FDI is decreasing, affecting donations from multinationals, which have been negligible. Also, higher education institutions will have to compete with other institutions (museums, theaters, social service organizations) to secure this income. Universities will have to find ways to make their programs attractive to donor groups unaccustomed to philanthropy.

The Higher Education Act of 1990 did not make it mandatory for institutions to respond to the interests of the public. It also did not require higher education institutions to meet the needs of the labor market nor establish contacts with partners from the area of industry, trade, and regional and local communities. The 1990 Act did emphasize academic freedom and the decentralization of university operations, allowing for the relationships with industry and regional government to be developed. To what extent the 1998 Act will influence higher education institutions to connect more closely with the country's economic needs remains to be determined .

## **HIGHER EDUCATION IN THE CZECH REPUBLIC AS A TOOL FOR ECONOMIC DEVELOPMENT**

Schooling, both higher and compulsory, assists in determining a country's long term economic prospects. The Czech Republic and the other emerging markets of Central Europe will require an extended time period to overcome the negative legacies of their communist period. Education is a long-term investment with important economic consequences for these emerging market countries. In essence, the transition will depend on new skills and attitudes acquired through education. These new skills cannot be taught successfully without input from the constituency groups (including political, economic, and academic leaders) that it serves. Without qualitative and quantitative investment in education, development beyond the status quo will not be possible.

With the implementation of the Higher Education Acts of 1990 and 1998, the opening up of society, and further collaboration with the West, some necessary reforms are gradually being implemented to make higher education institutions more able to meet the demands of their transitional societies. These are:

- changes in the style of teaching to include a more open participatory approach and sense of inquiry;
- changes of curricula to include more business courses, as well as changes within courses in political science, history, economics, and so on;
- a reemphasis on the role of humanistic values;
- combining the acquiring of knowledge with the mastery of skills in solving problems by using scientific methods; and
- teaching pupils to collaborate, communicate, and employ mathematical methods using computers.

The flexibility and diversification of higher education are key components in the adaptation of the system to the needs of a rapidly changing economy. Higher education in the Czech Republic must make the transition along with the economy, from rigid central commands to nimble responses to supply-and-demand factors. Czech higher education is being diversified through a focus on regional higher education institutions, bachelor studies, vocational education, and private higher education.

### **Regional Higher Education Institutions**

After 1989, new universities and faculties were established that had a considerable influence on the regional structure of higher education. Since 1989, the share of the total number of students in the traditional university centers of

Prague and Brno has dropped by about 4 percent, as regional educational centers increased enrollments. Fewer than 40 percent of students studied in Prague (the capital) in 1998, compared to 43 percent in 1989, and in Brno (the second largest city), 19 percent, compared to 23 percent (Ministry of Education, Youth, and Sport, 1998).

Some universities have become actively engaged with their regions and municipalities and have attempted to merge academic activities with local concerns. For example, in Liberec and Olomouc the universities have developed training and retraining programs in teaching, local administration, and architecture, in close collaboration with their municipalities (Mokosin, 1995). Some regional universities have attempted to adapt to their reduced funding from the government (in relation to inflation) by developing ties with industry. Currently, the principal involvement of the universities in industrial reorganization is in the area of retraining managers and workers. In the future, the active engagement of university research and teaching on issues of regional concern is likely to flow from structured and regular consultations between scientists and teachers on one hand, and representatives of economic and social organizations and local government on the other.

As new laws have been passed in the area of tax exemption for nonprofit organizations, it is expected that collaboration between higher education and industry will increase throughout the country. This will further regionalize higher education and its ties with local businesses, and is designed to aid in the development of the regional economy. If innovative enterprises grow in numbers and the financial capability of these companies expands, this sort of collaboration could increase and be mutually beneficial to these businesses and the universities.

### **Bachelor Studies**

Higher education institutions in the Czech Republic are attempting to satisfy immediate changing skill level needs in the economy by offering more intensive courses that can be completed in a shorter period of time. One of the programs designed to do this is the bachelor studies program created in 1992. The bachelor study program usually lasts three years, but occasionally four. The degree of magister or engineer, the first and only level of undergraduate study prior to 1992, usually lasts five years (Mokosin, 1995; Winkler, 1993). The bachelor program does not replace the established method of study, but provides students with a more condensed, specialized option. Many bachelor study programs are designed to anticipate the future demand for high quality professionals in fields whose relevance to the economy has changed dramatically. These fields include economics, engineering, business, mathematics, physics, law, and public administration (Ministry of Education, Youth, and Sport, 1998).

According to the 1998 Act, the bachelor study program can lead to the awarding of the degree as a basic unit of higher education studies (Bachelor of Art, BcA) and there is now a bachelor's degree offered at most institutions. The number of fields of study offered as well as the number of students taking bachelor degree programs is growing steadily. In the 1997/1998 academic year, the proportion of students taking bachelor's degrees to the total number of undergraduates was 24.3 percent compared with only 11.1 percent in 1992/1993.

Bachelor's degree courses are now offered at over fifty faculties in eighteen higher education institutions. There are over 160 specializations within the faculties, many of which are offered with a part time option (Ministry of Education, Youth, and Sport, 1998). Not surprisingly, most of the programs are located in the small provincial higher education institutions, whereas the large well established universities in Prague or Brno are somewhat resistant to this nontraditional method of study. Of the more than 160 specializations, only about thirty are in the two largest universities: Charles University in Prague and Masaryk University in Brno. A common thread among the different bachelor's degree programs is the concept of a self-contained cycle leading to specific qualifications not previously offered in any of the existing institutions. They are often established to meet local needs at the request of regional authorities.

Regional sites have established separate fields of study such as the Textile and Engineering School in Liberec (a technical school), which has developed a bachelor program in technical engineering in cooperation with Skoda works and its parent company, Volkswagen, in the neighboring town of Mlada Boleslav. The Liberec/Skoda bachelor program also has the support of the Ministry of Industry and is one of the few cases of close interministerial collaboration in the sphere of higher education. The Faculty of Law in the University of Olomouc has a bachelor's program in the field of public administration, and several schools of education have a bachelor's cycle in studies qualifying engineers or other specialists to teach in professional secondary schools (Prucha & Halberstat, 1993). The number of applicants for the bachelor's degree programs continues to grow, and enrollments have tripled in six years (see Table 3.6).

### **Vocational Education**

Prior to World War II, Czechoslovakia was one of the key manufacturing centers in Europe and was the tenth most industrial country in the world. Fields such as engineering and science were emphasized. They continued to be highly regarded during the communist period and are still held in high regard today. The Czech education system, similar to Germany's system, readily facilitates vocational education and training. In 1993, the OECD

**Table 3.6. The number of students taking bachelor's degree programs and their percentage of the total number of undergraduates in the Czech Republic: 1992–1998**

Academic year	No. of students in bachelor programs	No. of undergraduates as a whole	% of undergraduates taking bachelor programs
1992/1993	12,628	114,185	11.1
1993/1994	15,624	122,456	12.8
1994/1995	28,147	129,453	21.7
1995/1996	34,821	139,774	24.9
1996/1997	36,668	156,868	23.5
1997/1998	39,410	162,373	24.3

Source: Ministry of Education, Youth, and Sport (1998).

reported that of the total university graduate output, Czechoslovakia produced the highest percentage of science and technical graduates in the world with 50 percent graduating in these fields (*Czech Invest Yearbook*, 1998).

The Czech Republic currently has more than 30,000 technological university students. Degrees are awarded after three years of study, but most students stay for a further two years to earn the master's degree. The Czech Technical University of Prague (CVUT), Europe's second oldest technical university, is the largest, with around 15,000 students. There are three more technical universities located in Plzen, Ostrava, and Brno. The main area of studies include computer and information studies, telecommunications, and power electrical engineering. All students must study two foreign languages as part of their program of study (*Czech Invest Yearbook*, 1998).

Because of the increased demand for professionals in business, marketing, and financial and human resource management, enrollment in technical programs has decreased since 1989. Coinciding with the changes in enrollment has been a change in the structure of higher education institutions in (see Table 3.7).

Despite fewer technical institutions, the Czech Republic's technical and scientific graduate output remains higher than Germany's and Japan's as a percentage of total graduate output (*Czech Invest Yearbook*, 1998). As graduate output is normally a good indication of the intellectual capital that will enter the job market, policymakers seek to maintain this high level of technical expertise as it provides the market economy with a highly skilled workforce.

**Table 3.7. The structure of higher education institutions in Czechoslovakia in 1989 and the Czech Republic in 1997**

Type of institution	1989	1997
Universities (multifield)	3	9
Technical universities (multifield)	2	4
Technical universities (specialized)	5	1
Veterinary universities	1	1
Universities of economics	1	1
Agriculture and forestry universities	2	2
Universities of education	0	1
Universities of art	4	4
Independent pedagogical (teaching) faculties*	5	0
TOTAL	23	23

*Source:* Ministry of Education, Youth, and Sport (1998).

\*After 1989, independent teaching faculties were incorporated into multifield universities or eliminated.

As the number of technical schools at the higher education level remains stagnant or decreases, government and academic officials in the Czech Republic, in cooperation with Dutch professional higher education institutions and other foreign institutions, experimented in 1992 to develop “upper vocational schools” (Hendrichova, 1993). There are presently more than twenty of these institutions in the Czech Republic, which were established to provide further study for students at selected secondary vocational schools.

The fields of study at the “upper vocational schools” are as follows: banking and finance, marketing, information technology, electronics, information management, tourism management, foreign and international trade, commercial law, local administration, building construction, mechanical engineering, agricultural management, social work, and social pedagogy (Hendrichova, 1993). Practical experience is an important part of the studies. The institutions are supported by regional governments who see their development in terms of potential economic growth. Many of these institutions consider their purpose to reduce the discrepancy between supply and demand in higher education and the job market.

The technological level of production depends to a decisive extent on manpower abilities. This needs to be reproduced through the educational system. Vocational schools are restructuring in an attempt to develop new

programs in general business and service skills to meet the demand in the Czech Republic's emerging market economy.

### **Private Higher Education**

Private higher education did not exist in Czechoslovakia under communism. The 1990 Act, while not forbidding the introduction of an alternative or binary system of higher education (both private and public institutions), did not authorize the establishment of private institutions. The legislation stated that "it shall be the exclusive right of institutions of higher education to provide academic-scientific degrees to graduates and organize post-graduate studies" (Mokosin, 1995). It was difficult for new institutions to get government accreditation. As a result of the very restricted levels of privatization within Czech society prior to 1989, along with limiting legislation within the 1990 Higher Education Act, private higher education institutions have not been established to any significant extent since 1989. The few private institutions that were created (focusing mainly on business and language training) were not accredited by the government.

As a means of diversification, coinciding with the increasing privatization of government-owned industry, government and academic policymakers, through the 1998 Higher Education Act, attempted to address the need for private higher education by making it significantly easier for the creation of these institutions. Institutions dealing with educational, scientific, research, development, or other creative activity can be founded after acquiring state permission. They are responsible for establishing their own fees for study (Ministry of Education, Youth, and Sport, 1998). The privatization of higher education institutions has been slow to develop, but the debate concerning their perceived importance is growing.

In summary, higher education policymakers, in collaboration with government officials, are attempting to become more flexible and adaptable to societal economic needs. They are seeking to diversify through the development of regional schools, bachelor programs, vocational schools, and private institutions. Each of these is designed to meet a particular aspect of market need either through a closer relationship with industry or through shorter terms of study, producing graduates with skills needed in the workforce.

### **CONCLUSION**

Higher education has an impact on the economy through its collaboration with government and industry, as well as through the skills and mindset of the students it graduates. The theories by which education operates are very important, as the adaptability of graduates to economically and politically open systems will be determined in part by the type of education delivered.

For example, if inquiry and problem solving, as well as practical skills, are part of the curriculum, then graduates are in part better prepared for democracy and capitalism.

Prior to 1989, teaching in the Czech Republic was focused on acquiring specific knowledge, and underestimated the need for problem-solving and communication skills. These practices decreased the economic effects of education. The weaknesses of the Czech Republic's communist economy, such as the duplication of services, lack of real prices, outputs based upon planning targets, and artificial production figures, did not occur by accident. These flaws were created by design. The purpose of the previous economy was closely tied to the design and product of the communist education system.

The economic and political transition process that began after 1989 is inextricably tied to the transitions in the higher education system. Freedom within society has led to the democratization of operations within the education system. There are, however, additional changes needed in the higher education package in order to assist in the establishment of a sustainable emerging market economy. These include:

- preserving the achievements of the old system (strong skills in mathematics, science, engineering, technical education, etc.), but rectifying the earlier underemphasis in the humanities and analytical enhancing skill areas (World Bank, 1996),
- assisting the movement from specific skills to broader and more flexible skills that are better able to meet the continually changing demands of a market economy,
- encouraging the understanding that individuals in a democracy have a degree of choice and as such are responsible for their actions in all fields of endeavor, and
- fostering the understanding that freedom of expression is an essential and constructive component of a pluralist society governed by consent.

The transition to a market economy should stimulate the development of both education and the economy by challenging both to adapt and change to meet society's new needs. The transition depends on a solid macroeconomic foundation, but also on a skilled and adaptable labor force. This requires a new education system with a focus and mission that is quite different from the one that existed under communism. The quality and type of higher education can stimulate or act as a break on economic and social development.

The economic transition in the Czech Republic and central/eastern Europe will be much more difficult without a shift in higher education from vertical to horizontal training, from factual acquisition to critical thinking, and from outmoded specializations to an emphasis on broadly adaptable

skills. Increasingly important will be the utilization and application of information, as opposed to only factual retention.

Because of the problems involved in reforming higher education to produce new skills and innovative ways of thinking, it is important for officials of the ministries of education and finance to communicate with each other. The current economic and political transition provides a rare opportunity for education and economic reform, and it is important that both finance and education officials understand each other's constraints, and that they acknowledge each other's respective roles. Government and academic officials have worked together in the development of the Higher Education Acts of 1990 and 1998, both of which provide more academic freedom and opportunities to develop programs that will meet economic needs. Some of the initiatives have included: increased regionalization of institutions tying higher education institutions to regional government and industry; a new academic degree, the bachelor studies program, which includes fields of study in the needs of the economy such as business, public administration, and law; technical education enhanced by an emphasis on practical training and the development of fields of study that are of need to the economy such as banking and finance, marketing, and international trade. In addition, the government is slowly encouraging the establishment of private education as a means of meeting student demand and to providing more programs needed in the transition process.

If the education sector is able to increase its efficiency and effectiveness through internal programs of adjustment, seek nonpublic financial resources, and eliminate duplication and nonproductive programs, then new educational investments will be effective and the transition process will be given substantial assistance. At the end of the present restructuring period, through the use of a comprehensive development plan, the Czech Republic could have a productive and high-quality higher education system. In turn, its economy would have the benefit of a labor force with creativity and flexibility. The transition's success will depend upon new skills and attitudes acquired through higher education. These new competencies and perspectives cannot be taught successfully without a priority on the kind of investments in higher education that will help Czech society overcome its past and lead it into the future.

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# The Role of Higher Education in the Development of Poland's Democracy and Market Economy

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This chapter is devoted to the role that Polish higher education institutions have played in preparing Poland to meet the challenges of democracy and a market economy. The country's political, economic, and social systems have undergone considerable changes since 1989, when parliamentary democracy and a market economy were introduced after decades of active resistance to communism. However, Poland's higher education system has lagged behind in the promotion of changes that match the rapid transformation of the economic and political systems. The question, then, is not whether higher education in Poland has been affected by the developments triggered in 1989—it definitely has—but why the changes in higher education have not been as substantial and rapid as those experienced in the political and economic systems and whether, and to what extent, they contributed to the development of Poland as an emerging market country. In an attempt to answer the question, I address the following topics:

- developments in higher education, both positive and negative, in the context of political and economic changes, characteristic of the systemic transformation that Poland began in 1989;
- the scope of changes within the higher education system;
- the impact that higher education institutions have had upon society with regard to “mind switching,” that is, promoting the reorientation of people from being passive and frustrated observers during communist times to active participants in a competitive, market driven, democratic system.

Let's begin with the historical background of the political and economic environment.

## **ECONOMIC, POLITICAL, AND HIGHER EDUCATION TRANSITIONS IN POLAND BEFORE 1989**

After World War II, Poland found itself under the political and economic influence of the Soviet Union—a situation not accepted by its citizens—as many Poles remained in either open or secret opposition to the communist regime installed by the Soviets. Contributing to the lack of support for the communist regime in Poland was the strong presence of the Catholic Church and its opposition to the communist atheist philosophy. Adding to this opposition were the unsuccessful attempts at collectivization of land and a generation of survivors of World War II who remembered what Poland had looked like before communist rule was introduced and democracy suppressed.

These factors, intertwined with a growing economic crisis and the inability of the communist government to find a solution to the crisis, produced a sociopolitical mixture which was constantly boiling and ready to explode. Except during 1968, when a wave of student strikes demanding freedom of speech and the banning of censorship resulted in the expulsion from Poland of thousands of Polish Jews identified by the regime as the instigators of the unrest, the pattern of these expressions of dissatisfaction and rejection were almost identical: food prices would go up and workers, usually led by the intelligentsia, would take to the streets in protest. The regime would first react violently, people were killed and imprisoned, but then there followed a few cosmetic changes in the communist party leadership—just enough to claim that those responsible had been held accountable for their deeds “against the working class.”

This pattern revealed itself in 1956 for the first time. Workers’ strikes in Poznan brought to power Wladyslaw Gomulka, a communist functionary who made himself popular by openly criticizing the Soviet Union. He also promised freedom of expression and travel, and introduced some economic measures that initially satisfied the people. The next protest came in 1970, when one of the protesters was a young worker named Lech Walesa. This time the site of the unrest was the city of Gdansk. Gomulka had to step down as party boss and Edward Gierek took over. Gierek’s rule was opposed in 1976 when workers in Radom went on strike, again to protest the shortages and higher prices of food. Many were imprisoned, and a group of dissident intellectuals led by Jacek Kuron and Adam Michnik established the Committee for the Defense of Workers (abbreviated KOR in Polish). This time, most of the strike organizers and KOR members were imprisoned and Gierek managed to hold on to his position as head of the Communist Party—at least until the next eruption.

The culmination of the people’s mistrust of its leadership came in the summer of 1980. The continued catastrophic state of the economy, food shortages, and no visible chance for improvement resulted in heightened

social apathy and frustration. Strikes erupted once again in Gdansk. Shipyard workers led by Walesa and aided by dissident intellectuals demanded “bread and freedom” and, most important, that independent, free trade unions be recognized by government authorities. Very soon, the whole country was covered with a network of branch organizations of the independent trade union “Solidarity.” This included all major universities. The regime was forced to yield and an agreement was signed by Walesa and a representative of the government, thus legalizing Solidarity.

However, it soon became apparent that the communist government was not going to simply yield to popular pressure. On December 13, 1981, General Wojciech Jaruzelski’s new government imposed marshal law making Solidarity illegal, and imprisoned thousands of national and local Solidarity leaders. Although the hardships of marshal law were eventually lifted and some of the imprisoned Solidarity leaders released from jail, most Western countries, led by the United States, boycotted Jaruzelski’s government and introduced economic sanctions and diplomatic restrictions. These measures included restrictions on official diplomatic contacts, and open support for Solidarity financially and morally.

All efforts undertaken by the regime to invigorate the economy and change the anti-government sentiments of the population proved futile. Finally, after a series of secret contacts with the opposition leaders led by Walesa, communist officials decided to hold negotiations with the opposition, and so began the “roundtable talks.” A deal was reached which paved the way for the legalization of Solidarity and made it possible for oppositional organizations to participate in soon-to-be-held parliamentary elections. Although the communist leaders made sure that more than 65 percent of the seats in the parliament, or “Sejm,” would be reserved for the candidates representing the government, they did not anticipate that the remaining 35 percent of the seats would all be won by their political opponents. As a result of the elections held in June 1989, and the inability of the communist majority in the Sejm to form a government, the opposition, with Jaruzelski’s reluctant approval, formed the first noncommunist government in August 1989 with Tadeusz Mazowiecki as prime minister.

While this single event marked the end of communist rule in Poland, it should also be noted that it had serious repercussions for the whole of eastern Europe as it triggered an avalanche of revolutionary political changes. Very soon the Berlin Wall fell, Germany became one country again, and democratic governments were established in formerly communist Czechoslovakia and Hungary.

The economic system prevailing in the communist bloc before 1989 was characterized by mismanagement and corruption of the political leadership. There were also frequent strikes and social protests by much of the population. The strikes and other forms of social disobedience, so frequent in Poland in

the 1980s, played an important role in consolidating the anticommunist opposition and providing an effective way of exercising oppositional tactics. The results were that by the end of the 1980s the Polish economy was in a devastated state. Few people, including the ruling communist leaders, doubted that substantial changes had to occur, both in the economy and politics, if the apathy in society were to be overcome and economic progress were to be made. The difference between the progressive branch of the communist party and the opposition concerning the question of how the changes had to be approached, was essentially expressed by two competing slogans: “let’s transform the system” (communists), and “let’s get rid of the system” (opposition).

The situation was different in higher education, which has always been underinvested and mismanaged. Yet, unlike the public’s negative reaction to economic problems where shortages of everything imaginable, including basic food supplies, generated resistance and frustration, underfunded educational institutions had functioned more or less normally and their inadequacies were not as conspicuous. While food and other shortages were easily noticed and their impact felt by all, educational shortcomings could pass relatively unnoticed because they lacked a clear point of reference and source for blame. After decades of propaganda about the high quality and availability of education in “People’s Poland,” a critical evaluation of the educational system was now difficult—in fact, next to impossible—to make. More important, some of the changes in higher education institutions introduced in the early days of Solidarity (1980–1981), such as the electoral system of internal institutional governance, limited autonomy, and term limits for deans and rectors, were not lifted during marshal law which the communist regime imposed on December 13, 1981. The Solidarity-induced reforms had a positive effect on the whole system of higher education, making governance more open and therefore more democratic. As a result, the general impression of the condition of higher education at the end of 1980s was not as dismal as that of the economy and politics (OECD Report, 1996). The educational system, and especially higher education, appeared to the public to be in better condition than the economy.

## **TRANSITIONS IN HIGHER EDUCATION AFTER 1989**

The August 1989 installment of the first noncommunist government in Poland brought about considerable changes in central and, to a lesser but noticeable degree, local institutions. New people were needed to perform new tasks. The challenge was to meet the needs of a market economy and a democratic society.

However, in the early 1990s, institutions of higher education were only modestly affected by the process of change because of the lack of competent academic leaders willing to confront the burdens of change. One can be

appointed to a high-ranking government position almost overnight as a result of a political decision, but it is impossible to “produce” a university professor or administrator in a similar fashion. The situation resulted in rather minimal changes in institutions of higher education, since the same people who were running the educational system before 1989 stayed or were sometimes elected as department chairs, deans, and other high ranking educational functionaries. Furthermore, many of these individuals were not interested in the implementation of substantial changes, because such steps, had they occurred, would have rendered these individuals professionally and organizationally obsolete.

Consequently, little innovation was infused into the system as most of the people who were responsible for making important decisions affecting higher education had been educated in the previous system. Many of them lacked experience in implementing new institutional and curricular initiatives favored by younger and more progressive faculty. Even now it is not uncommon for some university administrators (including people in positions of authority, such as rectors, pro-rectors, and deans) to resent and resist such changes as the introduction of credit and accreditation systems and modernization of programs. They claim these changes are not conducive to research and teaching areas, which these administrators believe require stability and continuity, not new initiatives. While stability and continuity are important, they must not be synonymous with stagnation and conservatism, which is often the case. It would be unrealistic to expect academics to react instantly to whatever changes are brought about by political and economic processes. However, insisting that academe is by its very nature traditional and conservative is unproductive, and slows the process of modernization in higher education. In the long term this is detrimental to the progress of the whole country. Thus, a combination of the lack of the will to change by educational leaders and the general populace’s incorrect assessment of the state of the educational system in terms of quality, content, and mission produced at best cosmetic—if any—curricular and structural changes in the educational sector in the early period of the country’s first noncommunist government.

Developments, or rather the lack thereof, at all levels of education, after the installment of the new government in August 1989 cannot be analyzed in isolation from the totality of the political and economic situation in Poland at that time. Indeed, the new noncommunist government had a great deal of support from the people who voted down communist candidates in the June 1989 election, but one must not forget that this critical political change did not produce any economic miracles. The acute problems and deprivations resulting from the economy inherited from the communists was widespread and deep. Food shortages continued and inflation skyrocketed. Who would care in this situation about the quality of education? After all, schools were operating, teachers regularly showed up at work, and universities continued to do their

usual job of offering classes, granting degrees, and running workshops and conferences. In short, education was not on the agendas of the new political elite, nor was there any great pressure for change from within the educational system.

## THE DEVELOPMENT OF POLAND AS AN EMERGING MARKET

Unlike the educational system, which remained largely unaffected by the political change of 1989, Poland's economy was transforming rapidly. Early in 1990, important actions, known as "shock therapy," were undertaken by the new government to speed up Poland's economic transformation. The general aim was to introduce principles of the free market, begin privatization, and infuse energy and initiative into the ailing economy. Shock therapy, often referred to as the Balcerowicz Plan, was prescribed and orchestrated by Leszek Balcerowicz, a professor of economics and the finance minister in the first noncommunist government. An extensive, indepth analysis of the Balcerowicz Plan can be found in Hunter and Ryan (1998), who stress that the plan rested on "five pillars of economic transformation: (1) macroeconomic stabilization; (2) liberalization; (3) privatization; (4) construction of a social safety net; and (5) mobilization of international financial assistance" (p. 79). Goldman (1995) provides a general outline of the causes and results of changes in central and eastern Europe.

Despite initial problems resulting primarily from the scale of the operation and relatively poor support from a society fearful of increased unemployment, implementation of the shock therapy approach nevertheless proved to be an effective method for the Polish economy to transform itself from socialism to capitalism. In general, the economic transformation took the form of creating new businesses resulting from the privatization of state-owned enterprises and establishing many new small businesses. Table 4.1 illustrates the dynamics of the growth of public and private economic entities between 1990 and 1997. These data indicate a strong preference in the Polish economy for the private sector. While the number of private economic companies was

**Table 4.1. Number of public and private economic entities in Poland**

Year	1990	1993	1995	1997
Public sector	7,337	5,924	4,357	3,369
Private sector	15,252	66,391	74,299	106,743

*Source: OECD economic surveys: Poland (1998).*

growing rapidly, the number of state-owned companies was gradually decreasing. The balance between these two economic developments was one of the decisive factors contributing to the success of the economic transformation of Poland in the 1990s.

Despite the fact that important branches of the national economy have not yet been privatized (e.g., the mining and steel industries and the transportation and telecommunications systems), the psychological barrier of fear in the market and individuals (not the state) making business decisions was overcome. By 1993, almost all indicators of economic growth had increased, and foreign firms, including American companies, began to invest in Poland. The country was being labeled an eastern European economic tiger and the biggest emerging market in central and eastern Europe. As a result of these developments, within a relatively short period of time Poland has managed to stabilize its economy and to intensify economic cooperation with the West. Inflation, for example, fell from 585.5 percent in 1990 to 14.6 percent in 1997 (see Table 4.2).

Tables 4.3 and 4.4 show comparative data for Poland and other eastern European countries with respect to gross domestic product (GDP) growth and direct foreign investment. It is worth stressing that these economic indicators, positive as they are, should be interpreted from the strategic point of view. Poland is a relatively large market in eastern/central Europe and its almost forty million inhabitants equals the combined populations of Albania, Bul-

**Table 4.2. Average inflation rates in Poland**

Year	1990	1993	1995	1997
% of inflation	585.5%	37.6%	21.6%	14.6%

Source: *Główny Urząd Statystyczny* [Central Statistical Office Yearbook] (1998).

**Table 4.3. Gross domestic product growth in Poland and eastern Europe**

Year	1991	1993	1995	1997
Poland	-7.6	3.8	7.0	6.9
Eastern Europe	-10.0	1.0	3.8	3.5

Source: *Główny Urząd Statystyczny* [Central Statistical Office Yearbook] (1998) and *OECD economic surveys: Poland* (1998).

**Table 4.4. Accumulated foreign direct investment in Poland and eastern Europe: 1997 and 1998 (in billions of U.S. dollars)**

Year	Poland	Hungary	Czech Republic	Russia	Bulgaria
1997	20.6	18.0	7.8	10.2	1.1
1998	30.6	20.0	10.2	unavailable	3.1

*Source: Polish Agency for Foreign Investment Bulletin (1998).*

garia, the Czech Republic, Hungary, Slovakia, and the Baltic countries combined.

Positive trends in the national economy resulting from a market-driven economy have meant positive changes in Poland's general overall development, including human development. According to the United Nations Human Development Reports (UNHDR, 1997, 1998), in 1994 Poland ranked 58 while the following year it moved up to 52 (education index was 0.92) in the overall Human Development Index (HDI). It was assigned to the "high human development" category of countries. By way of comparison, Canada ranked 1 (0.99), the United States 4 (0.98), Japan 8 (0.92), Mexico 49 (0.82), Brazil 62 (0.79), Russia 72 (0.92), and China 106 (0.75) (numbers in parentheses are education indexes).

It must nonetheless be stressed that despite a political climate generally congenial to change and innovation, the shock therapy policy bypassed higher education. According to the 1998 UNHDR, the funds allotted for higher education were lower in 1996 (0.83 percent of GDP) than they were in 1992 (0.88 percent of GDP).

Szymonski (1997) pinpoints the problem of underinvestment in higher education: "State appropriations of funds for research and education are very small (priorities are rather on short term social goals which can result in early public support for new political leadership), involvement of private business in research and education is marginal, as industrial companies are struggling for survival in a new economic reality rather than investing in research and development, and the universities themselves are trying hard to find new ways of operation, changing what used to be a traditionally conservative academia" (p. 17).

These critical remarks notwithstanding, the educational system in Poland has been at least partially responsive to the transformation process. In the next section I examine the various transitional elements in Poland and, in the last section, how the system of higher education responded to the demands of the market economy.

## HIGHER EDUCATION IN TRANSITION

The democratic processes that originated from the independent, free trade union Solidarity in the early 1980s, and the new policies that were introduced after the political revolution in 1989, deeply affected Polish institutions of higher education. Since the early 1990s institutions of higher education have enjoyed considerable autonomy in making decisions concerning aspects of academic life, such as the election of rectors, deans and their deputies; the number of students to be admitted each year; internal distribution of funds allotted by the state; cooperation with businesses and other external agencies; and admission requirements. This is especially true in the case of the larger universities, that is, the ones that employ more than sixty full professors, and that have the status of autonomous schools.

All institutions of higher education in Poland, both private and public, are subject to state regulations and supervision by a number of state agencies and institutions (e.g., by the Ministry of National Education, the Central Council of Higher Education, the Committee for Sciences and Research which allocates funds for research, and the Parliamentary Committee for Science and Higher Education). All legal matters pertaining to the functioning of institutions of higher education are regulated by The Act on Schools of Higher Education and The Act on Academic Titles and Academic Degrees, both passed into law on 12 September 1990 (Republic of Poland, Ministry of National Education, 1994).

Poland has thirteen universities and, unlike the United States, where such fields of study as medicine, the arts, and engineering, are integral parts of a unified university, in Poland these fields of study are usually pursued at separate higher education institutions that are completely independent. Some of these independent schools of higher education were not designated by the Ministry of Education as universities, but rather as academies, polytechnics, or simply higher schools. Consequently, the use of the term “university” to refer to all types of institutions of higher education is misleading in the Polish context. Therefore, I use a neutral term, “institution of higher education” (hereafter IHE), to refer to all types of postsecondary, degree-granting institutions of higher education in Poland. Institutions of higher education that are officially recognized as a university differ in several aspects from other IHEs, mainly in the broad scope of their programs (including Ph.D. programs), their larger number of faculty at the professorial rank (full, associate, and adjunct), and their larger number of students.

Table 4.5 shows the number and type of university-level institutions of higher education. They all admit students who hold certificates of graduation from secondary schools (equivalent to American high school diplomas) and they all grant M.A. and Ph.D. degrees.

**Table 4.5. Institutions of higher education in Poland**

Type of institution	No.
University	13 (plus 3 affiliated campuses)
Technical	19 (plus 3 affiliated campuses)
Engineering	4
Maritime	2
Economic	5
Pedagogical	9
Agricultural	10 (plus 1 affiliated campus)
Medical	10
Theological	7
Military	13
Music	9 (plus 2 affiliated campuses)
Fine Arts	6 (plus 1 affiliated campuses)
Theater	2
Film and theater	1
Physical education	6
Total	126

Source: *Informator nauki polskiej*. [Bulletin of Science and Research in Poland] (1994–1995).

Not listed in Table 4.5 are more than fifty three-year, foreign-language teacher training colleges established after 1990 to meet a dramatically growing demand for teachers of foreign languages, especially English. Some of these foreign language training colleges are incorporated into a university structure (such as at the University of Lodz), but most are administratively related to local Departments of Education and only academically supervised by a university. They all grant a degree called *licencjat*, which is equivalent to a B.A. degree.

It is worthwhile to compare the distribution of faculty employment at various IHEs. Table 4.6 shows the number of faculty employed in state institutions of higher education in Poland between 1980 and 1995.

As can be seen in Table 4.6, the position of universities vis-à-vis other institutions of higher education in Poland is dominant with regard to the number of faculty employed, amounting to almost one third of all faculty employed in the academic year 1994/1995. It should be noted, however, that

**Table 4.6. Number of faculty employed at institutions of higher education between 1980 and 1995**

Type	1980/1981	1984/1985	1990/1991	1994/1995
All types	54,681	56,598	60,333	67,066
University	13,525	15,043	16,777	19,253
Technical	17,170	16,277	15,679	16,878
Medical	8,058	9,077	9,874	8,939
Agricultural	5,767	5,985	6,171	6,089
Pedagogical	2,810	3,444	4,142	4,284
Economic	2,465	2,492	2,803	3,218
Military	na	na	na	2,934
Artistic (all types)	1,873	2,264	2,421	2,484
Physical education	1,229	1,365	1,537	1,505
Theological	133	143	143	668
Maritime	462	508	490	474
Other	1,189	na	296	340

Source: *Główny Urząd Statystyczny*. [Central Statistical Office Yearbook] (1986, 1992, 1996).

both universities and Academies of Economics offer degree programs in economics and management. Their combined growth is largely the result of faculty teaching economics and business, the largest of all the disciplines (Sapijaszka, 1993).

Unfortunately, it is not possible to make a comparison of the above data with the relevant information for private institutions of higher education for the following reasons:

- Employment data for private institutions have not been available until very recently and are incomplete;
- Employment of faculty at private institutions of higher education fluctuates from year to year, in relation to student intake; and
- Most of the faculty employed at private IHEs hold their full-time and primary positions at state schools.

Between academic years 1990/1991 and 1997/98 faculty employment increased about 25 percent at state IHEs of all types. This itself is a positive

**Table 4.7. Student enrollment and faculty employment at institutions of higher education (IHEs): 1980–1995 (in thousands)**

	1980	1985	1990	1995	1997/1998
Students	453.7	340.7	403.8	682.2	865.1
Faculty: All types of IHEs	54.7	56.6	60.5	67.1	73.1
Student/faculty ratio	8.3	6.0	6.7	10.2	11.8

Source: *Główny Urząd Statystyczny* [Central Statistical Office Yearbook] (1986, 1991, 1996).

phenomenon. However, the impact of this situation can be understood only when the data for faculty employment are correlated with data on student enrollment, which grew almost 50 percent in the same period. The relationship is shown in Table 4.7.

The rapid growth of the collegiate student population in Poland is also represented in Table 4.8, which shows the student enrollment ratio at both state and private IHEs as a percentage of the total population ages 19–24 from 1992 to 1996.

The data in Tables 4.7 and 4.8 reveal an alarming development in Polish higher education. While student enrollment has almost doubled in recent years, this positive development has not been followed by a comparable increase in faculty employment or state allocations to IHEs. Consequently, the dynamics of faculty employment are not compatible with the dynamics of student enrollment, and the student/faculty ratio is growing and becoming disadvantageous to students. As Table 4.9 shows, allocations to IHEs by the Polish government have never reached even 1 percent of the GDP.

**Table 4.8. Student enrollment ratio: 1992–1996**

	1992	1993	1994	1995	1996
% of total population ages 19–24 enrolled in state and private institutions of higher education	12.3	14.0	15.6	17.2	19.3

Source: *Human development report, Poland* (1998).

**Table 4.9. Percentage of gross domestic product (GDP) spent on higher education**

1980	1985	1990	1995
0.97%	0.70%	0.70%	0.76%

Source: *Główny Urząd Statystyczny* [Central Statistical Office Yearbook] (1996).

## THE EMERGING ECONOMY AND HIGHER EDUCATION

Having examined some of the problems that Polish IHEs have struggled with after the economic and political changes of 1989, let's turn to whether and how the system of higher education in Poland has responded to the challenges of the market economy. The central issue is the contribution of higher education to educating new leaders for Poland, a major emerging market in central and eastern Europe. Recent key developments in the Polish higher education system that contributed to the adaptation to a market economy include:

- increased autonomy and decentralization of IHEs
- modernization and internationalization of programs
- international mobility of faculty and students (i.e., exchanges)
- increased instruction in foreign languages
- privatization of higher education
- increased cooperation between educational institutions and business

Despite criticism regarding the pace with which these developments have been introduced, they are important, if not critical, issues in the process of educating Polish society to perform in a competitive market economy.

### Autonomy and Decentralization

The autonomy and decentralization of higher education institutional operations are necessary if they are to adapt to changing economic conditions, allow for self-correction, and have the capacity for self-transformation and regulation (Oleksy & Wasser, 1999). However, during the four decades of the centrally planned economy before 1989, IHEs were not accustomed to change and self-reliance. The new policies of decentralized decision making in the 1990s in such vital areas as financing, the internal administrative and academic structure, and the development of new programs made it possible for IHEs to adapt gradually to a market economy and democracy. The institutions of higher education have adapted by introducing changes in the curricula and teaching methods that make their students more flexible in their skills and ready to react to the changing conditions in the job market. Their new

policies have also made it possible for IHEs to become more involved in the transformation of local communities and, eventually, the whole country (Dietl, 1996).

A few examples will illustrate the results of decentralized decision making, which leads directly to increased autonomy for IHEs. Rectors and deans are now elected by the academic community of each IHE rather than being appointed by the Ministry of National Education, as was the practice under communism. Funds allotted by the Ministry of National Education are used according to each IHE's needs and priorities. Most larger schools formally recognized as autonomous (those employing at least sixty full professors) can freely design their teaching programs, set up quality control systems, create new faculties and specializations, and develop relationships with domestic and foreign partners.

### Modernization and Internationalization of Programs

Since 1989, the modernization of IHEs has:

- created new programs and introduced disciplines and specializations formerly absent from Polish IHEs (e.g., business and administration, communications, public relations, marketing);
- restructured curricula for most programs in management, business administration, law, environmental protection, banking and finance, international relations, and partly in social sciences, with a view to making them more market oriented and less theoretical in nature, changes more often than not modeled upon American and EU examples;
- introduced two degrees, the professional degree *licencjat* and the *magister* (equivalent to the M.A.) to make them more compatible with the West;
- introduced more flexible systems of study based on a credit system and accreditation (Oleksy, 1999); and
- increased international mobility of faculty and students through special study abroad programs and an increased number of foreign faculty.

One of the indicators of the modernization of Polish IHEs is the introduction of new fields of study not offered before 1989. Table 4.10 shows the distribution of specializations that have been introduced since 1989 in four disciplines.

Disciplines such as administration (in Poland this discipline has been traditionally offered as part of the program of the schools of law and should not be mistaken for MBA programs offered by faculties of management), economics, finance and banking, and management and marketing all have the status of disciplines in which the M.A. and Ph.D. degrees can be earned.

**Table 4.10. Distribution of specializations within selected disciplines**

Discipline	1980/1981	1995/1996
Administration	unavailable	4
Economics	23	45
Finance and banking	unavailable	12
Management and marketing	unavailable	58

*Source: Adapted from Informator dla kandydatow na studia: Ministerstwo Edukacji Narodowej [Bulletin of the Ministry of National Education for Higher Education Candidates] (1999).*

These disciplines were selected for closer analysis because they most directly contribute to the education of students who will be performing in a market oriented economy (Dietl, 1997).

Of the four disciplines, only economics was offered before 1989. Students who decided to earn a degree in economics could choose from among twenty-three specializations. By the academic year 1998/1999, the number of specializations in economics had grown to forty-five. The remaining three disciplines were introduced only after 1989.

The rapid growth of specializations within the discipline of management and marketing is closely related to the general enrollment increases in these disciplines. In 1990, at the beginning of the transformation period, 53,500 students were enrolled in management and marketing programs at all Polish IHEs. In the academic year 1998/1999, the number of students enrolled in management and marketing programs had increased almost fivefold to 260,800. The significance of this development is better understood when the number of students enrolled in management and marketing programs is compared with the total number of students at all IHEs. Comparison of the figures for student enrollment at state and private IHEs—Tables 4.7, 4.8, and 4.13—with data in Table 4.11 shows that 25 percent of Polish students in higher education are studying management and marketing (Rutkowski, 1996).

**Table 4.11. Number of students in selected disciplines**

Discipline	1990	1995	1997
Humanities	46,399	76,465	93,492
Business & management	53,494	139,658	260,858
Mathematics & computer science	9,660	15,014	20,470

*Source: Główny Urząd Statystyczny [Central Statistical Office Yearbook] (1998).*

Data on student enrollment growth (Tables 4.8, 4.9, 4.12, and 4.14) indicate an important tendency in Polish higher education: young people place a high priority on higher education and believe it is worth their time, energy, and (mostly their parents') money. This tendency constitutes a major attitudinal change in the student population since the 1980s when the economy was stagnant and student enrollment in IHEs decreased. Implicit in this new trend is a positive relationship between the economic development of the country and the perception of higher education as a source that provides the necessary knowledge and skills needed in the job market. Needless to say, this instrumental approach to education also has several negative aspects. It forces IHEs to focus on more practical market oriented programs, and has the potential to turn IHEs into vocational colleges. They must also resist the temptation to lower the quality of their programs by constantly increasing student enrollment without additional faculty appointments.

### **International Faculty and Student Mobility**

Another important change in Polish higher education is the sharp increase of international faculty and student mobility. Before 1989, faculty mobility, especially to western countries, was limited. Student exchanges existed but were largely restricted to the communist bloc countries. Faculty and student international mobility improved significantly after the political changes of 1989. IHEs can now initiate partnership relationships with foreign universities (without having to ask the Ministry of National Education for permission) involving joint research projects, teaching programs, organization of conferences and seminars, and faculty and student exchanges. All such initiatives constitute a vital part of the international cooperation of Polish IHEs. The pace of internationalization in Polish higher education was quickened significantly in 1990 when the European Union (EU) launched an initiative to help modernize and restructure institutions of higher education in central and eastern Europe in order to make them more compatible with their EU counterparts. With this initiative, both Polish faculty and students obtained direct access to EU higher education standards of teaching, programs of study, and library and instructional resources.

The initiative, fully funded by the EU, is called TEMPUS. For any eastern European university to participate in the program, it has to engage in a collaborative project involving partners in the EU and other eastern European countries. The TEMPUS program has a number of categories for which projects can be submitted:

- Structural Joint European projects, which involve the exchange of faculty and students, organization of conferences, seminars, and training workshops, and the purchase of equipment

- Faculty Mobility projects, which involve an exchange of faculty
- Complementary Measures projects, which are designed to help modernize the administration of universities in central/eastern Europe

TEMPUS-funded projects have played an important role in the transformation of Polish higher education. The prestige of these projects is so great that Polish IHEs are at least partially evaluated on the basis of the number of successful projects funded by the TEMPUS program.

A detailed description of a representative TEMPUS project at the University of Lodz is presented in Oleksy and Wasser (1999). The three-year project (1996–1999), designed at the University of Lodz by Professor Elzbieta H. Oleksy, entitled European Integration: Modernization of Curriculum in International Studies, is aimed at the modernization of the Polish education system in the areas of business, communications and media, and comparative law.

Table 4.12 illustrates faculty and student international mobility at all Polish IHEs in the years 1990–1997 that were funded through the TEMPUS program.

Although more faculty than students have participated in the international travel program sponsored by the TEMPUS program, students spent much more time at EU partner universities than did faculty when the figures for individual participation are converted into total months spent abroad. The relevant figures are 7,300 months for faculty and 39,400 for students.

The TEMPUS program is a concentrated attempt by the EU to help IHEs in the former Soviet bloc to modernize their educational systems. Since its inception in the early 1990s, the TEMPUS program has had a positive impact on Polish higher education by introducing Polish students and faculty to Western ideas and ways of operation.

### Privatization in Higher Education

Privatization became one of the priorities of the noncommunist government installed in 1989. Privatization of educational institutions, still a controversial issue, has become a widely spread practice in Poland. In higher education it took two forms; one involved the introduction by the state IHEs of programs

**Table 4.12. Number of faculty and students participating in the TEMPUS international travel program: 1992–1997**

	1990/1993	1994/1995	1996/1997	1990–1997
Faculty	3,562	3,099	5,679	14,681
Students	2,933	1,836	2,323	9,869

Source: TEMPUS National Office Poland report (1998).

**Table 4.13. Growth of private higher education: 1993, 1995, and 1997/1998**

	1993	1995	1997/1998
No. of schools	28	58	146
Students	unavailable	89,399	226,795
Faculty	unavailable	unavailable	5,545

Source: *Informator Ministerstwa Edukacji Narodowej* [Bulletin of the Ministry of National Education] (1999) and *Główny Urząd Statystyczny* [Central Statistical Office Yearbook] (1998).

for which individual students had to pay, and the other, which could be called fully fledged privatization of higher education institutions, involved establishing new IHEs which were owned by private individuals or organizations. Most of the newly founded private IHEs have the status of colleges that grant professional degrees (the *licencjat*) either in affiliation with state IHEs or independently. Few private IHEs grant M.A. degrees.

According to the *Informator Ministerstwa Edukacji Narodowej* (1999), there were fifty-eight private institutions of higher education in the academic year 1995/1996, but the figure for 1997/1998 was 146. Table 4.13 illustrates the rapid growth of private schools of higher education in terms of the number of students and institutions. Data for faculty employed at private IHEs are not really indicative of the student/faculty ratio (which would be over forty-one if calculated on the basis of data in the academic year 1997/1998, a very disadvantageous indicator for students) because it is a common practice that private IHEs also employ faculty whose first place of work are state IHEs. Therefore they may not be listed as employed by private IHEs. It should be noted that some of the private schools have been founded in cooperation with Western partners, including American universities and colleges.

### University Financing

The rapid development of private institutions of higher education is a positive development because it is forcing the Polish state to address a variety of critical issues. The basic problem is that the financial support of Polish higher education by the state has been notoriously low in recent decades, and especially after 1990. As a result of the insufficient state funding of higher education, the burden of increased student enrollment must be carried by the institutions and the individual families who must pay fees for study. In this situation both state and private IHEs compete for students' tuition money,

which, needless to say, creates friction between the state and private IHEs. According to the legal provisions, the state schools are not supposed to charge tuition for their programs. In order to obtain additional funds they have found ways to bypass the Polish constitution which guarantees free education at public educational institutions by offering special, extramural, evening, and postgraduate programs. These programs, it is claimed, are out-of-the-ordinary educational activities of state IHEs, and therefore tuition, for these programs can be charged. The private schools can legally charge their students tuition but often the quality of their programs is not comparable with that at state schools, and in this situation a question of fairness arises. However, the increased demand for higher education seems to be an irreversible process in Poland.

### **Instruction in Foreign Languages**

Although programs entirely taught in a foreign language are still few in number, every year more and more schools intensify and extend instruction in foreign languages to non-language disciplines such as business, economics, and management. One example of the new approach to foreign languages is at the University of Lodz where some newly founded units (e.g., the Institute of International Studies) decided to extend instruction of foreign languages and, what is more important, introduce courses entirely taught in a foreign language. Lodz's Faculty of Management launched a four-semester Executive MBA program which is partly taught in English, and the Department of American Studies and Mass Media runs a postgraduate program and an M.A. program entirely in English.

### **Cooperation between IHEs and Business**

Cooperation between IHEs and private businesses or state enterprises in Poland is still rare. After decades of neglect and underinvestment in research and higher education in "People's Poland" (1945–1989), accompanied by the lack of any institutional framework which would facilitate cooperation between universities and private or state enterprises, it is hardly surprising that economic and business decision makers are reluctant to view Polish universities as partners. There is the need for at least three developments. First, a legal system regulating cooperative activities between businesses and academia so that both partners could benefit from reciprocal advantages. Second, IHEs do not have specialists (including fundraising specialists) on their staffs who are trained in how to reach businesses that might be willing to begin cooperation. Third, IHEs in Poland have demonstrated a disdain for qualified practitioners in business, administration, media, and others, who might be invited to teach practical classes and seminars to university students and

share with them their invaluable experience. Finally, because of the lack of external funding, most IHEs are not able to conduct research on innovative technologies because they have neither access to up-to-date laboratories nor modern equipment. Therefore, it is not surprising that participation of IHEs in the transfer of modern technology to businesses is minimal. In sum, cooperation between IHEs and businesses face organizational problems and is very limited in scope. This should be a matter of concern to both educational administrators and business managers.

## CONCLUSION

At the beginning of the chapter I posited that despite the obstacles to a substantial transformation of Polish higher education—which included an unfavorable economic situation in the earlier half of the 1990s, the conservatism and the inertia of the people responsible for managing higher education, and the lack of political will and shortsightedness of decision makers—progress was made in the following areas:

- increased autonomy and decentralization of IHEs
- modernization and internationalization of programs
- increased international mobility of faculty and students
- increased instruction in foreign languages
- introduction of privatization in higher education

These developments resulted in a decisive increase in student population (especially in management, business administration, economics, and foreign languages), and were an incentive for curricular changes modeled on American and EU practices. When viewed from the perspective of the skill needs of Poland as an important emerging market country in central/eastern Europe, and as a viable civil society, these positive developments in higher education have contributed substantially to the education of political and economic leaders who will be able to meet the challenges of the future.

An additional long-term effect of the transformation of higher education has been that of change in the social perception of the role of higher education in Poland's market driven economy. The negative attitude reflected in the 1980s and at the beginning of the transformation had changed to a positive perception by the end of the 1990s. In short, the trends in Polish higher education helped create fertile grounds for sustainable capitalistic and democratic development of a formerly closed economic and administrative political system.

It may be tempting to assume that the recent economic growth in Poland and the emergence of a civil democratic society have been the outcome of developments in higher education. Yet I will avoid overstating the impact of

higher education and conclude on a more cautionary note. The positive developments in higher education, although closely related to economic and political transformation, have not affected these transformations to the extent that the transformation has impacted higher education. In short, positive developments in the economy stimulated changes in higher education, not necessarily vice versa.

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PART III

Asia



# The Emerging Markets and Higher Education

## Experiences from Taiwan

HSIOU-HSIA TAI

Taiwan is an island country the size of the Netherlands with a population of 22 million. In the past five decades, the nation has undergone a dramatic transformation. Politically, Taiwan has transformed from an authoritarian state to a democratic nation, with a popularly elected president and active opposition parties. Economically, Taiwan has shifted from labor-intensive to capital- and technology-intensive industries and now stands as one of the Pacific Rim “Dragons.” Along with Japan, Taiwan and other Asian newly industrialized countries constitute one of the most dynamic regions in the global economy.

Despite the impressive gains made since the early 1960s, Taiwan has realized that its competitive advantage, based on wage differentials, has been eroded by an upward wage spiral. To maintain previous levels of economic growth, the government began to take steps to effect the transition from a manufacturing- to innovation-based economy through technological development. One example of such efforts is the creation of the Industrial Technology Research Institute (ITRI) in 1973. The mission of ITRI was to conduct applied research and to transfer the results to industry. With a view toward getting industries more actively involved in research and development (R&D), the government established Hsinchu Science-Based Industrial Park (HSIP) in 1980. HSIP was one of the first science parks developed outside of the industrialized economies. Since its creation in 1980, HSIP has experienced great success in developing high-tech industries and has become one of the fastest growing science parks in the world (Xue, 1997).

As contributors to the success of HSIP, two research-oriented universities, National Chiao-Tung University and National Tsing-Hua University (together with several other research institutes, including ITRI) have played an indispensable role. For example, in the early 1960s, National Chiao-Tung University established Taiwan’s first electronics engineering graduate program,

concentrating on semiconductor technology. The graduates of this program have made significant contributions to the development of the semiconductor industry in Taiwan and most indigenous semiconductor companies have been formed or owned by them (ITRI, 1991). In addition to pioneering high-tech fields and providing a well-trained workforce, over the past decade Chiao-Tung and Tsing-Hua Universities have assisted HSIP in various aspects, including training courses and seminars, technology transfer through research contracts, faculty consultancy, and licensing/patenting.

Although maintaining close ties to industry has not been a tradition for most Taiwanese universities, the successful collaboration between HSIP and Chiao-Tung and Tsing-Hua Universities has strengthened the government's commitment to make higher education one of its key policy tools to upgrade the country's general level of industrial R&D. Several measures have been taken by the government to facilitate the flows of knowledge, technological knowhow, and personnel between universities and industry.

Although researchers have not yet reached a consensus regarding the usefulness of university research to high-tech industries, in this chapter I argue that Taiwan's experience demonstrates the actual and potential contributions that universities can make to technological advancement and competitiveness in the emerging markets. After reviewing Taiwan's economic and political development over the past decades, I offer a detailed discussion of Taiwan's decisions and strategies to move toward high-tech industries since the late 1970s. I then review the characteristics of Taiwan's higher education system and recent educational reforms, exploring the new context in which universities are required to fulfill the new mission of serving the needs of industry. Finally, I analyze the challenges to a closer university-industry linkage.

## **TAIWAN'S ECONOMIC AND POLITICAL DEVELOPMENT**

World War II left Taiwan in a state of devastation. There was an extremely short supply of basic necessities, and inflation was rampant. During the period between Taiwan's recession and the Nationalist government's retreat to Taiwan in 1949, the population of the island increased rapidly. In 1949 alone, almost 1.6 million military personnel and civilians—consisting mainly of industrialists, bankers, doctors, administrators, and professors—emigrated from the mainland to Taiwan. This was the largest single movement of elites in world history (“Taiwan survey: In praise of paranoia,” 1998). After the Chinese mainland fell to the communists in 1949, contact between the two countries was cut off, causing a further shortage of supplies and materials for Taiwan and thus panic hoarding that fueled inflation (Pan, 1980). After the Korean War broke out in 1950, the U.S. government resumed its economic aid to Taiwan and assisted in the defense of the Taiwan Strait, preventing the

communists from invading the island and allowing Taiwan to stabilize both economically and politically.

In the last half century, Taiwan's economic structure has undergone gradual reconfiguration. Before 1962, agricultural production contributed more to the gross domestic product (GDP) than did industrial production. In 1952, for example, agriculture's share of GDP was 32.2 percent compared to 16.7 percent for industry. Agriculture fell to 25 percent in 1961, never again to account for the largest share of GDP. In 1962, industrial production exceeded that of agriculture, and Taiwan's "industrial era" began. With successful measures taken by the government to establish export processing and industrial zones, international trade and foreign investment were boosted, helping to fuel economic growth. The period between 1963 and 1980 witnessed the most rapid economic growth in Taiwan's history. Despite the adverse effects from the worldwide energy crises in 1973 and 1979, Taiwan achieved an average annual growth rate of more than 10 percent in these years.

Even greater changes in the structure of Taiwan's economy took place in the 1980s. As Southeast Asian countries tapped their cheap and abundant work forces to develop labor-intensive industries, Taiwan lost its comparative advantage in the world market. Labor-intensive industries were gradually replaced by technology and capital-intensive industries. The transformation of Taiwan's economy from light to both heavy and technology-intensive industries is quite apparent in terms of production value. The share of the total value of manufacturing output and the percentage of exports also reflected the increased importance of the heavy chemical and technology-intensive industries (see Table 5.1).

For most of the 1952–1980 period, Taiwan imported more than it exported. However, since 1981 Taiwan has enjoyed a continuous trade surplus. By 1995, the island's foreign exchange reserves reached \$100 billion. Although this amount has recently decreased slightly, Taiwan has remained one of the world's largest foreign-exchange reserve holders.

Taiwan's economic success in turn fueled its political development. The increase of per capita income expanded the upper and middle classes. Along with the elevation in social and economic status came a subsequent rise in political awareness and civil responsibility. Rising expectations increased the overall standards of political participation, and people in Taiwan began to show discontent with the tight control exercised by the government. This was particularly the case after the death of Chiang Kai-Shek in 1975.

After the Nationalist government moved to Taiwan in 1949, it implemented, under martial law, the Emergency Decree. This decree placed various restrictions on people's rights including freedoms of speech, publication, assembly, and association, which were originally guaranteed by the Constitution. For instance, strict control was imposed on free entry and exit of the island, strikes, mass demonstrations, and protests. The "one-dominant-party"

**Table 5.1. Structural transition in Taiwan's economy**

Year	% Of the structural change between light and heavy chemical industries			% Of the manufacturing industry's production value made up by heavy chemical and technology-intensive industries	% Of exports made up by heavy chemical and technology-intensive industries in terms of export value	% Of exports made up by technology-intensive exports
	Manufacturing industry	Light industry	Heavy chemical industry			
1986	100	51.52	48.48	59.65	54.9	unavailable
1987	100	49.65	50.35	60.94	57.2	24.2
1988	100	47.17	52.83	63.92	61.3	28.8
1989	100	45.40	54.60	64.60	62.5	29.5
1990	100	44.06	55.94	65.28	64.3	34.0
1991	100	43.02	56.98	66.29	64.8	unavailable
1992	100	40.72	59.28	67.05	68.2	31.1
1993	100	38.14	61.86	68.68	69.2	38.3
1994	100	36.45	63.55	70.32	69.7	56.5
1995	100	33.63	66.37	73.26	69.9	46.7

*Sources:* Ministry of Economic Affairs, Statistics Department (1996); National Science Council (1997).

NOTE: The heavy chemical and technology-intensive industries include the production of chemical raw materials and products, rubber and plastic products, basic metals, metal products, machinery, electronics, electric appliances, transportation vehicles, and precision instruments.

system helped the ruling Kuomintang (KMT, the nationalist party) to maintain its majority, and no significant opposition party was formed until 1986.

Although the Emergency Decree was still in effect, restrictions on freedom of speech were greatly eased, and public assemblies and demonstrations were tolerated after major conflicts between protesters and police occurred in the wake of the "Chungli Incident" in 1977. This clash was sparked by rumors of election irregularities. To avoid further tensions between the Chinese mainlanders who moved to Taiwan with the Nationalist government and the Taiwanese whose forefathers had emigrated from the mainland to the island hundreds of years ago, and to ease the pressure from the Americans for

faster democratization, Chiang Ching-Kuo (Chiang Kai-Shek's son and successor) was much more responsive to the demands for political reforms than his father. After many years of struggle, the establishment of the Democratic Progressive Party (DPP) was formally announced on September 28, 1986, marking the birth of Taiwan's democracy.

With increased demands for political participation and democratic development, the ruling KMT was forced to study the implementation of several reforms, including the lifting of the Emergency Decree, the reelection of parliamentary members, and provisions for the legal basis for local self-governance. Since the government announced the lifting of the Emergency Decree on July 15, 1987, Taiwan has moved rapidly toward democracy. A series of political reforms quickly followed the end of martial law including the removing of restrictions on newspaper licensing and publishing. In 1996, for the first time in Taiwan's history, a national presidential election was held. This bloodless transformation of Taiwan to democracy over the past decade is regarded as one of the most edifying in Asia ("Taiwan survey: In praise of paranoia," 1998).

Taiwan seems to have gone through most of the social turmoil caused by political reform without great damage to the economy. In 1997, the country's gross national product (GNP) topped US\$285.3 billion (the eighteenth highest in the world), and per capita GNP reached an all-time high of US\$13,233. Foreign trade climbed to a record US\$236.5 billion, with exports amounting to US\$122.1 billion, slightly higher than the US\$114.4 billion in imports. Taiwan now stands as one of the world's fifteen leading trading nations.

## **GROWTH OF HIGH-TECH INDUSTRIES**

Because of the rising cost of labor and the scarcity of land for factories, Taiwan's conventional industries lost their competitive edge to other newly modernizing nations. To maintain national competitiveness, the government began in the latter half of 1970s to formulate strategies to promote the development of high-tech industries on the island.

Apart from losing comparative advantage in conventional industries, the increasing deregulation of the world economy was another factor that had accelerated Taiwan's move toward the high-tech industries. In the wake of the disintegration of the former USSR and the liberalization of the eastern European countries, the world has been witnessing a trend toward the free market economy. Western European countries and Japan reduced the economic role of the government and accelerated the privatization of public enterprises, with even mainland China opening its doors and accepting market mechanisms. With the removal of trade barriers, industries in all nations have been facing a freer and more interdependent global economy characterized by even stiffer competition.

As pointed out by Porter (1990) and Thurow (1996), traditional natural resources and capital are no longer the key elements of national competitiveness; the source of economic growth now and in the future will largely depend on technological progress. In order to maintain their share of the world market and the competitiveness of their products, most of the developed countries have repeatedly stressed the importance of high-tech industries and invested heavily in both private and government research and development. For example, America, Japan, Germany, and France have maintained research budgets in the range of 2.3 percent to 2.8 percent of GDP over the last decade.

In view of the importance of advanced technology and the vigorous efforts made by the developed countries, Taiwan has made great efforts in creating a more favorable environment for technological development. For example, HSIP, which was modeled on Silicon Valley, was established in 1980. Tax incentives and shared factory space were offered to help new companies. The National Information Infrastructure program was launched in 1994, aimed at promoting widespread use of the Internet and the development of Taiwan as an "Asia Pacific Regional Internet Hub."

The vigorous expansion of Taiwan's high-tech industries has been the driving force in the transformation of Taiwan's industrial structure. While the output of technology-intensive industries constituted just 24 percent of all manufacturing output in 1986, the figure rose to 37.5 percent by 1996. According to statistics from the Institute for Information Industry's Market Information Center, if production from overseas subsidiaries is included, Taiwan was the world's leading producer of a number of information technology products in terms of volume in 1997. For instance, Taiwan produced more than 60 percent of the world's motherboards and more than 50 percent of image scanners, mice, and monitors.

Unlike Japan and Korea, where huge financial conglomerates lead industrial progress, Taiwan's industry is mainly structured by small and medium-sized enterprises (SMEs). Being limited in terms of capital and production capacity, Taiwan's SMEs found a market niche in the original equipment manufacturer (OEM) market, where manufacturers produce goods to the specifications of other firms. With the flexibility attributed to the small scale of the companies, Taiwan's industries (from bicycles to high-tech) are capable of establishing low-volume, high-quality, diverse product lines and offering responsive services to customers. Instead of massive production of standardized products such as direct random access memory chips, most of Taiwan's semiconductor producers are foundries, building chips to clients' specifications rather than producing their own chips for sale on the open market. It is estimated that three-quarters of Taiwan's electronic production is sold under the brand names of non-Taiwanese companies.

Taiwan's tradition of OEM fits well with commodification of Silicon

Valley products since the early 1980s, dividing the industry into big brand-name companies that concentrate mostly on marketing and sales and a horde of no-name component suppliers who supply generic parts at low prices (“Taiwan survey: In praise of paranoia,” 1998). Taiwan’s high-tech industries are closely linked to Silicon Valley: the Valley does basic research and creates standards for new products, and Taiwan designs and manufactures these products, only to sell them back to the U.S. market. While this division of labor—whereby “Silicon Valley creates it, Taiwan makes it,” has been a great success, Taiwan is still far from its goal of becoming a world-class “sci-tech country” (Li, 1998).

Taiwan’s industry knows very well that more advanced R&D means higher added value and greater profits, but the lack of enough people with high-tech skills and capital causes the R&D departments of many local high-tech firms to concentrate on product design rather than product development. Although Taiwan is the world’s number two producer of notebook computers, for example, it does not manufacture one of their key components, the LCD monitor. Instead, Taiwan must rely on Japan and Korea, importing more than US\$1 billion worth of LCD monitors every year.

The inferiority of Taiwan’s technological base has been one of the greatest obstacles to the development of its high-tech industries. One of the most important factors leading to this weakness was inadequate government investment in R&D. In 1996, Taiwan’s total R&D expenditures amounted to NT\$138.6 billion (approximately 1.85 percent of GDP). Although this level is 10.8 percent higher than the NT\$125.0 billion spent in 1995 (1.81 percent of GDP), Taiwan’s overall R&D expenditure still lags considerably behind those of developed western nations and other newly developed countries that compete fiercely with Taiwan on the international market. In 1995, for example, Taiwan’s total R&D outlay of US\$4.6 billion was only about 60 percent of Sweden’s and the Netherlands’, and 50 percent of South Korea’s. When compared in terms of percentage of GDP, Taiwan is also inferior to other nations (see Table 5.2).

The other factors that have prevented Taiwan’s high-tech industries from developing at full speed include inadequate legislation and government policies that failed to make the most effective use of basic research, and that hampered the free flow of personnel and technological innovations between the private and public sectors. This is especially true in universities, where most research and technological innovation are generated. When professors at universities conduct research for government agencies, for instance, any patents arising out of their research are the full property of the state and are in many cases simply shelved away and forgotten.

In view of the urgent need to strengthen the foundation of high-tech industries, in 1997 Taiwan’s first-ever “White Paper on Science and Technology” was released by the National Science Council (NSC). The NSC over-

**Table 5.2. Research and development (R&D) expenditures of Taiwan and other countries**

	R&D expenditures in \$millions	R&D expenditures as % of gross domestic product
Taiwan (Republic of China)		
1994	4,371	1.80
1995	4,585	1.81
1996	5,041	1.85
Japan		
1993	112,020 (122,567)	2.63 (2.88)
1994	124,516 (136,315)	2.59 (2.84)
1995	128,281 (140,117)	2.70 (2.95)
United States		
1994	168,748	2.51
1995	179,126*	2.55*
1996	184,665*	2.52*
Germany		
1994	49,866	2.33
1995	55,364	2.30
1996	51,910	2.28
France		
1994	32,840	2.38
1995	36,549	2.33
1996	34,795	2.31*
United Kingdom		
1994	20,058	2.15
1995	21,947	2.11
1996	22,207	2.05
South Korea		
1994	7,666	2.32
1995	9,826	2.60
1996	12,240	2.71*
China		
1994	3,379	0.60
1995	2,631	0.50
1996	3,439	0.50

Source: National Science Council (1997).

Note: Taiwan's figures are surveyed by calendar year. Data include humanistic and social sciences, except for Japan, South Korea, and United Kingdom; for Japan's figures, data in brackets include humanistic science. Asterisks indicate provisional figures.

sees the development of science and technology and is accorded the status of a ministry. The White Paper extensively discussed the achievements and challenges of Taiwan's high-tech industries and presented twelve strategies to overcome the current bottlenecks:

1. Steadily increase R&D expenditures and raise the quality of R&D personnel.
2. Integrate research resources to achieve synergistic effects and mobilize the R&D resources of universities.
3. Promote frontier research programs and national projects.
4. Develop key industrial technologies.
5. Develop more science parks to accelerate the growth of the high-tech industry.
6. Implement the National Information Infrastructure program.
7. Achieve sustainable development and improve public well-being through R&D.
8. Put science and technology (S&T) policy on a sound basis.
9. Harmonize S&T with the humanities.
10. Strengthen international cooperation and encourage S&T exchanges with mainland China.
11. Broaden S&T education and public awareness.
12. Strengthen national defense R&D and promote civilian-defense cooperation (National Science Council, 1997, pp. 33–45).

Among the strategies proposed by the NSC the role that universities can play in filling the gap in technological innovation was shared with industry. Stronger bonds between industry and higher education are viewed as important vehicles to spur technological innovation and economic growth.

## **TAIWAN'S HIGHER EDUCATION SYSTEM**

For thousands of years education has been given a high priority by the Chinese people. When the first republic in Chinese history was established in 1912, it inherited this traditional commitment to education. For example, Article 164 of the Constitution directs the government to spend at least 15 percent of the national budget on education. However, when the KMT government retreated to Taiwan in 1949, this commitment could not be kept, as at the end of World War II Taiwan had been ravaged by Allied bombing and stripped of its wealth by the Japanese colonial rulers. With the rapid economic growth of the 1960s, Taiwan's education system was strengthened and compulsory education was extended from six to twelve years in 1968.

Over the past four decades, Taiwan's higher education system also went through rapid expansion. In 1950, there were seven institutions of higher education, including one university (with three graduate programs), three

colleges. The number of students totaled 6,665. By 1997–1998, Taiwan had seventy-eight universities and four-year colleges, enrolling 422,321 students (19.42 percent of the age group). In addition, there were sixty-one junior colleges, with a combined number of students reaching 433,865, and accounting for 19.95 percent of the age group (Ministry of Education, 1998).

While universities and colleges offer general education and advanced studies, junior colleges focus on vocational and professional training. Based on the required length of study and admission qualifications, junior colleges can be classified into three categories: (1) five-year junior colleges, admitting junior high school graduates (except those majoring in pharmacy, veterinary medicine, marine engineering, and navigation, are required to take six years of education); (2) three-year junior colleges, admitting senior vocational school students (except veterinary medicine majors who are required to study for four years); (3) two-year junior colleges, admitting senior vocational school graduates with work experience (those majoring in architecture must study for three years).

The expansion of higher education in Taiwan has undergone four phases: (1) stagnation in the post–World War II period; (2) expansion in the 1960s, marked by a broad consensus concerning the desirability of expanding higher education, especially through private sector efforts in order to accommodate more students while lessening the financial burden of the government; (3) stagnation in the 1970s and the first half of the 1980s, partly due to the worldwide economic recession as well as the unsatisfactory performance of the private sector; (4) expansion since the mid-1980s, revealing a growing demand for a government commitment to a system of mass higher education in order to satisfy the social and economic demands (see Table 5.3).

In the early 1960s, educational aspirations among high school seniors began to rise, and competition for entry into higher education institutions became more intense. In order to satisfy the growing demand for higher education, an official policy to expand the scale of private sector education was carried out in 1964. Since then, the weight of private sector education has continuously increased with respect to the number of institutions, students, and academic staff. The number of students in the private sector has grown from 27 percent in 1960, 63 percent in 1970, 68 percent in 1980, and 71 percent in 1997. The percentage of students in private universities and colleges has grown to 58 percent of all university and college students in 1997 and 88 percent for junior colleges (Ministry of Education, 1998).

Having functioned as an apparatus for bringing higher education to the masses, the private sector has many more students, but it lacks the elite status of the public universities. This aspect of Taiwan's higher education system is quite different from both the European and American systems, where the public sector dominates over the private sector as far as student population and institutional status are concerned (with a few exceptions in the United

**Table 5.3. The expansion of Taiwan's higher education system: Number of students and population ratio in various sections**

Year	Junior colleges	Population ratio	Undergraduate program	Population ratio	Master program	Population ratio	Ph.D. program	Population ratio
1950-1951	1,286	0.17	5,374	0.71	5	0.00	0	0.00
1960-1961	7,888	0.73	26,735	2.46	426	0.04	11	0.00
1970-1971	108,328	7.34	92,850	6.29	2,129	0.14	166	0.01
1980-1981	183,134	10.25	153,088	8.57	5,633	0.32	673	0.04
1990-1991	315,169	15.45	239,082	11.72	17,935	0.88	4,437	0.22
1997-1998	433,865	19.95	373,702	17.19	38,606	1.78	10,013	0.46

*Source:* Ministry of Education (1998).

States, where the private sector dominates in some areas). In this sense, the higher education system in Taiwan is similar to that of Japan, which also has a private sector with more students and institutions than those of the public sector. The private sector has an inferior status (except for a handful of prestigious private universities).

The public sector is composed mainly of universities and a handful of junior colleges. As for universities, a hierarchy exists with twenty national universities in the upper stratum, while most of the private sector institutions occupy the lower stratum. National universities, especially those standing on the top of the hierarchy, are research oriented and aim at providing education for the elite, while the private universities are designed to serve the needs of mass higher education.

Unlike European countries, the national sector of higher education in Taiwan does not adopt a tuition-free policy. However, with substantial governmental funding it has been able to control the tuition fees at levels well below the real cost. By keeping tuition and other fees low, national universities are the target destination for most high school graduates, and therefore attract the more capable students from all economic and social strata.

Except for tuition fees, private higher education institutions in Taiwan, in contrast, do not have stable sources of income. Earnings from university funds, university extensions, subsidiary businesses, or donations constitute only a small percent of their revenues. Government subsidies are limited and are basically performance based. Consequently, students in the private sector pay much higher tuition fees in comparison with those of the public sector, even though a higher proportion of them come from families of modest means.

Differences in educational resources between public and private institutions are evident. On the average, students of the private universities pay 2.7 times the tuition fees shouldered by their counterparts enrolled in public universities, but obtain only half of the per capita expenses enjoyed by the students of the public sector (Kuo, 1996). The disparity has caused great discontent among the students and parents of the private sector, and growing protests by students have led the government to reconsider its funding and tuition policy.

## HIGHER EDUCATION REFORM

Generally speaking, the total involvement of universities in social reconstruction and economic development began no sooner than the last century (Rothblatt, 1995). With a much narrower range of functions and missions, the traditional obligations of the university were not as pressing as they are today, and the university's role in social and economic development was generally reactive and passive. Universities in Taiwan were no exception. Before the

lifting of the Emergency Decree in 1987, Taiwan's universities hardly functioned as an agent of change. Both the professorate and the students preferred stability to change, particularly during the period of authoritarian rule.

Until recently, the entire education system of Taiwan was under the centralized control of the government. As far as higher education is concerned, the major form of control exercised by the Ministry of Education lies in its power to charter higher education institutions. Establishment of new institutions and departments, and any other changes such as those related to the size of enrollment, curricular standards, and minimum credits required for graduation, are all subject to the approval of the Ministry of Education. With the economic liberalization and political democratization that swept over Taiwan in the latter half of 1980s, however, a large-scale educational liberalization and democratization movement began to take shape.

After the Emergency Decree was lifted in 1987, voices calling for education reform became louder and louder. Several voluntary organizations and professional groups dedicated to promoting reforms were formed to focus on the country's educational crisis. These pressure groups made great efforts to draw public attention to the need for educational reform through lobbying and demonstrations, which were tightly controlled before 1987. These reform efforts have been directed toward: (1) The improvement of the entrance examination system to reduce the burden on students and to make the examination-oriented curriculum stronger and more balanced; (2) democratization and deregulation of the entire educational system to promote institutional and professional autonomy; (3) the reallocation of resources to assure equality of educational opportunity; and (4) the overall restructuring of teacher education programs and institutions to break down the monopoly of normal universities and teacher colleges in the training and provision of teachers.

In response to the call for education reform throughout the island, the Executive Yuan decided to set up an ad hoc council to study the problems of Taiwan's educational system and to offer possible solutions. As a result, the Council on Education Reform, headed by Dr. Yuan-tze Li, a winner of the Nobel Prize in chemistry and president of Academia Sinica, began to operate in September 1994. Among the various education reform organizations, the Council has enjoyed extraordinary esteem and prestige as it has included some of Taiwan's most distinguished elite. Among the thirty-one members of the Council there were five university presidents, four cabinet members, several chairs of large enterprises, numerous university professors, and other notables. After issuing four reports tackling issues and problems of various aspects of the educational system, the Council completed a "General Consultation Report on Educational Reform" in December 1996, which has laid the foundation for Taiwan's educational development for the years to come.

In this wave of educational reform, no sector of the educational system has been exempt from the need to implement drastic changes. In the realm of

higher education, the most significant reform measures affecting institutional positioning and operation include the relaxation of government control, the revision of financing policy, the introduction of market forces, and an emphasis on accountability and assessment.

### **Deregulating Taiwan's Higher Education**

The process of deregulating Taiwan's higher education system was accelerated by the revision of the University Law in 1994. The amended University Law reduced the central control that the Ministry of Education exercised over higher education institutions. It relaxed the regulations governing higher education's structure, finance, and curriculum and delegated these decisions to the institutions themselves.

The new legislation provides legal guidelines for the restructuring of Taiwan's universities. The amended law, for example, states that university presidents, who in the past were appointed by the Minister of Education, shall be nominated by a committee comprising faculty members, alumni, administrators, and respected professionals in the community. These nominees are then approved by the Ministry of Education. Generally speaking, universities in Taiwan now enjoy much greater autonomy than they used to. In many universities, both deans and chairpersons have been elected by faculty members or selected by search committees.

Under the amended law, each university will be able to set up its own committee for reviewing teacher performance and certifying faculty members in accordance with the relevant laws. Moreover, each university will play a more active role in designing its own unique core curriculum. Similar to their counterparts in European countries, Taiwanese universities are moving from a state control model to a state-supervised model (van Vught, 1994). This change is regarded as a great advancement in the relationship between government and higher education, for the new model gives individual institutions more latitude in shaping their development according to individual strengths (Neave, 1995).

### **REFORM OF FINANCE IN HIGHER EDUCATION**

The "Report on Education in the Republic of China" released by the Ministry of Education in 1995 recommended that although a major part of the financing of national universities should remain public, self-financing in universities should be increased, and in order to promote quality, a portion of public funds given to universities should be based on competitive criteria. The proposed increase in private funds is expected, in the early stages, to rise as high as 20 percent, including income from student fees and additional funds from external contracts. At the same time, both public and private universities have

been given greater latitude in raising tuition fees, which had been traditionally fixed by the government. To reduce the impact of higher fees on students from low- or middle-income families, a considerable increase in public funds has been committed to student grants and loans. It is believed that the implementation of a “high fee, high aid” policy will avoid the political conflict over increased fees and would increase student financial responsibility, expand opportunities for upward social mobility, and increase the possibility for students to choose among the universities.

The increased proportion of external funds that a single university is able to obtain is a clear indication of the enhanced role of the market in the relationship between the institution and society. In Taiwan external funds for universities are scarce, but have grown rapidly in recent years. Although external funds account for only a small portion of university income, these funds were nonexistent only a few years ago. Through the use of specific offices or foundations, universities have recently developed an increasing liaison network with public or private organizations. In addition to research funds, university income is also boosted by consulting, extension teaching activities, and university-to-industry liaison programs.

Campaigns to attract philanthropic funds are also a result of the growth of market trends in universities. Seeking philanthropic funding is more common in the private universities, but rather unusual in public universities. One of the forces in fundraising campaigns in U.S. universities is the assistance of alumni. In order to make fundraising more effective, many universities—both public and private—in Taiwan are working hard to foster long-term relationships with their graduates and to strengthen their connections to both business and industry.

### **Introduction of Market Forces in Higher Education**

In the past, when the higher education system was under the strict control of the government, competition among institutions was not encouraged. Uniformity rather than diversity was the golden rule. Thus, it is not too difficult to understand why the national universities were dubbed “Branch Campuses of the Ministry of Education” by the critics of the centralized control system. In recent years, accompanied by deregulation and budget cuts, the advance of market forces in the form of competition has been introduced to Taiwan’s system of higher education.

As stressed by the Council on Education Reform (1995), to pursue excellence in higher education, “regulations must be replaced by competition” (p. 24). Competition can now be observed in various aspects of Taiwan’s higher education system. For example, up to the present, academic remuneration has been uniform across the sector. Teachers are rewarded on the basis of seniority and not on performance in teaching and research. The 1995 report

envisaged a new reward structure based on productivity. It also proposed an evaluation system for faculty personnel in order to generate increased productivity and to reward those who perform well in teaching and/or research (Ministry of Education, 1995).

In order to shorten the gap between the private and public higher education systems, and to put the private sector in a better position to compete, the government is relaxing its control over tuition and fees and is giving the private universities greater latitude to establish new departments and to determine student enrollment levels, in order to respond more actively to the market. Recently, the Ministry of Education and the NSC jointly set up a competitive excellence-oriented grant, in addition to the regular research grant provided by the NSC. Universities will be invited to submit proposals aimed at improving their individual comparative strengths. Due to the extraordinary size of the grant, which will be a record high of NT\$13 billion (about US\$400 million), not only have universities shown great interest, but complaints have also been aired by some presidents of the private universities who thought this kind of competition favors the public sector and will inevitably widen the gap between the public and private spheres.

A gradual movement toward market principles such as deregulation, flexibility, efficiency, competition, and accountability can be readily observed in Taiwan's higher education policy. The major effect of introducing market forces into the higher education system is expected to devolve increased responsibility to universities and to introduce elements of competition through cuts in government subsidies and the introduction of competitive contracting for student enrollments and faculty research. In short, the government is increasingly turning to the market as a means of coordinating higher education institutions.

### **Emphasis on Accountability and Assessment in Higher Education**

With the spread of Taiwan's higher education to the masses well on its way, the government finds it increasingly difficult to control higher education institutions. In addition to the heavy financial burden, the state control model was found inefficient in the allocation of resources and for meeting the needs and demands of society. This awareness is coupled with the rise of consumerism, which encourages a wide range of people (students, parents, taxpayers, foundations, industrial and business enterprises) to seek relevance and accountability in university education. As consumers, they have become concerned with the skyrocketing budgets, expensive tuition, and fees and have demanded that education productivity match investment (Arimoto, 1997).

In order to create a market niche which best serves the interests of the individual institution and the public, it is clear that higher education institu-

tions have to give the needs and wants of their consumers higher priority. This obligation is new for Taiwan's universities. When the higher education system is strictly regulated by the state, the individual institutions obviously are not concerned about accountability, which involves responsible actions to one or more external constituencies (van Vught, 1995). However, as the system becomes more autonomous and market-oriented, institutions have the obligation to inform customers about the quality of the institution, programs, and services, and how well the institutions have responded to the needs of the society. This explains why in 1998 the Ministry of Education held the first-ever National Higher Education Evaluation, which was carried out through both self-study by the individual institutions and peer review.

### **LINK BETWEEN HIGH-TECH INDUSTRY AND THE UNIVERSITY**

The experience of developed countries has shown clearly that innovation and technological development not only have implications for industrial profitability, but also affect the overall strength of a country. The fact that Taiwan is falling behind its competitors on the technology side has alerted the government, which is now devising policy tools with a view to upgrading the general level of R&D. To maintain a steadily growing economy, the government committed to a R&D budget growth rate of 15 percent for three years beginning in 1997. It was expected that R&D spending would reach 2.5 percent of GDP for the year 2000, roughly the level found in most developed countries, and 3.0 percent by 2010. (Results for 2000 are not yet known.) The public sector will be expected to contribute 40 percent of R&D funding and the private sector the remaining 60 percent. In addition to increasing R&D expenditures, the government is considering measures to encourage high-tech firms to take initiative in technological development.

While large firms are in a better position to be self-supporting with regard to R&D, small- and medium-sized firms, which dominate Taiwan's high-tech industries, depend heavily on external sources for technology. With the short life cycle of technology and the competitiveness of the technology-based market substantially increasing the investment risk, the private sector will not be zealous in investing in R&D as long as the technology borrowed from other countries generates substantial profit. Given the increasing significance of knowledge to the high-tech industries and the reluctance of the private sector in shouldering the cost of R&D, there has been an intensification of interest in the roles that universities can play in speeding up Taiwan's development of new technologies and shortening the technology transfer process.

Although research is one of the major functions of universities, there is some skepticism about the extent to which the university can assist industry.

Unlike most industry R&D, which is focused on practical problem solving, most university research is basic research in the sense that it aims to understand phenomena at a relatively fundamental level and is difficult to appropriate (Rosenberg & Nelson, 1994). However, given the fact that universities in Taiwan are the institutions that conduct most of the government-funded research projects and are the ones with the resources to provide the stream of knowledge, technological know-how, and human capital, it is only natural for the government to turn to the universities, especially publicly supported ones, as the engine for technological innovation.

For universities, the alternatives are limited. The budget austerity and the policy of underfunding adopted by the government has put universities under great pressure to diversify sources of income. Given the lack of a tradition of private donations to universities, university administrators have to look to industry for fundraising and cannot resist the opportunity to strengthen corporate linkages that have been largely ignored in the past.

Although some critics comment negatively on the expectations of the contribution that university research can make to industrial innovation and the level of funding for academic research that industry can shoulder (Rosenberg & Nelson, 1994), examples of mutually beneficial university-to-industry cooperation have enhanced the government's belief in the positive side of stronger university-to-industry links. For example, several case studies confirmed the important roles that universities such as Stanford University, the University of California at Berkeley, and the California Institute of Technology played in raising Silicon Valley's technological level, and how MIT was a success story in developing Route 128 around Boston, Massachusetts (Dorfman, 1983). Jaffe's (1989) analysis of state-level corporate patent activity provides some evidence of the importance of geographically mediated commercial spillovers from university research, particularly in the fields of drugs, chemicals, and electronics. He also found that university research appears to foster greater industry R&D and not the other way around. Thus, a state that improves its university research system will increase local innovation both by attracting industrial R&D and augmenting its productivity .

Although the literature abounds with articles on the difficulties of successful university-to-industry cooperation, as noted by Burrington (1993), "never has the need been greater for universities and industry to work together as partners in research and education. Academia relies on industry and a sound economy to educate its students; industry relies on an educated workforce to remain competitive and profitable. The two are inextricably linked and interdependent" (p. 652). Generally speaking, universities can contribute to the development of industry by providing: (1) Knowledge and technological innovation, (2) creation and elevation of manpower, (3) knowledge infrastructure, and (4) synergy.

## **Knowledge and Technological Innovation**

In addition to basic research, which advances science, universities are engaged in applied research which leads to the development of theories, concepts, and methods useful for product and process innovations. As observed by Gee (1993), “a significant amount of university scientific research relates directly or indirectly to understanding the fundamentals of industrial processes or products, and this increased scientific knowledge and understanding inevitably leads to new and/or improved process and products” (p. 653).

Although most of the knowledge and innovation produced in university laboratories does not move automatically to the marketplace, nor is it directly appropriable by the industrial sector, the importance of knowledge in all phases of production does increase the important role of universities in technological innovation, which refers to the application of knowledge for the creation and commercialization of new products or the improvement of existing ones (Goldstein et al., 1995). Evidence of the university’s role in technological innovation can be found in the development of industries such as semiconductors, computers, pharmaceuticals, biotechnology, chemicals, agriculture, and advanced materials.

In order to make the connection between universities and industry in Taiwan more intimate and effective, the government provides mechanisms for direct cooperation between universities and industry and encourages universities to establish cooperative industrial research centers to attract corporate sponsors. In addition, because of the short life cycle of high tech products, the government is taking steps to help manufacturers shorten the time needed to commercialize the results of R&D. Special emphasis is given to the acceleration of knowledge transfer and commercialization of technological innovation by relaxing the regulations concerning the property rights resulting from government-funded research. According to the “Basic Law on Science and Technology” drafted by the NSC and passed by the Legislative Yuan in 1998, the restriction on academic research will be relaxed, financial incentives will be provided to patent knowledge with commercial potential, and the industry will be able to make the greatest possible use of new discoveries. After the passage of the new law, up to 100 percent of the ownership of the patents arising out of university research projects could belong to universities.

## **Labor Force Formation and Education**

Universities are quite effective in training young professionals including scientists and engineers, most of whom will go on to work in industry. From an economic development perspective, “a steady supply of well-educated and trained work force, particularly in the sciences, engineering, and mathematics, will be a major determining factor in the technological and economic

progress of a country, and in the efficiency with which a country will face the keen international technological competition of the future” (Papageorgiou, 1993, p. 503).

With the spread of knowledge-based industries, the importance of higher education in the labor force formation process will increase (Carnoy, 1994). For example, one of the factors contributing to the success of HSIP is the high quality of human resources. About one third of all the employees at HSIP have at least a bachelor degree, and many of them are from the nearby Chiao-Tung and Tsing-Hua Universities.

Apart from creating human capital in the form of graduates, universities are increasingly active in providing continuing professional development programs for the private sector. Examples can be found in the cooperation between universities and HSIP in the provision of training courses for HSIP employees. For instance, in 1987, when the semiconductor and information technology industries were taking off, Chiao-Tung and Tsing-Hua Universities, ITRI, HSIP Administration, and semiconductor companies jointly organized four special seminars on semiconductors for more than 400 engineers and specialists. Such programs have helped greatly to improve the quality and technical skills of workers at HSIP (Xue, 1997).

Universities are also increasingly active in providing management courses for executives. The executive MBA programs which are aimed at the middle to upper echelon of industry have expanded rapidly since the first was launched in 1996. At least four universities have offered executive MBA programs in the past two years, yet the demand is still far from being met. For example, when Chiao-Tung University offered the program in 1998, there were about 280 applicants competing for forty places.

Apart from the initiative taken by universities, the government has formulated policy to overcome current bottlenecks in the exchange of manpower between university and industry so as to create closer symbiosis between the two. Recently, the government relaxed regulations on the flow of human resources. University faculty members are now allowed to take leave without pay to spin off new firms or to be employed by industrial enterprises for a period up to three years without having to worry about losing tenure.

### **The Provision of Technology Infrastructure**

In addition to the creation of knowledge, technological innovation, and manpower, universities can play a crucial role in providing technological infrastructure (Tassey, 1991). Evidence of this can be found in the decision about the location of HSIP. Before HSIP was established in 1980, there were locations other than Hsinchu on the list for consideration. Hsinchu, 70 kilometers away from Taipei, beat other competitors, largely owing to its proximity to the ITRI and Chiao-Tung and Tsing-Hua Universities, both of which are

prestigious research-oriented universities and are well known for their leadership in areas of science and electronic engineering.

Since its establishment, HSIP has been growing rapidly and is considered one of Taiwan's most outstanding models of industrial development. Despite the regional recession caused by the Asian financial crisis, revenues from the 250 companies at HSIP are expected to account for a tenth of Taiwan's GNP. In addition to advanced technology, HSIP is bringing modern business practices to all of Taiwan, including granting stock options to all employees and discouraging nepotism (Levy, 1998).

Since HSIP was established, there has been a high degree of interaction between the universities and firms there. This interaction takes place via a network of electronic and face-to-face consultancy, university-industry liaison projects, graduates employed by the companies at HSIP, and new firms spun off from university research. In 1998, thirty-seven research projects, worth about US\$980,000, were awarded to Chiao-Tung University.

### **University-to-Industry Partnerships**

University-to-industry partnerships may take one of six forms; (1) shared know-how, (2) coordinated strategies, (3) shared tangible resources, (4) vertical integration, (5) pooled negotiating power, and (6) combined business creation (Goold & Campbell, 1998, p. 133).

After HSIP was established, a series of open-type national laboratories such as the Synchrotron Radiation Research Center; the Nano Device Laboratory; the Center for High-performance Computing; the Center of Theoretical Sciences; the Center of Applied Sciences and Engineering, and various instrument centers were set up either inside the park or on the university campuses adjacent to HSIP. The government also has launched a host of technology-oriented programs involving the universities as partners. HSIP's geographical proximity to the national laboratories and Chiao-Tung and Tsing-Hua universities has created a synergy that enhances the region's capacity for knowledge creation, technological innovation, and entrepreneurship. As Gee (1993) noted, the most effective way to accomplish the flow of university technical knowledge to industry is through a true partnership between the two, and "every effort should be made to promote long-term joint research projects carried out either at the university or company laboratories with both industry and university researchers in residence for extended periods and working together on research projects of mutual interest" (p. 657).

Experience from Japan, Europe, and the United States has led to the conclusion that emerging technologies can be efficiently accelerated in their early pre-competitive phase through a combination of government, public, and private research laboratories and industry (Tassey, 1991). Because of the theoretical nature of university research, the technology produced in university

laboratories may not be directly useful to industry. However, if university R&D is integrated with the industrial sector at a certain stage, the appropriateness of the research findings can be greatly increased, and a kind of synergistic division of labor can be formed between university and industry. Evidence of synergy can also be found in the multisponsored consortia formed by government, university, and industry, which can provide access to relevant expertise at a lower cost.

## CONCLUSION

Although industrial support for university research still remains an insignificant portion of the total academic R&D in the United States (Burrington, 1993), the experiences of the Western developed countries show that where there are more research alliances between academia and industry, the greater is the contribution that universities can make towards economic development. Taiwan's experience also demonstrates the actual and potential contributions that universities can make to technological advancement and national competitiveness of the emerging market countries. However, due to a lack of consensus about the new role of universities as economic powerhouses, universities in Taiwan are presently facing three challenges that they must overcome to fulfill their new missions.

The first challenge is philosophical in nature. To fulfill the role as the powerhouse of economic growth, the university system is required to undertake new activities and missions, some of which are controversial and may create strains and stress within academia. Given the widely held belief that the major function of the university lies in the pursuit of truth and the creation, development, and transmission of knowledge, the idea of engaging in "research for profit" (Marsden, 1994) is unacceptable to many academics. They worry that the university is likely to be contaminated by a pervasive utilitarianism that will propel it toward a market orientation. As a consequence, areas of no immediate economic value may be enormously neglected and the ideal of a balanced configuration of science and humanities may be further sacrificed.

These worries are not groundless. There is an established trend that innovations in university programs appear to be oriented mainly toward applied and technological studies. Recently, due to the flourishing state of the high-tech industries, electrical engineering and information engineering departments at many universities in Taiwan have experienced rapid growth. The expansion of the departments in some cases has resulted in the restructuring of universities. For example, the electrical engineering departments at National Chiao-Tung University, National Taiwan University, and National Tsing-Hua University, each with more than a thousand students, have been

separated from their respective colleges of engineering and elevated to the status of college of electrical engineering.

The second challenge is related to the first. More and more academics are posing the question, What makes a good university education? Although it is not easy to reach a consensus over the nature of good education, there is certainly much reservation over a university curricula reflecting narrow career interests. Recently, at the invitation of Taipei City Government, Morris Chang, chairman of Taiwan Semiconductor Manufacturing Company and tycoon of Taiwan's high-tech industries, delivered a speech entitled "New Recruits for the 21st Century." According to Chang, "The specifications required of the employees of the new century include: The ability to actively participate in political and social activities; an international perspective; enjoying cooperation with others; a good general understanding of science and technology; and the ability to think independently. Finally, candidates should be "specialized all-rounders" (Teng, 1998, p. 7). Chang's messages echoed a widely held belief that even in terms of job market prospects, excessive specialization and overemphasis on practical skills will not give students a competitive edge, but rather will limit their career development by failing to provide them with the broader perspective needed for success.

The third challenge comes with the commodification of knowledge and the adverse impact this may have on university research. A number of commentators have maintained that what makes universities special is the fostering of knowledge in a spirit of disinterested inquiry. This tradition has made the university a repository of knowledge and protected it from domination by special interests. However the close ties developed between university and industry and the identification of knowledge with economic values may threaten to block this free flow of knowledge and the university's intellectual independence.

Furthermore, the development of relationships between universities and private business corporations is likely to have knowledge treated as a commodity, which is preoccupied with commercial concerns. Knowledge that was free, open, and for the benefit of society will be increasingly proprietary, confidential, and for the benefit of private companies. As Buchbinder (1993) argued, "the shift towards the production of knowledge for the market is not characterized only by short term, applied considerations. It also generates secrecy in order to protect against competition and to insure proprietary rights" (pp. 341–342).

Many academics share a deep-seated fear that after stepping out of the ivory tower for which it has long been criticized, the university might walk into an iron cage of technology strictly guarded by economic interests. The prospect of being tethered to the market may hold the university back from embracing the industry wholeheartedly.

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# Higher Education in a Rapidly Developing Country

## The Case of the Republic of Korea

NAMGI PARK

For several decades, higher education has been the centerpiece of Korea's emergence as an industrializing and developing nation. In 1962, South Korea launched a series of ambitious five-year economic development programs. The successful implementation of the economic and educational development has brought South Korea to the forefront of emerging economies in Asia. In 1997, the per capita gross national product (GNP) stood at \$10,000 and the amount of imports and exports ranked eleventh in the world. The South Korean government has consistently pressed for the development of heavy and chemical industries, high technology, and the expansion of exports.

Economic growth has been possible because of an emphasis on education. South Korean higher education has been considered the driving force for political and economic development. It has been the major source of trained manpower in the various fields and skill levels needed for economic development. Research done by the Korean Education Development Institute (KEDI) has found significant contributions of higher education to Korean economic development. KEDI measured the contribution of higher education to the quality improvement of labor forces from 1960 to 1974, and measured the contribution rate of higher education to GNP. The research showed that the contribution rate was 3.7 percent from 1963 to 1972, and 6.8 percent from 1972 to 1981 (KEDI, 1983).

Since November 1997, Korea has undergone an unexpected economic crisis caused by the forces of a general economic slowdown in Asia. The economic crisis brought severe financial problems to many universities and colleges. As of September 1999, it is expected that the GNP increase rate of this year will be 7 percent and the unemployment rate will continue to go down. It is believed that this fast recovery is possible because of the highly educated

manpower. This shows the interdependency between higher education and an emerging market.

In this chapter I describe the development of higher education in South Korea in relation to the country's economic development. Recent higher education reforms are also analyzed. This analysis is concerned with the development of educational policy and will show the direction that Korea is preparing to go in the new century. Finally, I discuss the impact of the national economic crisis on higher education, with an eye to the future of Korean higher education.

## **THE SOUTH KOREAN HIGHER EDUCATION SYSTEM**

The first institution of higher education in South Korea, Tae Hak (the Great School), dates back to 372 A.D. Tae Hak of Koguryo is one of the oldest higher education institutions in the world. It was established by the government to educate public officials. There were also private higher educational institutions (Kyoung Dang) that were established somewhat later than Tae Hak. Private schools were established to meet the educational demands of provinces, demands that could not be met by Tae Hak in the Capitol.

The traditional higher education system, which had a private sector and an elite public university sector, continued to the end of the 19th century. This system worked as an important instrument for the governing classes to maintain their status. Throughout Korean history anyone who wanted to be a public official had to pass examinations, and universities provided instruction for students who wanted to pass such examinations. As time passed, access to higher education was widened from a few royal classes to the entire governing class.

Institutions of higher education, comparable to the universities and four year colleges of Western countries, has a history of a bit more than one hundred years in Korea. There were three different streams to establish Western-style higher education. The first stream was led by the Western missionaries. They established private higher education institutions such as Ewha Kak Dang (1886) and Sungsil Hak Dang (1897). The second stream was led by the South Korean government, which established professional schools to teach Western knowledge such as medicine, telegraphy, industry, mining, agriculture, and languages. The third stream was led by the nationalistic pioneers to teach Western knowledge and to rescue the country from invasion by Japan or Western countries. This third stream continued until South Korea became independent from Japanese rule in 1945.

After independence from the Japanese, the modern system of higher education was restructured and reorganized by the United States (1945–1948). At the time of Korea's liberation from Japanese rule, there were nineteen institutions of higher education in South Korea, with a total enrollment 7,819 students and 1,490 faculty members. When the United States army occupied

Korea in September 1945, it took a series of significant steps to reorganize and expand higher education, acting upon the recommendations of the South Korean Committee on Education and the Council of Education. As a consequence, at the end of U.S. government control (1948), higher education institutions increased 221 percent (forty-two institutions), and students increased 307 percent (24,000 students).

In the earlier days of the First Republic (1948–1960), colleges and universities continued their growth in terms of the student enrollments and the number of faculty. The total number of higher education institutions, however, remained constant, though there were changes in the status of individual institutions. Just before the outbreak of the Korean War there were four universities, twenty-nine colleges, two community colleges and seven miscellaneous colleges of higher education, with the total of 29,288 students enrolled and 2,049 faculty members (Kim, 2000, p. 317).

The Korean War (1950–1953) completely paralyzed the whole system of higher education. Despite the initial setbacks, however, some higher education was carried on in refugee colleges and in the Wartime Union College. Moreover, it was during this period that South Korean higher education was expanded most vigorously. After the war, government policy was tightened, and began to swing in the direction of slowing the establishment of new higher education institutions. The Presidential Decree on the Establishment of College and University Standards, promulgated in 1955, was a significant landmark in this new direction in higher education policy.

Under the military government (1961–1963), higher education in South Korea went through a series of radical reforms. Enforcement of the “rearrangement plans of higher education” involved drastic changes in the status of the existing higher education institutions, causing a great deal of controversy. From this period, the government began to strongly control even private universities and colleges. The government considered higher education as a main source to supply educated manpower and it tried to join the Five Year Economic Development Plan with the higher education plan. The main purposes for maintaining control were improving the quality of higher education and supplying the optimal number of higher education graduates based on the economic development plan of the emerging economy. For these purposes, the government enacted the Private College Law in 1963, which transferred many of the powers of the board of trustees and the president to the Ministry of Education (MOE). It also enacted the Rule for Student Enrollment in 1965, which gave the MOE the right to decide the number of new students to be admitted to higher education. Nevertheless, many private universities admitted more students than the government allowed. At the same time, the government diversified the higher education system through the establishment of more community colleges and vocational higher professional schools.

In the 1970s, the government began to increase the number of new students enrolled in higher education to meet the demand caused by economic development in the Korean emerging market economy. Thus, from 1973 to 1978, enrollment in higher education was increased by an average of 11.8 percent per year. The major strategy that the government used to increase enrollment was manpower planning. For example, in 1972, the number and programs of study of new students was controlled and allocated, based on manpower planning. Later, student quotas (numbers of students allocated to each area of study) were decided on the basis of manpower demands for heavy industry. Also, other higher education reforms were encouraged. In 1973, ten pilot universities (nine private universities and one national university) inaugurated a series of reform projects or programs, a reduction of credit hour requirements for graduation from 160 to 140. Additional reforms involved curriculum reorganization, inauguration of the minor and major system, and the admission of students on a broader curricular basis, thus deviating from the former departmental basis. By the end of the decade, the pilot institutions were increased to thirty-nine, involving most major universities in South Korea.

In 1974, the university specialization plan was introduced, which constituted an important aspect of university reform. It was aimed at promoting specialization in university programs consistent with geography, sociocultural and economic conditions, and other related factors, by providing certain encouragement and aid for the specialization promoted by the government. The plan started with fifty-one departments in various professional and vocational fields, with emphasis upon engineering. Later it developed into specializing colleges, such as a college of engineering specializing in electronics, chemical engineering, and so forth. The expectation was that the plan would promote excellent and efficient higher education.

Another aspect of higher education reform of the 1970s was the revision of vocational higher education. In 1979, the government unified all higher-level vocational schools into vocational colleges (two- and three-year community colleges). The aims of these colleges were to train technicians (workers) that society needed, thus contributing to industrial development. By unifying higher-level vocational colleges, vocational education in South Korea was divided into three parts. High schools train craftsmen, vocational colleges train middle-level technicians, and four-year universities and colleges educate engineers. Since the mid-1960s, because of the development of vocational schools and other programs, higher education has been considered a driving force for national development.

Perhaps as a result of all the changes and reforms, the higher education system developed problems, such as too many repeaters and the need for private tutoring for university and college entrance exams. These problems came from the widened gap between the quota for high school and that of

higher education; in other words, there were too few places for the increasing number of students prepared to enter higher education. In July 1978, the MOE announced comprehensive measures for dealing with repeaters to relieve these problems. The measures were: (1) increase admission quotas to 112.5 percent annually until 1980, (2) redesign two-year colleges to four-year colleges, (3) establish new institutions of higher education for women, (4) increase admission to the South Korean Air and Correspondence College, (5) establish evening undergraduate programs and evening colleges for young workers, (6) adjust the wage gap between high school graduates and college graduates, (7) eliminate school diploma requirements for job interviews and tests, (8) consider high school records in the university entrance examination process, and (9) reduce examination point standards for third-year repeaters of university examinations. As a consequence of this policy, student enrollments increased rapidly after 1978. The age cohort enrollment ratio suddenly increased from 8.2 percent in 1978 to 19.2 percent in 1979.

In 1979, President Park Junghi, who had led the military coup in 1961, was assassinated and in 1980 a new military government was established. Under the Fifth (1981–1987) and Sixth (1988–1992) Republics, higher education in South Korea attracted even greater attention from government policies. Increased attention to the importance of higher education to the emerging economy caused it to become a core part of educational policy reforms. The Fifth Republic reformed many parts of South Korean society, hoping to solve social problems and to increase social control. Higher education was one area addressed. The key policy measures included in the July 30 Education Reform were as follows.

- Changes in college student admission policies. The unprecedented expansion of enrollments and 30 percent more students were accepted by colleges and universities.
- Changes in the higher education system. Teachers colleges were upgraded from two to four years, the National Open University from two to four years, and some junior technical colleges were upgraded to open industrial universities.
- Reform of entrance examinations. Entrance examinations administered by individual colleges and universities were abolished and replaced with a national exam.

Enrollment policies for all higher educational institutions changed from an admission quota system to a graduation quota system in 1981. The new policy was designed to expand opportunities for those wanting to attend higher education and also to foster a more studious atmosphere on campus. Also, the MOE instituted examinations for the bachelor's degree. As the result of these policies, four-year colleges and universities expanded rapidly. In the first half

of the 1980s, college and university students enrollments increased by 17.6 percent per year.

In 1987, the government agreed with the people's request for democratization and declared a new schedule that was contained in the Six Two Nine Declaration. Making higher educational institutions more autonomous was included in that declaration. In September 1987, the MOE proclaimed the University Autonomy Plan, the key goals of which were: (1) to ensure the autonomy and accountability of university management, (2) to provide for greater participation of faculty in governance, (3) to increase the quality of higher education through extending the rights of the faculty, (4) to increase the autonomy of each institution based on its particular situation, and (5) to protect and foster the autonomy and individuality of private universities and colleges.

In the 1990s, the demand for middle level technicians increased, caused by the economic development of Korea's emerging economy. This demand brought with it an increase in the employment rate of vocational college graduates. This change pushed the government to change the vocational college system. The government increased the number of colleges, departments and total students. Students increased from 324,000 in 1990 to 802,000 in 1998 (see Table 6.1).

At the same time, the government increased the number of new students of engineering, technology, and natural science (see Table 6.2).

The Presidential Commission on Educational Reform (PCER) of the present government announced Recommendations of Educational Reform to

**Table 6.1. Number of schools, majors, and students in vocational colleges: 1970 to 1998**

Year	No. of schools	No. of majors	Total students
1970	65	216	33,483
1975	101	458	62,866
1980	128	961	165,051
1985	120	1,076	242,117
1990	117	1,264	323,825
1995	145	1,987	569,820
1998	158	3,874	801,681

Source: Ministry of Education (1998).

**Table 6.2. Number of students at four-year colleges and universities by major: 1970 to 1998**

Year	Total	Humanities	Social sciences	Natural sciences	Medical	Arts and physical education	Teaching profession
1970	146,414	17,786	35,734	59,264	12,845	7,782	13,003
1975	208,986	36,611	37,343	74,410	16,813	12,621	31,188
1980	402,979	54,252	85,197	166,137	22,111	21,871	53,411
1985	931,884	150,141	257,738	336,624	39,408	53,177	94,796
1990	1,040,166	156,164	286,814	419,891	40,430	69,029	67,838
1995	1,187,735	166,480	306,487	523,002	44,707	84,660	62,399

Source: Ministry of Education (1998).

Build New Educational System on May 31, 1995. The goals of the recommendation were to enact a system of “open education and life-long learning” that emphasized a learner-centered approach, as well as a diversified and autonomous education (PCER, 1995, p. 2). The overall approach of PCER was based on deregulating and liberalizing the nation’s educational system from government control. The commission announced that it would diversify and specialize the higher education system to supply human capital for a diverse society and an emerging economy. For this purpose the commission made six policy recommendations: (1) diversification and specialization of the higher education system, (2) diversification of the criteria for private college foundation, (3) delegation of power to individual institutions to decide admission quotas and matters regarding higher education management, (4) provision of a special supporting system for research, (5) provision for raising the quality of research to world-class levels, and (6) improvement of the connection between university and college evaluation and financial support. All of these policies are aimed at improving the quality of higher education.

In 1998, the government announced a program called Brain Korea for the 21st Century (BK21). The purpose of this program is to make a few graduate universities of natural science, engineering, and high technology fields top-ranked institutions globally in seven years with special funds amounting to \$1.2 billion. In October 1998 the government chose the institutions and departments that would get the financial support for seven years. Seoul National University got half the funds. No one knows whether this experimental program will have the outcome that the government expects. Most faculty in South Korea remain skeptical.

## Characteristics of the Higher Education System

The characteristics of the South Korean higher education system can be summarized as follows:

1. The private sector has three quarters of the total enrollment of students.
2. There has been a little public financial support for this private sector.
3. All institutions are under the supervision of the MOE.
4. The ratio of higher education students to the general population is larger than that of any other developing country, but the conditions in higher education institutions are poor by comparison.
5. Students pay for their education. In private universities and colleges, they pay around 80 percent of their total educational expense, whereas in national institutions they pay around 50 percent.
6. Higher education has experienced a rapid expansion for the last fifty years (Park, 1995, p. 88).

There are seven different types of higher education institutions in South Korea: (1) colleges and universities that offer four-year undergraduate programs, with some offering six-year medical and dental programs as well; (2) four-year teachers universities; (3) vocational junior colleges; (4) the Air and Correspondence University; (5) industrial universities; (6) polytechnics; and (7) miscellaneous colleges.

Among the seven types, the polytechnics are the newest type of higher education, initiated by recent higher education reform policies to foster Korean economic development. The government has developed detailed criteria for the establishment of polytechnics, and those who meet the criteria, including training institutes or private corporations, may establish such institutions and award degrees. The higher education policies pursued by the government directly relate to the development needs of Korea as an important emerging market.

### Vocational Junior Colleges

The development of junior colleges went through three stages: (1) vocational high schools in 1963, (2) two-year professional schools in 1970, and (3) junior colleges in 1979. Two-year colleges were first established in 1948, and by 1963, there were thirty-nine such institutions, but strictly speaking, the predecessors of the present junior colleges are the vocational high schools established in 1963 to train middle-level workers needed for the South Korea's first Five Year Project for Economic Development.

The length of study of these vocational high schools was divided into three years of senior high school courses, followed by two years of professional courses. There were, however, difficulties in placing students in jobs,

and continuing to university was all but impossible. Consequently, vocational high schools were gradually changed to professional colleges. By 1976 all vocational high schools had been phased out except for the ones serving students already enrolled.

In 1979, all two-year colleges (including professional schools) were restructured to today's junior colleges. Their programs are two years in length, with the exception of the fisheries/marine colleges, which offer an additional six-month course for navigation practice, and the nursing and public health programs, which are three years in length.

The Educational Reform in 1995 intended to revitalize junior colleges and industrial universities in order to prepare traditional students to move into lifelong vocational education for adults. Junior colleges were authorized to extend their programs from two to three years, and to diversify the length of their programs. The graduates of junior colleges can be awarded an industrial associate degree. Consequently, new students of junior colleges represent approximately 39 percent of all new students in South Korean higher education in 1998 (MOE, 1998). The most popular fields are engineering, technology, and nursing.

### **Industrial Universities**

The polytechnics, first established in 1982, provide an alternative higher education to employed youths and adults who missed opportunities. As of 1998, there were eighteen institutions—eight national and ten private. To meet the needs of employees, and low-income students who want to pursue higher education, tuition fees are lower than those of other four-year colleges and universities. The industrial universities require the applicants to have high school diplomas and to have at least one year of working experience in industry. However, many institutions manage their admissions like other colleges and universities, and this causes conflict between industrial universities and the government. South Koreans usually prefer four-year colleges to community colleges and industrial universities for advanced vocational education. Consequently, in order to prepare traditional students to move into lifelong vocational education for adults, the government has plans to revitalize industrial universities as well as to allow them to become four-year colleges and universities.

### **Polytechnics**

Polytechnics were proposed in 1995 by PCER as an alternative way of providing wider higher education opportunities for workers and adult learners. This new type of college, which is a part of the continuing education system, will provide industrial associate and bachelor's degree courses so that the workers would be able to complete the courses without leaving their jobs.

Polytechnics that confer the industrial associate degree will award that degree to a person who had a job and had finished a community college program connected to that job after two or three years of vocational education in high school.

Polytechnics that confer the bachelor's degree would be for persons who became employed after completing a community college or the industrial associate program of the polytechnic. This new type of college would award graduates the bachelor's degree after one or two years of education. Institutions of higher education as well as industry could found new polytechnics.

The polytechnics that award the industrial associate degree can be founded by junior colleges or industries, including industries that are located near each other and can afford to provide educational facilities. The polytechnics for the bachelor's degree can be founded by four-year industrial universities and corporations. Applicants to polytechnics would not be required to pass any entrance examinations, and would only have to show their academic and work records. The polytechnics would also provide theoretical and general vocational higher degrees in the vocational field by introducing a practical master's degree and professional doctoral degree program. With the introduction of these programs, the polytechnics are expected to resolve the problem caused by university unwillingness to prepare students for certain professional and vocational fields.

## **EDUCATION REFORM IN THE 1990s**

### **Background and Procedures of the New Educational Reform**

Education has been of crucial importance throughout Korea's history. The goal of most new presidents has been educational reform. Even the military governments have tried to accommodate the people by reforming education. On the list of reforms proposed by democratically elected President Kim Young Sam, education was one of the most important. In February 1994, President Kim Young Sam's government organized the twenty-five-member PCER and the next month appointed ten researchers. PCER consisted of scholars from various fields. While most of the educational reform proposals developed under previous regimes were not actualized, the ones from PCER have already been implemented and have changed the educational system.

Some critics said that educational scholars were initially excluded from PCER because it had been argued that educational scholars who had studied in the United States were responsible for the failure of South Korean education. Ironically, PCER's proposals were also seen as being based on the U.S. educational system and were criticized as being ill suited to the South Korean situation.

About a year after PCER was organized, the new educational reform document was completed and presented as a proposal. Two months after the proposal was received, President Kim Young Sam formed the Commission for Educational Reform Propulsion. The chair of the commission was the prime minister; the vice-chairs were the Minister of Education and the Minister of Economics and Finance. This commission was charged with doing two things: finding sources that guarantee five percent of the GNP for education in the government budget and making a detailed schedule for activating the recommendations made by PCER. The Executive and Planning Committees of the Commission for Educational Reform Propulsion were headed by officers of the MOE.

## **GENERAL FEATURES OF HIGHER EDUCATION REFORM**

### **Diversification and Specialization of the Higher Education System**

South Korean universities and colleges have five problems with respect to system diversity and specialization. First, most South Korean universities and colleges have similar structures because they are modeled after Seoul National University. Second, most colleges focus on expansion and try to become universities, but without the necessary accompanying efforts to improve the quality of education. Third, South Korean undergraduate departments at universities and colleges are subdivided to include what would be South Korean graduate departments at universities and colleges, resulting in 557 different departments in the universities and colleges of South Korea. Fourth, the development and efficiency of individual institutions have been hampered, and the development of education, research, and technology have been hindered by various kinds of governmental control as well as by rigid university management. Fifth, the present system is insufficient to meet the social demands of the Korean people, and is not meeting the need for expansion of higher education, nor the needs of the global information society of the 21st century. Because of this, PCER asserted that the higher education system must be reformed drastically in order to survive under conditions of increasing global competition.

In order to solve these problems, PCER chose four strategies to diversify the higher education system. First, education law and related laws were revised so that individual institutions could specialize. Second, universities are encouraged to make their own plans for diversification so that they could supply the human capital that society demands. Third, PCER recommended decreasing the minimum credits for a major from one-sixth to one-fourth of the present total credits (140) so that students can major in more than one discipline, thus crossing departmental boundaries. Fourth, the government gives special financial support to those universities and colleges that follow the reform program.

### **Criteria for Founding Private Colleges**

A significant problem for those wishing to establish a private college is the requirement for government approval, because only a juridical person may be authorized to found colleges. The Committee for University Foundation Approval examines the submitted plan and evaluates whether it meets legal standards, including conditions regarding the location of the college, and the purposes of founding the college. When a college passes the evaluation, the committee gives provisional approval. The college gets final approval when it fulfills the plan. These approval criteria and procedures help the government to control the quality of newly founded higher education institutions and make certain that governmental policy is followed. However, the criteria make it hard to start small and specialized colleges. It is also hard for those with limited capital to get into the higher education market.

To overcome these problems, the government plans to lower and diversify the criteria so that they will become more related to the purpose and character of each college and to make it easier to found higher education institutions. The Committee for College Foundation Criteria was organized to include representatives of higher education, industry, lawyers, the press, parents, educational administrators, and officials from the related ministries. The committee considered public opinion in making the criteria. Existing institutions had to meet the new criteria in three to five years, and this policy became effective in 1996. Based on this policy, many small and specialized colleges were established, such as a design college and a medical college. The hope was that more diverse criteria would lead to greater diversity and growth in economic development.

Every proposed new institution was required to prepare a charter so the government could evaluate initiatives based on the charters. These evaluations included the purposes of the college, the content and character of its educational programs, college management principles (faculty hired, student admission criteria, and financial disclosures), student admission policy, information on faculty, academic affairs management principles, and graduates' job chances. The charters were published so students and parents could have access to it. The government is to supervise institutions to see that they follow their charters, and the results of these evaluation will determine the extent of government support.

### **Providing Managerial Autonomy**

Historically, the MOE controlled all universities and colleges. All of the student admission policies have been under governmental control. The MOE determined the number of student admissions to each department and institution. Such decisions have a great financial impact on colleges and universi-

ties. Since the budgets of most South Korean private colleges and universities depend heavily on the tuition of their students, the total number of students clearly relates to the budget of the institution. Colleges and universities have constantly sought to raise their own enrollment so as to increase income. PCER stressed that each college and university should be given the right to determine their enrollment. After accreditation and external evaluations are fully institutionalized, the decision on enrollment size will be left to colleges and universities.

The Education Reform Plan was implemented in three phases. In the first phase, the MOE set the admissions quotas for colleges and universities while admissions to divisions and departments within the colleges was set by individual colleges.

In the second phase, which took effect at the beginning of 1997, the conditional student quota system was put into practice in provincial universities. Those universities and colleges with adequate research and educational facilities were allowed to freely increase the number of students. In the final phase, all universities and colleges will be allowed to determine their own enrollment sizes. However, the final phase has not been instituted as of 2000. The government announced that, even after the final phase is executed, the admission quotas at national universities and colleges, medical colleges, and colleges of pharmacy, will be decided by the MOE as before.

### **The University Evaluation System**

Since the 1980s, South Korean higher education institutions and programs have been evaluated by the South Korea Council for University Education. PCER recommended that the government provide more financial aid to the institutions in order to obtain better internal and external evaluation results. To encourage specialization in selected fields as well as curriculum diversification, aid would be given at the department or college level instead of the university or college level. Government financial aid would be awarded only to those institutions that demonstrate excellence. Based on this recommendation, the government implemented a new evaluation program, the Education Reform Evaluation, which evaluates institutions every year as to whether they follow the reform suggested by the government, and which gives special financial aid to those who qualify. After evaluating the institutions, the government announces the result in public and gives a certain amount of aid. The evaluation encourages universities and colleges to implement the reforms that the government planned. The government found that the evaluation system was an excellent control mechanism. Anything it wanted implemented was put into the evaluation criteria. As a result, new criticisms surfaced so that the evaluation, rather than leading to greater diversity, led to a new kind of a uniformity.

## Funding

The funding for higher education comes from tuition and fees, government aid, grant and research contracts, endowments, and other sources. Table 6.3 shows that whereas the share of the total government budget spent on higher education has been about the same since 1980, the MOE's proportional share of higher education expenditures has declined.

Private as well as national and other public higher education institutions rely heavily on student tuition and fees for support, about 80 percent and 45 percent, respectively. Corresponding figures for government aid are 20 percent and 55 percent, respectively. Endowments represent less than 1 percent of the total revenue of South Korean higher education institutions. Even though tuition and fees have been rising steadily, the ratios of tuition and fees to both GNP per capita and to urban workers' gross incomes have both been decreasing (at least before the 1997 economic crisis occurred).

Before 1989, there were no direct government grants given to private higher education institutions. In 1990, the government started financial aid to private universities and colleges with a long-term goal of providing grants amounting to 10 percent of their budget. In spite of the fact that government aid is fairly small, it is crucial to private institutions.

**Table 6.3. The Korean government's public expenditures for higher education (in billions of won\*)**

Year	Gross national product (A)	Government budget (B)	MOE budget (C)	MOE budget for higher education (D)	D/B (%)	D/C (%)
1965	805	94	15	1	1.1	6.7
1970	2,776	446	78	4	0.9	5.1
1975	10,064	1,586	227	12	0.8	5.3
1980	36,672	5,804	1,099	99	1.7	9.0
1985	78,088	12,532	2,492	179	1.4	7.2
1990	168,437	22,689	5,062	362	1.6	7.2
1994	299,436	47,593	10,879	734	1.5	6.8

Source: Ministry of Education, (1994) and Economic Planning Board (1994).

\*1,150 won = \$1.00.

The government provides private universities with aid in the form of grants for expansion of facilities, grants for the expansion of science laboratories and research facilities, and loans through the foundation for the advancement of private universities. In 1995, government aid to private universities amounted to 166 billion won, or about 1.3 percent of the national education budget. Private universities are working towards the creation of a University Development Fund as a means to solve their financial problems. In addition, they are demanding that the government give them permission to institute a donation-based admission policy.

As for public universities, government aid is distributed equitably on the basis of such factors as the numbers of students, employees, and majors offered. The universities themselves are responsible for drawing up their own budgets and expanding sources for supplementary funds needed for education or research. Contributions to national or public universities are exempt from income tax, but contributions to other kinds of colleges and private universities are exempt only up to an amount not exceeding 10 percent of the total annual income. Students who enroll in teachers colleges pay lower tuition and fees. Tuition and fees in science fields and private institutions are 10 to 50 percent higher than those in humanities fields and national institutions.

Calculated in constant prices, public educational expenditures per college student have doubled over the past twenty years. Compared to per capita GNP in 1967, public educational expenditures per college student by national and private universities were 220 percent and 145 percent, respectively. By 1994, the similar proportions of public expenditures had decreased to 41.3 percent and 43.6 percent, respectively, indicating that government university finance did not follow the growth of GNP. This is a major reason why students' tuition and fees have been rising every year.

The total educational expenditure per student in national institutions is higher than that in private institutions and much higher than that in vocational junior colleges. The expenditure structures of higher education institutions vary widely, according to their type and control. For example, the national public colleges and universities allocate the largest portion of their total budgets to personnel expenses, while private institutions spend more money on operations. This is largely because the student/teacher ratios of private institutions tend to be much higher than those for public institutions.

Personnel and operational costs have been growing, apparently due to a rapid increase in the student population through the implementation of the graduation quota system during the 1980s. Because government controls on tuition and fees have not allowed revenues to increase proportionate to costs, expenditures on facilities have decreased. In 1994, colleges and universities allocated 81.7 percent of their total budgets to current expenditures and 18.3 percent to capital outlay.

## **Internationalization and Globalization of Higher Education**

To encourage an international and global view of higher education, the government has stimulated higher education institutions to prepare themselves by announcing a detailed schedule for creating a more open market in higher education. The government encourages colleges to open international affairs programs, make institutions for region studies, and exchange faculty, students, and programs. It also has increased funds for international student scholarship. Most of the institutions are striving to internationalize and globalize their quality, faculty, students, and programs, as well as increase funding for international scholarship.

South Korea ranks twenty-seventh in the world with respect to the numbers of articles in the fields of engineering and the natural sciences by South Korean scholars published in international academic journals. PCER provided two suggestions for raising the quality of research to a world-class level. First, financial support should be provided for publishing in internationally known journals, perhaps in collaboration with well known foreign scholars. Second, PCER suggested that extra financial support should be given to qualified research centers that engage in collaborative work with international scholars. It is hoped that this will raise the quality of South Korean scholarly research to an international standard, make South Korean research more globally competitive, and improve the quality of the academic journals that are published in South Korea. The BK 21 program, implemented at the beginning of 1999, is expected to result in more articles published in international journals and provide the support for a more technologically modern emerging market in Korea.

The government is also committed to building an Advanced Academic Information Center in the South Korean Congressional Library. The Center will manage and supply information and data in all areas of research, networking with world information centers. All academic libraries in South Korea are to be linked with this Center.

## **Issues and Problems of the New Educational Reforms**

The Commission for Educational Reform Propulsion and its Executive Committee have developed a concrete plan for implementing the higher educational reforms proposed by PCER. While the basic direction and strategies are quite promising, there are some dilemmas and problems to overcome.

One proposal for higher education reform is to lower and diversify the criteria for founding a private college. The aim of this change is to encourage the establishment of more higher education institutions, but there is a possibility that the quality of higher education will deteriorate. To prevent that, it is required that every higher education institution make a charter that includes

such elements as the purpose of the college, the content and character of educational programs, and management principles (faculty employment, faculty-to-student ratio, and finance). The government will then decide whether to provide financial and administrative support after evaluating the college charter. Based on the history of South Korean higher education, it seems highly unlikely that the government can or will control the quality of higher education once the new colleges are established. The dilemma is that if the government does not lower the criteria for establishing new private colleges, it cannot attain the original goal of encouraging the establishment of more private institutions. On the other hand, if it does lower the criteria, it cannot accomplish the goal of increasing the international competitiveness and quality of South Korean higher education. In the end, it seems the government is diversifying criteria, not lowering them.

There is also a critical issue related to tightening the connection between institutional evaluations and financial support in order to guarantee institutional accountability and educational quality. Despite providing increased autonomy in setting enrollment quotas and institutional management, many uncompetitive small local institutions are against this proposal. They assert that giving more financial aid to the wealthy institutions is unfair and ask for equal chances to build themselves in order to survive in the coming century. In their opinion, institutional evaluation and diversification seem contradictory in the highly competitive environment.

## **RECENT CRISIS AND THE FUTURE OF SOUTH KOREAN HIGHER EDUCATION**

South Korean higher education development has coincided with economic development and the emergence of a strong market economy. Enrollments can be increased as long as the graduates can have jobs after graduation. Since liberation from Japan in 1945, the South Korean economy has kept growing. Meanwhile universities and colleges have had a hard time finding more students. They wanted the government to allow them to accept ever higher numbers of students. However, the unexpected economic crisis caused by foreign currency problems in 1997 put universities and colleges in an economic situation that they had never experienced.

In November 1997, dollar prices increased 200 percent in two months and interest rates went up to 25 percent per annum. The economic crisis brought severe financial problems to many universities and colleges. Dankuk University, one of the biggest universities in Seoul, went bankrupt in March 1998. Three private universities have been ordered to close in three years. According to the South Korean government many universities and colleges have similar financial problems. The crisis has become worse because the

government pressured the private colleges not to increase their tuition and fees for the 1998 academic year. At the same time, many male students have withdrawn from universities and applied for military service. As many as 40 percent of students have withdrawn in some universities. The following section describes the crisis that South Korean universities and colleges have experienced under the economic restrictions of the International Monetary Fund (IMF). It will help international scholars to understand the South Korean situation.

### **Financial Crisis**

According to the South Korean government, about ten universities have severe financial problems. Many explanations are possible for this crisis. The direct reason often cited for the economic crisis is foreign currency problems. However, the government economic crisis is greatly affecting higher education. The South Korean government has evaluated all higher education institutions and has given financial aid and administrative support based on the evaluation. The private universities and colleges have invested a lot of money to meet the standard that the government made. Universities like Dankuk, which borrowed large amounts of dollars from foreign countries to meet the standard, suffered more than others since the debts must be repaid in dollars. All hard currency prices have increased greatly and interest rates have risen as much as 25 percent per annum. This sudden increase doubled the debt and the amount of interest owed. Meanwhile, the government pressured private colleges and universities not to increase tuition and fees for the 1998 academic year, while the price index is expected to increase at least 10 percent. The private institutions are mainly dependent on student tuition and fees; thus they have experienced a decrease of real income.

### **Decreases in Student Enrollment**

In South Korea many universities and colleges are experiencing significant enrollment rate decreases due to IMF restrictions. Many male students have withdrawn from universities temporarily and apply for military service. About 40 percent of students have withdrawn in the two private universities of Chula province ("The Crisis," 1998, p. 8). It happens because male students want to fulfill their military duty while the country is in economic crisis, that is, while they have no funds to attend university. Universities that have high reputations can fill the vacant seats with students who transfer from other universities. However, many private universities in the province have more vacancy than before because students are transferring to institutions with a higher reputation. The decrease of enrollment threatens the survival of those private universities.

**Table 6.4. Number of students in elementary through high school: 1998 (in thousands)**

	Grade											
	1	2	3	4	5	6	7	8	9	10	11	12
No. of students	681	639	619	613	607	612	637	642	732	800	796	747

*Source:* South Korean Federation of Teachers' Associations (1996, p. 117).

## THE FUTURE OF SOUTH KOREAN HIGHER EDUCATION

### Demand for Higher Education

The number of traditional students will decrease significantly in four years. Table 6.4 shows the trend. It is well known that South Korea is one of the countries that made the family plan successful, and the sudden decrease of student numbers in grade eight proves it. In 2003, when the students in grade eight become university students, it is expected that the total number of seats for the new students will equal the number of applicants. In the provinces, universities and colleges, especially private ones, will have a hard time filling their seats.

Researchers know, however, that demographic analysis has limitations. It was also expected that the numbers of university and college students

**Table 6.5. Percentage of female students in higher education**

Country	%	Year
South Korea	32.4	1993
United States	55.0	1994
England	46.5	1987
Canada	56.0	1989
Japan	38.5*	1989

*Source:* Korean Education Development Institute (1994).

\*Junior college, 86.2%, four-year college and university, 27.9%

would decrease in the United States and Germany in the 1980s, but the estimates were wrong because many nontraditional students came back to higher education.

The ratio of female-to-male students in South Korea was 32.4 percent in 1993 (in junior colleges, 36.8 percent in four-year colleges & universities, 31.0 percent in graduate schools, 26.9 percent). It is quite low compared to other developed countries. It means that there is a high possibility that the proportion of female students will increase in the near future, and this may well result an increase of university students in South Korea (see Table 6.5).

Another important variable will affect the demand for higher education in South Korea: if Korea is reunified, the demand for higher education will increase tremendously.

University admission policies will also affect demand. Presently, those interested in applying for universities that have high reputations take an SAT test. The test has become a barrier for nontraditional students. However, since 1999, private universities have been allowed to make their own admission policies without any restriction from the government. This will lead many nontraditional students to higher education.

Changes in the social and job market structure also will affect the demand. Technology development will cause employees to learn new knowledge and technology. The best place to learn those new things is in colleges and universities. At the same time it is expected that a person should have several professional careers in life because of life expectancy and technological change on the job. In order to have a new professional job, people should have higher education. These situations will increase the demand for higher education (Park, 1998).

### **Supply in Higher Education**

As noted, the Law of Higher Education lists seven different kinds of higher education institutions. Among them, polytechnics alone can be found in the work place for employees. The institutes established by companies for education and training of their employees can be transformed to the polytechnics if they meet government accreditation criteria. Such colleges can offer four-year college programs as well as two-year programs. The new system is expected to increase the supply of places in higher education. The existing institutions, such as two-year community colleges and universities of industry, will have to compete with the polytechnics for students.

Another type of higher education that the government recognizes is the correspondence university. Whoever meets the accreditation criteria can found a “cyber” university (a university that does not need space or a building). The cyber university will also increase supply in higher education. Then existing higher educational institutions will have to compete with cyber universities.

The South Korean government also offers higher education through the bachelors examination system, which gives a bachelor's degree to those who pass the bachelors examination that the government offers. Through this system hundreds of citizens have received their degrees. Another way to earn a degree in higher education is through the academic credit bank system. Students who take courses in accredited institutions accumulate credits in the academic credit bank maintained by KEDI. When enough credits are accumulated for the degree sought, the government awards the degree. Many academic institutions, as well as life-long education institutes in the university and college system, are part of this accreditation system.

## CONCLUSION

Korean higher education policies mainly correlate to manpower demand, student enrollment quota policies, diversification of the higher education system, and financial aid policy. The large supply of college graduates, due to the rapid expansion of higher education at the beginning of the 1980s, promoted technology and knowledge-intensive industry in an emerging market economy. It contributed to the efficient management of bureaucracy in large private firms and the public sector by supplying highly educated citizens.

The South Korean higher education market is opened to the world. Some universities in the United States and Australia have already opened their branch colleges or programs by joining with South Korean universities. It is hard to foretell the future of South Korean higher education. As long as South Korean's zeal for education continues, higher education will continue to develop. South Korea does not have the natural resources or population density to succeed as an emerging market country unless it relies on higher education for social and economic development.

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PART IV

# Latin America



# From Encirclement to Globalization

## Evolving Patterns of Higher Education in Brazil

ELIZABETH BALBACHEVSKY

Brazil has perhaps the world's most successful historical experience in adopting the import substitution strategy for economic development. Since the 1930s, the industrial growth of the country has been based on this strategy, and the results, in a broad perspective, have been very good. With the import substitution policies, Brazil's society and economy modernized quickly. Since the early 1960s, more Brazilians live in urban areas than in the countryside. In the 1970s, the economy grew by more than 8 percent per year, and by the 1980s Brazil was the eighth largest economy in the world. However, such success also has had some drawbacks. In the mid-1980s, as the world economy began to change, new pressures were placed on the country's patterns of insertion into the world market, and the weaker points of the import substitution strategy began to surface and the economy grew at a slower rate.

The basic assumption of the import substitution policies is that it is beneficial to erect barriers against foreign competition in order to protect domestic infant industries. This strategy leads to an autarchic industrialization policy pattern and tends to reduce competition among industries that are not challenged by domestic demands for enhanced quality products. Success in the world market is based mainly on the comparative advantages to be found in basic production factors such as natural resources and the abundance of cheap unskilled or semiskilled labor. At the same time, policies related to higher education and the science and technology policies adopted by the Brazilian government since the 1930s can be traced to the heritage of import substitution (Schwartzman, 1995).

Even though Brazil never sought to advance a conditioned "national science" policy, the most important goal for its endeavors in scientific fields was to develop adequate scientific capability in all fields, even when this implied a wide variety of resources directed to only a few groups of scientists. The primary goal of Brazilian technology policies was to free the national economy

from the *technological encirclement* of foreign governments and multinational firms. These policies traditionally valued the search for a genuine national technology path, even when this meant reinventing the wheel and paying high costs for such efforts. The strategy adopted to fulfill this objective was centered on huge investments in a few large technological projects. Policy makers hoped that with such large projects, technological and scientific capabilities would in time succeed in having a positive impact on the broader economy and society, with little attention paid to the technology diffusion process (Schwartzman, Krieger, Galembeck, Guimarães, & Bertero, 1995).

From the point of view of educational policies, this paradigm led to a trickle-down perspective. The most important goal was to prepare an elite group of outstanding scientists and engineers needed to implement the large projects that were at the core of Brazilian science and technology policies. This, in turn, led to policies that concentrated resources and quality control at the top of the educational pyramid, while paying little attention to the lower layers. In fact, since early 1970s the federal and state governments have made several investments to expand elementary education in terms of both buildings and enrollment. Nevertheless little concern was paid to the quality of education offered at this level. Analysts are unanimous in diagnosing a sharp decline in quality that accompanied the expansion of basic education (Ribeiro, 1990; Castro, 1985).

### **THE BRAZILIAN HIGHER EDUCATION SYSTEM SINCE THE 1930s: AN OVERVIEW**

The Brazilian higher education system experienced two great reforms in the 20th century. The first one took place in the 1930s and the second in 1968. The years 1930 to 1945 were crucial. This was an era when the state building process grew rapidly, leading to greatly increased centralization. A strong institutional building process marked the period, and enduring patterns of contemporary relationships between federal and state levels were established.

Before the 1930s, the principal operational unit of Brazilian higher education was the professional school, most of which were in the public sector. They provided professional training and credentials for a limited number of recognized professions. The 1931 university regulation adopted the multi-school university as the desirable institutional model to be pursued by all higher education institutions. In order to be accredited as a university, higher education institutions were supposed to combine a faculty of philosophy, science, and humanities with professional schools, most often law, medicine, and engineering. Other traditional professions such as pharmacy and dentistry were also acceptable as units within a university. The intended goal for the faculty of philosophy, science, and humanities was not conducting basic

research, but training teachers for the secondary level (for an overview of Brazilian educational policies in this period, see Schwartzman, 1991).

The 1931 University Law, and subsequent decrees and laws, reinforced the notion that the primary role of higher education was to provide training and certification for the established professions. At the core of this reform was the idea that in granting degrees, universities acted on behalf of the state in extending legally binding professional credentials. Thus the certification process culminated in nationally recognized criteria for a professional certificate (Schwartzman, 1992).

Those laws and regulations had a lasting effect on the organization of Brazilian higher education. First, since credentials were to have the same value nationally, the federal government took great pains to ensure that a single curriculum for each profession was adopted by all institutions in the country. At the institutional level, this system left little room for innovation and autonomy. At the federal level, this principle entailed building an elaborate system of bureaucratic controls and regulations. A National Council of Education, appointed by the Minister of Education, was in charge of the supervision and control of the country's educational policies. For each profession, a Federal Regulatory council was created. Every professional council was responsible for maintaining the profession's standards, protecting its market, and drafting the mandatory curriculum to be approved by the National Council of Education.

From the societal point of view, the association between educational credentials and access to protected job markets put a high premium on acquiring such credentials, independent of the knowledge content of the degree. This policy had lasting effects on the Brazilian job market. Every certificate holder in a new field of knowledge invests a great deal of energy in lobbying to protect his/her own share of the job market with official professional recognition (that is, certification) as a vehicle for limiting entry into their profession. Such recognition is achieved by putting the degree under similar principles of national curriculum uniformity and federal regulation. This phenomenon of market fragmentation is known as "credentialism" and is an ingrained trait in contemporary Brazilian society (Martins, 1992). Credentialism, along with the absence of pressures for performance and competence, are often a consequence of autarchic patterns for the economic growth. Within this overall framework, it is easy to understand the lack of vitality in Brazil's higher education institutions, and the major concerns about quality education at the undergraduate level.

The time between 1930 and the early 1960s was also the time when sectoral diversification took root. In the early 1930s, the state of Sao Paulo, the country's most economically dynamic state, took the first steps to create its own university. The new university was founded in 1934 with strong support from the state's cultural and economic elite. It was the first university to fol-

low the federal legislation of 1931, even though it remained under state supervision. Benefiting from the social crisis in Europe, especially in Germany and Italy, it successfully attracted professors and researchers from abroad. Those faculty members had a lasting influence on the university's ethos. The University of Sao Paulo (USP) quickly became the first to conduct research as an important institutional activity. To the present day, USP is still the most influential institution in the Brazilian higher education system with almost 50 percent of all the country's students enrolled in research oriented graduate programs. In 1996, this one university was responsible for 37.4 percent of all doctoral degrees granted in the country. Estimates also hold that USP is responsible for about 40 percent of all the research results published by the Brazilian science community (Ministério da Educação e do Desporto [MEC], 1996).

A network of federal universities was established after 1945, covering almost all the states in Brazil. This subsector of Brazilian higher education began with the federalization of several state and private schools in the 1930s. In the 1950s, growth was enhanced by the notion that every state was entitled to have a federal university. The Catholic Church also took its first steps as a serious player in the higher education system. In 1940 the Catholic University of Rio de Janeiro was founded, and by 1960 a network of Catholic universities covered the entire country.

### **The 1968 Reform**

The second major reform of Brazilian higher education took place in 1968. In that year the federal government, then under military rule, enacted a bill seeking to reorganize the entire Brazilian higher education system following the North American model. The Reform replaced the old chair system with the department model, proposed the adoption of full-time contracts for faculty, regulated graduate programs, and substituted the conventional sequential courses with the credit system (for an overview of the 1968 Reform, see Klein, 1992, and Durhan, 1998b).

With this Reform the ideal of a unitary higher education system, exclusively constituted by public, tuition-free, research-oriented universities, took root in the minds of the political leadership. A closer association between research and teaching had actually been sought by some institutions since the 1920s, and the ideas that led to the foundation of the USP were greatly motivated by the linkage of research and instruction. This linkage was also the leading banner for the embryonic Brazilian scientific community and was endorsed by the Brazilian Academy of Science and the Brazilian Society for the Advancement of Science. However, it was only with the 1968 Reform that this union became mandatory for the higher education system as a whole. This understanding had lasting effects on all policies relating to higher educa-

tion in Brazil, even though it was never fully implemented. On the contrary, as explained below, the 1970s witnessed the creation of a greater number of isolated professional faculties and colleges.

From the beginning, the implementation of the Reform faced great obstacles. The first one was the negative political climate. In 1968 there were student protests all around the world, and in Brazil there was a strong resistance movement against the military government, which reinforced the contestatory climate among the country's students. Brazilian faculty also regarded the Reform with great mistrust. These suspicions were reinforced by the fact that the first proposals were drafted by a high level committee with participation of specialists from the United States supported by a Brazil-U.S. cooperation treaty (the MEC-USAID Cooperation Treaty). This hostile context strengthened the barriers to the Reform. Furthermore, some of the country's most conservative interests were also opposed to the Reform. This was the case, for example, of the successful resistance of faculty in the more traditional professions as law and medicine (Klein, 1992).

The 1968 Reform was enacted amid an explosive increase in the demand for higher education. In 1960 there were only 95,691 students enrolled in undergraduate courses, but ten years later this number jumped to 425,478, and in 1975 there were 1,072,548 students enrolled at the undergraduate level. As elsewhere in Latin America and other Western countries, this expansion was partially due to an increase in the number of secondary students seeking higher education. It was, however, also the result of new segments of population—especially females and adults—pursuing enhanced credentials for advancement in the labor market. This process introduced a diversification of interests among students and forced an accelerated expansion of the higher education system (Durhan, 1998a).

This sharply-enlarged student population, with all its important ramifications, was not envisaged by the Reform. The expansion was only partially absorbed by the public sector, leaving most of the increase to be absorbed by private education. By the end of 1968, the National Council of Education decided to allow for the creation of a large number of separate private schools. These new institutions absorbed the bulk of the expansion. Between 1960 and 1980, when the enrollment began to level off, the percentage of students registered at the private sector had risen from 43.96 percent to 64.26 percent of the total student population. The growth of the private sector was achieved mostly by an increase in the number of newly founded, teaching-oriented, isolated schools and colleges. They were understaffed and had many part time, lower quality faculty offering evening courses, and catering to poorer students with low education profiles.

The public sector, mainly the federal and state of Sao Paulo systems, was more consistent in its efforts in implementing the 1968 Reform. Federal and state investments grew and most of the funds were used for new buildings,

extending full-time contracts to all faculty, and creating research facilities and improving graduate programs. Entrance exams were used to control student numbers and limit pressures on the teaching load. Thus, contrary to the experience of European and other Latin American countries where the expansion of the public sector was partially financed by lowering the costs per student, in Brazil the growth of public higher education was concomitant with a sharp increase in the overall institutional costs (Castro, 1985; Paul & Wolliniec, 1990; Schwartzman, 1993).

Graduate education and research experienced an even more dramatic expansion after the 1968 Reform. Enrollments in graduate programs rose from almost zero in the beginning of the 1960s to more than 40,000 at the end of 1980s. But the most striking trait of the growth of graduate education in Brazil has been the consistent focus on quality. After the 1960s, significant resources were directed toward the consolidation of graduate studies in Brazil. Money was provided for direct support to graduate programs and many scholarships and fellowships were created for studies both domestically and abroad. Support for doctoral granting programs was so large that in 1996 nearly all students enrolled at the graduate level were supported by some kind of scholarship. Contrary to the experience in other domains, the Brazilian government and the academic community took great pains to ensure quality at the graduate level. Fundacao Coordenacao de Aperfeicoamento de Pessoal de Nivel Superior (CAPES), the Ministry of Education agency in charge of graduate education, created a sophisticated peer review system for program evaluation. This evaluation is based upon objective data provided by the graduate programs themselves and site visits from experts. It successfully connects performance with support, and stands in a striking contrast with other policies adopted since the 1968 Reform (Castro & Soares, 1986).

Direct support for graduate programs provided by CAPES and other agencies allowed Ph.D. holders to participate as faculty in these graduate programs (Oliveira, 1984). Such programs became the main sites for institutional research in the Brazilian higher education system. The quality of the academic backgrounds of faculty and their research performance, as measured by number of peer-reviewed publications, have been at the core of the positive evaluation of graduate programs. The overall effect is that the graduate education in Brazil has benefited from a virtuous circle where the rule is "the better you are, the more support you get." Such a situation stands in clear contrast with all other policies regarding higher education in Brazil, whereas until now the government has not succeed in relating performance to rewards. Nevertheless, the very success of such policies was also a source of their weaknesses. In the 1970s and 1980s, support for graduate programs was so great that many university graduate programs effectively separated from

departments, leaving undergraduate education with little support from the most qualified faculty (Castro, 1985).

The implementation of the 1968 Reform has been coupled with strong pressures for system diversification. By the end of the 1970s, the Brazilian higher education system was far from the ideal postulated by the Reform. The higher education system became a diverse and sharply stratified system, with a public, tuition-free network of universities at the top, and large, low quality, fee-paying private schools at the bottom. Even among the public universities, a marked distinction should be made between the few that established strong graduate programs and the rest, which were limited to undergraduate teaching. Thus, to the outside observer the operation of the Brazilian higher education system is difficult to comprehend. Its laws and regulations reflect a unitarian system that does not exist. Instead, what exists is a highly diversified and stratified array of institutions where the laws have different impacts when applied to particular programs and institutions.

### **The Brazilian Higher Education System: A Portrait of the 1990s**

In 1996, the year of the last Brazilian higher education census, there were 1,862,529 students enrolled at the undergraduate level. The private sector had 50.6 percent of these enrollments, and the federal system 20.8 percent. State-owned institutions, mostly state universities, are responsible for 13.0 percent, and a few municipal (county level) institutions enroll 5.5 percent of the Brazilian undergraduate students. Enrollments at the graduate level have no precise figures. In Brazil's master's and doctoral programs, there were 62,617 students enrolled in 1995. The private sector is not a major factor in these graduate programs, with only 11.9 percent of these enrollments. Private institutions usually offer short-term postgraduate courses designed to meet the job market requirements for qualifications not supervised by the Brazilian Ministry of Education. Therefore, there are no accurate figures for their enrollments. Rough estimations usually indicate that these courses enroll at least the same number of students as the academic-oriented graduate level in the public sector.

As noted, the Brazilian higher education system is not only diversified, but also highly stratified. At the top there is a small group of universities and a handful of professional schools, most of them in the public sector, strongly motivated by high academic standards where research is a permanent and fully recognized activity.<sup>1</sup> At these leading universities, institutional values enhance individual research performance. These institutions provide better working environments, which allows them to recruit the most highly qualified faculty, and are well positioned to attract the little money invested in research. This group of institutions awards the vast majority of doctoral

degrees granted in the country and faces a great challenge in overcoming the strong tendency for faculty inbreeding. There are also two other problems that all these top institutions confront. One is a rigid disciplinary orientation that leaves little room for interdisciplinarity, and the other is an excessive dependence on governmental support, which causes them to be acutely vulnerable to budget reductions.

Within this top stratum, the state of Sao Paulo system has a place of its own. The three state universities—USP, the State University of Campinas, and the State of Sao Paulo University—have an unparalleled situation in the Brazilian higher education system. After 1988 these state universities were granted full administrative and financial autonomy. A fixed percentage (almost 10 percent) of the major source of the state's fiscal revenue, a variable tax applied to each sale made in the state, was ascribed to cover expenses of the state-owned universities. The State Rector's Council, composed of the heads of the three universities, takes full responsibility for the distribution of resources among the universities and for establishing salary levels. This financial autonomy enabled the universities to develop a predictable budgetary system and interjected innovation and accountability into their institutional administration. Faculty from these universities also have access to a major Brazilian science and technology funding agency, the State of Sao Paulo Science Foundation (FAPESP) that operates exclusively in the state of Sao Paulo. The FAPESP budget is the second largest in the Brazilian science and technology funding system. Most important, its yearly resources are secured by the state Constitution, which mandates 1 percent of all state fiscal revenues to the FAPESP. Armed with these impressive resources, these three universities were responsible for more than half (51.4 percent) of all enrollments at the doctoral level in the country (MEC, 1996).

The majority of Brazil's public institutions of higher education are in a second stratum. They are mostly universities, but lack the minimum conditions necessary for affective academic development. Such institutions have not been able to establish a vigorous graduate layer, and therefore have difficulties attracting and retaining Ph.D. holders among their faculty. The lack of qualified faculty creates internal resistance to the institutionalization of research, and institutional values are predominantly oriented toward teaching. It is not unusual for teachers at these universities to reach the position of full professor without holding any degree beyond the bachelor's level. They often have poor working conditions and few active researchers, placing them in a weak position to compete for research grants. On the other hand, their formal recognition as universities creates unrealistically high expectations among their faculty. Even without higher academic qualifications, most of them have stable full-time contracts with low teaching loads. Resistance to reform designed to modify the system's *status quo* is strong. Any change designed to move the system into a more competitive environment is met

with great mistrust by faculty, staff, and students. Nevertheless, in recent years there has been movement among some of these institutions to emphasize their commitment to regional needs. In the more successful instances there has been a move away from a focus only on traditional academic values to a stress on institutional capabilities for outreach projects in the community. In the past, such outreach activities were understood as assistance to the poor, but recently outreach activities have included services for business, civil associations, nongovernmental organizations, and regional or local governments.

The majority of Brazilian higher education institutions (public and private) are in the third and lowest stratum. They are mostly private, or operated by small municipalities or states. They are very successful in meeting the market demands for quickly training or retraining the labor force. However, some of the poorest ones are only motivated by short-term market pressures to provide credentials for specific jobs. Others are committed to quality, but the only criterion used to measure quality is the employability of their alumni. Academic standards are a foreign concept for them, unfortunately. When dealing with graduate programs, they succeed only in nonacademic oriented master-level programs—*especialização* or *pós-graduação lato-sensu*—designed to meet the needs of the labor market.

These three strata also provide the venues for networking within the Brazilian higher education system. Institutions, research teams, and individuals from universities at the top stratum are highly interconnected. The circulation of students, faculty, and information is high among those institutions, but connections across strata are less frequent. However, one should note that interstrata connections are now more common among institutions in the first and second strata, since the federal government has partially succeeded in strengthening the networking activities between them. This has been achieved by means of special science and technology programs and fellowships designed to expand collaboration. What is more unusual is any kind of formal or informal connection between institutions at either of these two levels and the large number of colleges and universities in the lowest stratum. In fact, it could be said that there is an invisible wall surrounding institutions, faculty, and students from the third level, even when they are in close geographic proximity with institutions from the first or second strata (Sampaio, 1998).

The foregoing education differences have regional political-economic counterparts (for detailed figures, see MEC, 1997). Brazil is a large country with most of its modern economy concentrated in the southeast. This region includes the states of Sao Paulo, Rio de Janeiro, Espirito Santo, and Minas Gerais, and is the location for most of institutions in the first stratum. This is also the region where the most private institutions are concentrated. Therefore, even though this region has the country's best universities, the majority

of its students are enrolled in third-stratum institutions. Nonetheless, because of the extraordinary concentration of graduate programs offered by the good universities in the southeast, this region is also the home of the most graduates with advanced degrees.

The northeast region is the poorest in the country and is densely populated. Here there are fewer private institutions. Public institutions, most of them in the second stratum, enroll the majority of college students comprising a smaller percentage of their age cohort than in other regions. The sparsely populated Amazon region in the north has a similar profile. This is also partially true of the midwest region, but here the local and regional governments play a more active role in supporting higher education. The private sector is also more active, especially in the Federal District's metropolitan area.

The south has a dynamic economy based upon small industrial towns, complex urban centers, and small, technologically intensive agriculture. In this environment institutions of higher education have more opportunities to grow and innovate. Successful examples can be found in the Rio Grande do Sul and Santa Catarina where comprehensive and highly integrated networks of small colleges and universities were created. These institutions charge tuition, but also rely on support from the local authorities and business community. A council of representatives of local authorities and business groups usually runs these institutions. These community-oriented colleges and universities are highly regarded at the local level for their outreach services. Another noteworthy trait of this regional system is the intensity of the networking activities among these institutions, and between them and the better-positioned, equipped, and manned Catholic and federal universities in this region.

### **BRAZIL'S HIGHER EDUCATION: CHALLENGES FOR THE NEW CENTURY**

The main challenge faced by this emerging market country is the need to overcome the cultural legacy of industrialization based on import substitution. This means that Brazil has to upgrade its assets in order to more effectively compete on the international market. Formerly, the economy relied on low labor costs to be competitive, but now long-term educational reforms are needed to upgrade the technological capabilities of the national labor force. It is not possible to build up a modern, competitive economy with a largely semiliterate population. It is also impossible for a new knowledge-based economy to take root in Brazil in the presence of deteriorating basic and secondary education systems. For a long time Brazil has been invested in creating a scientific elite, but now it is time to invest in the upgrading the quality of education at all levels.

Higher education is a strategic tool to improve the learning capability in Brazil's reformed economy. One important aspect of the new economy is the opening of the domestic market to the international competitors, pushing the Brazilian industrial sector to compete in more sophisticated international markets. This puts great pressures on the domestic industry to compete by upgrading the quality of Brazilian products and improving labor productivity. What is needed are measures that improve the rate of technology diffusion in the Brazilian economy. In order to achieve this goal, a less hierarchical, more diversified and inclusive higher education is required. Such a system should play at least three important roles. First, it should deliver better-trained and informed teachers to improve the secondary and primary levels of education. The poor learning conditions in these education levels, especially in the public schools, are significant obstacles to improving industry competitiveness. A more equal fundamental and secondary education in Brazil would also be an important tool in reducing the high income disparities that presently plague Brazilian society and economy. Second, higher education is an important factor in improving the technical and general qualifications of professionals in the Brazilian job market. The present tendency toward greater specialization in the Brazilian undergraduate level should be counteracted. Also, internationalization of Brazilian higher education at the public and private sectors is rarely a focus of reform, but is most important in today's global economy. Finally, there is the important role that the higher education system plays in the Brazilian science and technology system. A more socially oriented science and technology system could be established by strengthening the links between higher education institutions and the economy as a whole. The first challenge is to substantially increase enrollments in higher education.

Today Brazil has about 1.9 million students enrolled in higher education, or about 12 percent of the 18–24-year-old cohort. In the mid-1980s this percentage was nearly 13 percent, but fell to its lowest level of 9 percent by the end of the decade. In the early 1990s, enrollments began a new expansion cycle. In the 1980s the bottleneck was the low rate of graduation from secondary schools; in the 1990s this problem has been partially solved by a secondary education system that also underwent an expansion cycle. This expansion has been made possible largely by investments of the states' governments (Durhan, 1998a). The pressures for the expansion of higher education pose a great dilemma for the system's policy makers. Who will pay for such expansion?

In the past, enrollment increases were absorbed by private colleges, which expanded with little concern for educational quality. Limited competition in the country's economy as a whole and a low demand for highly qualified workers made this strategy feasible. Today this policy is not an option if the country is to become a serious player in the knowledge-based global economy. Yet additional increases in the higher education's share of the

national budget are not likely to occur. Nor is it possible—or reasonable—to expect growth in higher education's share of the budget earmarked for education at all levels.

Public investments in higher education increased regularly from the mid-1960s until the early 1980s, with most of the increases used to improve the infrastructure and expand the number of full-time faculty and their working conditions. This pattern of expansion was deemed necessary in order to build a strong system of research universities. However, the results did not always meet expectations. Almost all the programs designed to improve the faculties' academic profile at universities in less developed regions failed to achieve their goals. A handful of universities, better equipped and with a strong graduate layer, attracted most of the Ph.D. holders, leaving the remaining institutions with less qualified faculty. Instructional quality at most universities was handicapped by faculty with full-time contracts and low teaching loads, regardless of their academic achievements. Furthermore, there were no incentives to control growing expenses since the universities' budgets were calculated on the basis of past disbursements, regardless of institutional performance.

The net outcome of these pressures is an expensive public higher education sector marked by high levels of inefficiency. Presently, education in Brazil consumes 4.6 percent of the GNP and 17.6 percent of all public expenditures. Brazilian public higher education absorbs 18.26 percent of *all* public expenditures for education at all levels, while accounting for only 1.86 percent of all students enrolled in public institutions (Negri, 1996). Nonetheless, wages are relatively low and working conditions are poor, causing the majority of faculty to be dispirited and dissatisfied with their profession (Schwartzman & Balbachevsky, 1996).

To confront these pressures for expansion, a major reform in Brazilian education is needed. Evaluation and quality control should have top priority on the government's agenda. Another important issue is the recognition of institutional diversity and the promotion of mobility between different sectors and strata. Finally, there is the problem of the financial soundness of the federal sector. Reactions to these issues vary, as do their degree of success. Since 1995 the Ministry of Education has been gradually implementing a National Course Exam, mandatory for every student concluding undergraduate studies. Until now the exam has been limited to a handful of careers, but its aggregate impact has been impressive. The performance of all students in the same career track is now measured by the same rules in a nationwide evaluation. This exam has forced higher education institutions in all sectors to begin focusing on the quality of the education they provide.

Diversification was acknowledged by law for the first time in the new Education Act, *Lei de Diretrizes e Bases da Educação*, adopted by the federal legislature in 1997. The new law, while insisting that research, teaching and

outreach are the primary goals for higher education as a whole, explicitly recognized the existence of institutions primarily devoted to teaching. Another innovation was that the minimal mandatory curriculum was replaced by more flexible directives regarding the knowledge content of the courses offered. The new legislation also allowed for an intermediate certificate that may be granted to students when they completed the first two years of the college cycle. Finally, it granted expanded autonomy to universities, while at the same time putting strong pressures on the academic profile of these institutions. According to the 1997 Education Act, institutions must have at least a third of their faculty with master's or higher degrees in order to be accredited as university. Academic rank was incorporated as a necessary criteria for career promotion in all public institutions and no one without a doctoral degree may be appointed rector (Associação Brasileira, 1997).<sup>2</sup>

The first results of the 1995 National Course Exam and the 1997 Education Act, as well as pressures made by the National Council of Education, were factors in the differentiations within private sector education. In the last few years a great number of private institutions have succeeded in their attempts to be certified as universities. Some have sought to improve quality of their undergraduate programs. A great number upgraded their academic profile by hiring faculty who retired early from the public sector.<sup>3</sup> Such new developments tend to create a more competitive environment for the higher education system as a whole (Sampaio, 1998).

The government, however, has been less successful in efforts related to the financial sustainability of the federal universities. Since 1995, the Ministry of Education has been trying to pass a law granting financial autonomy to these universities while connecting their budget to performance evaluations. The government proposals were generally received with mistrust. Some educators felt that such proposals showed a lack of commitment by officials in charge of Brazil's macroeconomics policies. Others suspected that university autonomy could be the first step in a government privatization program, while still others feared autonomy because of the competition it could create within and among institutions. Distrust of the government's intentions was coupled with regional concerns that autonomy would mean the transfer of the financial burden of operating the universities from the federal government to the states. As of 1999, the convergence of these diverse forces has succeeded in defeating the government's proposal for increased autonomy, and there is no consensus for an alternative proposal.

### **The Turmoil of the 1990s**

The 1990s has usually been seen as a milestone decade in the contemporary history of Brazil. In 1988 Brazil adopted a new Constitution as the outcome of its democratizing process. Although liberal in its intentions, democratiza-

tion has also provided a forum for those seeking to strengthen some outdated policies, especially those related to import substitution and autarchic economic strategies. In the sections related to higher education, the new Constitution restated the model of the research university for all higher education institutions, increased academic autonomy, and confirmed the status of civil servants to all faculty hired by the public sector. As such, faculty are subject to all rules applied to civil service, including the principle of wage isonomy and employment stability (Velloso, 1986). Since 1995, the government has passed some Constitutional reforms and approved legislation, making the operation of the higher education system more flexible.

The 1990s was also a decade of major economic reforms in Brazil. Those reforms have created a new macroeconomic environment that has had a major impact on the Brazilian higher education system. The main features of the economic reforms initiated in 1990s were monetary stabilization, an ambitious privatization program, and the opening of the country's economy. The new economic framework created by these reforms has had a different impact on each sector of the Brazilian higher education system, depending on that sector's weaknesses and strong points.

In 1994, when the stabilization plan for the real was launched, Brazil's inflation rate had reached more than 1,000 percent per year. Since then, inflation rates have dropped to less than 3 percent and even the devaluation of Brazilian currency in January 1999 has not had a significant impact on inflation rates. This stabilization has had a generally beneficial impact on the state of Sao Paulo's public university system. Financial autonomy and budget controls implemented by Sao Paulo universities have created a healthy environment that has assured success in dealing with the new economic context created by a more stable economy. Thus, stabilization increased system accountability and the growth of the economy in 1995 through 1997, allowed for sound investments to be made in infrastructure, and physical and work conditions at the universities.

For the federal system, the impact of the new economic environment was not so beneficial. The lack of financial and administrative autonomy, coupled with the central government's pressures for stricter budget controls, has had adverse effects on federal universities, especially their capacity to maintain and improve infrastructure and work conditions. Money for these needed improvements has been scarce since the beginning of the 1980s, but during the period of high inflation rates, federal universities could finance these investments by charging the federal treasury with overestimates for salary expenses. Since the nominal surplus this generated would be returned to the Federal Treasury only by the end of the fiscal year at highly inflated rates, the difference between the monies received and those returned allowed university officials to make the investments necessary to maintain the infrastructure.

It is not difficult to understand the overall negative effects of stabilization on the federal university system. This situation was worsened by attempts of the federal treasury to control the university's disbursements concerning personnel. Complaints about the lack of money even to pay basic costs became common in the mid-1990s. Thus, for this sector, stabilization meant impoverishment. In 1998 the Ministry of Education made some efforts to partially improve the situation. A New Reform Act was proposed to link faculty salaries with teaching performance, and to try to correct some of the imbalances among institutional budgets. Once again these proposals were received with mistrust by the stakeholders. Reform implementation is at an impasse created by opponents both inside the governmental coalition and at the universities.

In the private sector, stabilization created strong pressures for a more effective budget controls. In times of high inflation, it was relatively easy to transfer the costs of deficits to the tuition charged. Money could also be generated almost magically by maneuvers in the financial markets. This state of affairs underwent a radical change with stabilization. For some institutions in the private sector, these pressures and new demands were difficult to overcome. Past mismanagement, bad investments, the high interest rates, and a high incidence of breached tuition contracts have taken their toll, and the very survival of these institutions is in doubt. This negative overall performance was especially prevalent in the smaller teaching-oriented schools, as well as some professional private schools. For them, the new regulations and demands of the federal government for improved academic achievements are too much to overcome. These institutions simply do not have internal resources to support major institutional reforms, and the federal government does not have a program to support reforms in the private sector.

Yet reform is essential. The process of opening Brazil's economy to the international market has created a more competitive environment for business. In the labor market, this competition creates an increased demand for graduates with improved educational credentials. The new demands of the labor market, along with other developments, has made the Ministry of Education insist on better results from Brazil's institutions of higher education. The poor conditions prevailing in the public sector made it easier for some private institutions to upgrade their faculty profiles by hiring older professors with higher academic credentials who had retired from public institutions. The social security law in force until 1999 allowed for early retirement for professors in the public sector and was the facilitator of this process.

The significant number of faculty seeking early retirement had negative side effects on some graduate programs and research centers. This is especially true for those universities where such activities were strongly dependent on the performance of just a few professors. Once again, the lack of

autonomy for federal universities made it more difficult for them to overcome this situation, because they are subject to governmental regulations designed to control increases in personnel expenses, the most important source of fiscal imbalance.

Privatization and state reforms have also had important consequences for research enterprises in public higher education. Since the mid-1990s, one could discern important changes in Brazilian science and technology investment patterns. Money for direct research project funding grew at a slow pace, while funds raised by tax incentives for industrial research and development grew in a faster pace. The government showed a renewed interest in cooperative industrial research and technology diffusion.

Privatization of state-owned enterprises added additional pressures. In the past, state-owned enterprises were the main source for technology development investments in Brazil. Such investments were usually directed to ambitious technological projects implemented by industrial laboratories owned by state enterprises, or these enterprises would mobilize research teams at leading public universities. Thus, at first privatization was a threat to the very existence of these major public technological research centers. Privatization disrupted or terminated research programs and long-established networks of cooperation among teams from industrial research centers and universities. Now activities at state-owned laboratories have been reoriented toward a more modest profile, stressing technological service and development. The new regulatory agencies created by the privatization process are also mainly interested in technology monitoring and services. In this context, money for large, complex technology projects is scarce. If such funds do exist, they are held by multinational or major national enterprises. This environment has pushed academic research teams toward a more strategic-oriented research agenda with more emphasis on technological outreach programs. Some observers (Balbachevsky & Botelho, 1999) have also noted network activity among few academic research teams and multinational enterprises that, in some cases, has resulted in joint projects.

The net outcome of these changes is difficult to predict. Much depends on the ability of institutions in the Brazilian higher education system to respond to the challenges presented by the new environment, as well as the ability of the public sector to effectively manage a variety of internal issues. The next section outlines the nature of such issues.

### **Challenges at the Institutional Level**

The first problem faced by most public institutions of higher education today is their governance structure. Brazilian universities traditionally adopted the European model, with the key governing body being the academic senate, or congregation (*congregação*). The leading authority at the university is a col-

legiate body (University Council) elected in different proportions by faculty, staff, and students. Appointments to the top administrative positions are made from among the faculty. The democratizing process begun in the early 1980s incorporated demands from students, teachers, and employee unions toward a one-man one-vote election of all executive posts, including the rector. They also wanted equal participation in senate, or congregation. Most public universities adopted these procedures in one way or another. USP was the only Brazilian public university that did not adopt these electoral principles. However, several other universities adopted voting procedures, which gave greater weight to faculty choices. Following the 1988 Constitution, pressures for a more open electoral movement system at the universities increased. Even though the government has the prerogative of the final decision from a list of three nominees for rector, it usually appoints the candidate who received the most votes from faculty, staff, and students.

After more than a decade of such “democratic” governance, some problems have been acknowledged (Schwartzman, 1992; Coelho, 1988; Castro, 1985). First, the absence of any external mandate for reform leaves the rectorate hostage to internal forces that often oppose change. Second, existing rules, when combined with only limited financial autonomy, create a vicious circle with few incentives for increased accountability of university management. Third, the populist environment created by such practices has caused dissatisfaction among the more academically oriented faculty who felt overwhelmed by the political mobilization of students, employees, and assistants. Finally, such an atmosphere is not sensitive to a sound and beneficial academic reward structure.

A second challenge faced by the more academically oriented institutions with strong graduate programs is the internationalization of their scientific endeavors. In 1992, Brazil ranked twentieth among nations in scientific production, and articles authored by Brazilian scientists represented less than 1 percent of the world total (Schott, 1995). In 1990, a study of Brazilian faculty found that even among the faculty working in first strata institutions, only 21.6 percent had some research interaction with foreign peers in the last three years (Balbachevsky, 1995). This pattern of relative detachment from the global academic research continues. Even the impressive graduate programs established since the 1970s remain relatively isolated from their counterparts abroad and outside the main routes of international scientific interchange. In today’s globalized world, little effort is needed to assess the negative impacts of such isolation. Being secluded from international interchange of knowledge means that Brazil loses opportunities to monitor state of the art developments in many technological and scientific fields. Too much scarce research money is thus sometimes spent on projects using outdated methodologies and techniques. This situation also precludes Brazil from playing a more active role in setting standards in high tech industries.

The relationship between academic enterprise and the productive sector is also a problem. In Brazil the public sector accounts for around 70 to 80 percent of R&D funding, a ratio that is the reverse of the pattern exhibited by Asian newly industrialized countries (Ministério de Ciência e Tecnologia, 1996). Brazil's support for education has not significantly contributed to increasing its gross domestic product. Given the atmosphere of a lack of competition and protected markets in which Brazilian industries operated, until recently there were few incentives for investing in R&D activities. Furthermore, with few exceptions, the prevailing academic culture at public universities undervalued the interaction between academia and industry. At the institutional level, there are no incentives for such interactions, and no institution is known to collect systematic information about such activities. The poor academic backgrounds of the faculty and the low quality of equipment and installations severely limits the potential academic support from the private sector.

The fourth challenge has two dimensions: institutional evaluations and career paths of the faculty. First, 1994, the Brazilian government has taken some steps toward an effective evaluation of the higher education system. In the government's recent proposal for financial autonomy for federal universities, there is an outline for evaluations at the institutional level. Nevertheless, higher education in Brazil has an entrenched legacy of evasive, bureaucratic patterns of evaluation whereby the government poses questions and the institutions just amass the necessary figures in order to satisfy them. They have little experience with comprehensive institutional evaluations in which the organization defines its institutional goals and the steps deemed necessary for their fulfillment. Since the late 1980s some universities have developed indicators for internal evaluations, but such experiences are limited in scope. Most evaluations only muster statistics without major concerns about their meaning, and evaluations oriented toward an institutional strategic plan are very rare.

The second dimension concerns career paths at the institutions. In the private sector, career path has little meaning since they have mostly part-time teachers. The career steps which do exist reflect an institution's confidence in an individual teacher on a personal level rather than his or her performance as an academic or professional. In the public sector, the career path resembles the civil service structure with an overreliance on status and seniority with little connection to performance.

At the leading universities, institutional career paths are related to academic degrees. For example, no one can ascend to the position of full professor without holding a doctoral degree. At institutions in the second stratum, requirements are less strict and the internal environment provides numerous outlets to bypass the system, which makes academic background a sufficient, but not necessary, condition for advancement. The most obvious mechanism

to bypass the doctoral degree requirement is the title of *Livre Docência*, an adaptation of the traditional German *Privatdozent*. This title is obtained by taking a public examination and presenting an academic thesis. Any institution is allowed to hold such exams, including those without graduate programs. (Schwartzman, 1992; Balbachevsky, 1995). Furthermore, even at the best universities, the core issue for promotion is the academic degree itself, and not the candidate's research or teaching performance. This situation creates serious constraints for the use of an institutional reward structure for promotions.

## CONCLUSION

With the arrival of the new millennium, higher education in Brazil faces a number of challenges, and it is difficult to foretell the results. The Brazilian government (local, state, or federal) is not likely to increase the amount of money for higher education in the coming decade. If some increases for education are necessary, they are likely to be for precollege education. Pressures for more efficiency, accountability, and effective evaluations will continue to intensify. For the public sector, the central issue is whether the autonomy granted by the new Constitution will be used to resist demands placed upon higher education by the realities of the external world, or if it will be used as an instrument to broaden and strengthen the links between the academic world and societal needs. If the former scenario prevails, the outcome will be negative. Universities will be even more isolated from society, even more underfunded by the government, and even more divided by an ethos of competition. In this case, previous investments will be squandered. However, if the latter scenario prevails, it will still be many years before the positive impact of the recent reforms are realized.

As for the private sector, the problems revolve mostly around finances as they depend heavily upon money raised through tuition. Because of the usually lower incomes of their clientele, there is a clear limit to the amount of tuition and fees they can charge students. Furthermore, public subsidy to private education has never been high and is now forbidden by the new Constitution. The only type of public support open to private universities has been loans to their students. However, student loans are limited in scope and the present fiscal crisis in Brazil make them more unpredictable than ever before. The current response of private higher education is to provide education as inexpensively as possible. This situation is bound to change due to the pressures made by the government, and the demands of the labor market in an advancing emerging market country. Therefore, the question is how to improve quality in services and education with limited funds (Sampaio, 1998)

This dilemma strikes particularly hard at the private teacher schools. Since the 1960s, the teaching profession has experienced a decline in its

social status. Given the low prestige of the profession, the primary responsibility of preparing the new teachers has moved from the public to the private sector. Today most teachers at the public secondary school system have studied at poorly equipped and badly staffed private schools. This makes the prospects for good general public instruction seem rather dim. Nonetheless, improving public elementary and secondary instruction is essential if Brazil is to join the club of successful emerging markets in the new century.

Brazilian higher education faces numerous challenges—resources, incentives, issues of governance, and so on. While facing these challenges the country cannot overlook the need to improve precollegiate education, and must produce graduates who have the skills to operate effectively in a globally competitive environment. Among the leading challenges facing higher education is its need to serve as the focal point for the diffusion of technology, and at the same time provide a knowledge base which is responsive to societal needs, and that contributes to an improved quality of life for all Brazilians.

## NOTES

1. The institutional typology outlined here is fully presented in Balbachevsky (1995).

2. By Decree 86487/80 of 1980, promotion for faculty in the federal institutions did not require academic credentials. In most institutions this decree entailed strong pressures for faculty promotion regardless of their academic performance. Only at a few academic-oriented institutions were there internal pressures to reduce the negative impact of this decree. The new Education Act of 1998 terminated this 1980 decree.

3. Until the end of 1998, the Brazilian social security system allowed early retirement to faculty in the public system. After working twenty-five years for women or thirty for men, faculty could retire with full wages assured. Since universities hired most faculty in their early twenties before they began their graduate studies, most of them retired in their early forties and sought employment in the private sector. This movement has intensified since 1994, as most faculty were uncertain of government plans in this area. The new social security law approved in 1999 is changing this situation, as it only allows for retirement of women sixty years old or older, and men sixty-five years old or older.

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# Higher Education and the Emerging Markets

## The Case of Chile

OSCAR ESPINOZA

In this chapter I will describe the existing relationship between higher education and the emerging Chilean market, as well as the possible impact of the postsecondary educational system on the economy. Traditionally, higher education has been associated with economic development and/or sustainable development. To accomplish progressive economic development it is necessary for the higher education system to prepare leaders whose technical and professional training will allow them to carry out activities that contribute to national development in both the public and private sectors.

Particularly important is the role of higher education and its impact on the economic sector in countries in transition such as Chile. The countries that seek gradual and balanced economic growth need to focus on their higher education systems in order to generate the human and technical resources required for success in this transition. Only in this way can Chile reach the development levels that the industrialized societies have achieved. The task is complex but not impossible, and it requires investment from the state.

The chapter is structured to provide the reader with information relative to the recent historic and economic development of Chile, the development of the postsecondary system from the early 1980s to the present; economic trends and negative aspects of the emerging Chilean market and, finally, the contemporary role of higher education and its impact on the emerging Chilean market economy.

### **RECENT HISTORY OF POLITICAL AND ECONOMIC DEVELOPMENT IN CHILE**

In 1973, a new era in Chile's political history began that would last seventeen years. The armed forces, through a coup d'état, controlled the power. During this time the military government, headed by Augusto Pinochet, had little

opposition to lead deep social, political, and economic reforms. Political parties as well as the Parliament were totally annulled. The military government was unopposed. The National Congress was closed, political parties were prohibited, and militants in many cases persecuted. Moreover, the military government approved a new constitution which established the bases for the existing regime and the future governments.

### **The 1981 Structural Reform and Its Context**

The essence of the market-oriented economic reform implemented by the military government was a sharply reduced direct state intervention and discretion (e.g., the allocation of direct and indirect subsidies) wage determination, and trade restrictions. The military government promoted deep reforms in the early 1980s in the educational and health systems, as well as a system of pensions, which had a considerable and immediate impact upon their implementations. With the reform of the system of pensions, the military government intended to reduce expenses, giving administration of this system to private sectors that created the Pensions Fund System. With the transformation of the health sector and the privatization of its services, the government planned to optimize the use of resources and to reduce the public expenditure in this social area of the economy. As a result, the Health Care Institutions (Instituciones de Salud Previsional, or ISAPRES) were created. The ISAPRES are private companies that provide health services at a higher cost as compared to the National Health Fund (Fondo Nacional de Salud, or FONASA) which receives funds from the state. This implies a clear discrimination and segregation toward the sectors of the lower income level.

The educational system became decentralized and simultaneously encouraged a privatization process in all levels of the system. Through decentralization, the armed forces were expected to lessen the role of the central government, giving more authority to local governments.

As a direct consequence of the privatization process, the private sector, driven by the military government, tended to be stronger than the public sector. This led to a drastic fall in the quality of public teaching, while the quality of private teaching became better. Likewise, the infrastructure of the public establishments became worse because they were neglected at all levels of the educational system, but mainly in higher education.

### **Economic Development and the New Democratic Order**

The Chilean economy's growth in the last decade can be explained by expansions of the amount and quality of the productive factors as well as by the improvements in the technological and organizational aspects. Chile has a competitive advantage in two types of productive factors: one, an extensive base of natural resources used for export, and two, a cultural tradition of a quality workforce. The human resources trained in the last ten years are

derived from active public policies that positively influenced education levels, health, and life conditions of the population.

In the 1990s, a new democratic government emerged led by the Christian Democrat Patricio Aylwin, who is supported by a left-of-center coalition of political parties that represented the opposition to the military regime. The new government coalition, known as *Concertacion de Partidos por la Democracia*, or Coalition of Parties for Democracy (integrated by Christian Democrat Party, Socialist Party, Party for the Democracy, and Radical Social Democrat Party) initiates in this way a new era in the political history of Chile.

From 1990 until today the Coalititon of Parties for Democracy has led the government with its Christian Democrat representatives, Aylwin (1990–1994) and Eduardo Frei (1995–2000). The new governing coalition has introduced some reforms in the social/economic order, but in practice it has continued with the economic policy driven by the armed forces in the 1980s, consolidating the new emerging market (Munoz, 1994). These policies continue the process of privatization of the main state companies: National Company of Oil, National Company of Electricity, and National Company of Telephones (Fazio, 1998; Cademartori, 1998). The process of decentralization in the different social/economic areas has also continued.

With regard to educational issues, Aylwin's and Frei's administrations have tried to change educational policies, given the poor results obtained by the military government. In fact, with the intention of accelerating the changes and strengthening the educational system in their different levels, the government has asked for three loans from the World Bank over the last eight years.<sup>1</sup> The purpose of these loans has been to improve sensitive areas such as the infrastructure of schools and higher education institutions, teaching, teacher training, and the development of human and scientific resources.

## CHILE, AN EMERGING MARKET IN TRANSITION

Formerly an authoritarian government, the Chilean government made the transition toward democracy in the early 1990s. Before the political transition, an economic reform was implemented by the military government in 1981. The Chilean economy has been maturing and growing, reaching a degree of stabilization. Since this time, in Latin America, the Chilean economy is seen as a model by other Latin American governments (Page, 1997), often recommended by international organizations. The economic reform implied deep changes in areas such as trade liberalization, capital and labor market reforms, privatization, social security, and pension reforms. All of these reforms were maintained and deepened after the macroeconomic and financial crises of the early 1980s.

The forces that have characterized this economic and political process have been complex, far-reaching, and mutually reinforcing. In the economic area, price stability has returned after having all but disappeared in the 1980s.

To achieve this change, structural reforms have been implemented to open up the Chilean economy to international markets.

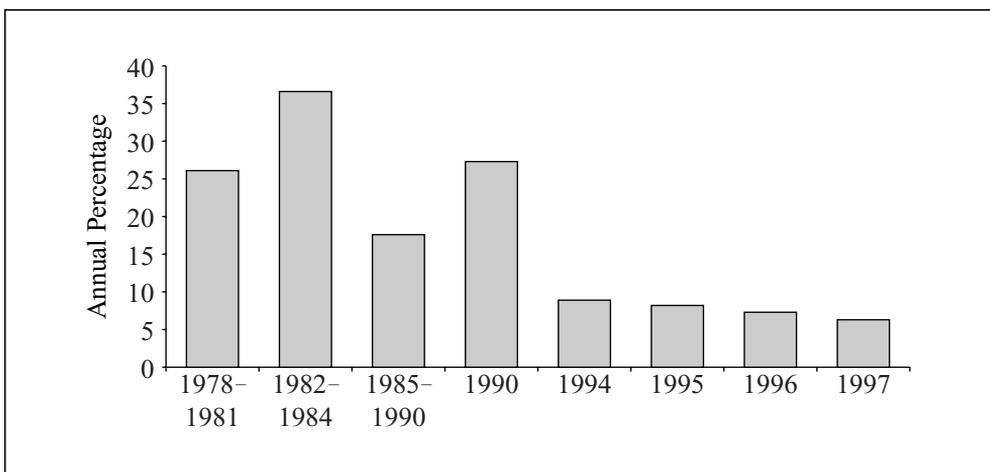
Currently, the Chilean economy is widely recognized as being the most open, stable, and liberalized in Latin America, with a market-based economic system in which the public sector plays a supportive role by setting the ground rules and maintaining a macroeconomic balance. The private sector is the engine of this emerging market country.

Key characteristics of the Chilean economy as an emerging market country are a reduction of the inflation rate to one digit, control of the unemployment rate, and progressive growth of the gross domestic product (GDP).

### Inflation Rate

The 1980s and the first years of the 1990s were marked by high inflation rates. However, since 1994, the inflation rate has been brought under control. This phenomenon can be explained as the result of responsible fiscal policy. In addition, since the crisis of the mid-1980s, Chile chose a pragmatic approach by refusing to use the nominal exchange rate and introducing a competitive real exchange rate to bring down inflation.

Higher inflation rates occurred during the economic recession that extended between 1982 and 1984 (36.6 percent) and during 1990 (27.3 percent) when the democratic government led by Aylwin took power. Later years were marked by a continuous decrease in the inflation rate until it reached single digits in 1995 (see Figure 8.1).



**Figure 8.1.** Chile's inflation rate in 1978–1997 (average annual growth rate in percentages).

*Sources:* Inter-American Development Bank (1999); Economic Commission for Latin America and the Caribbean (1996).

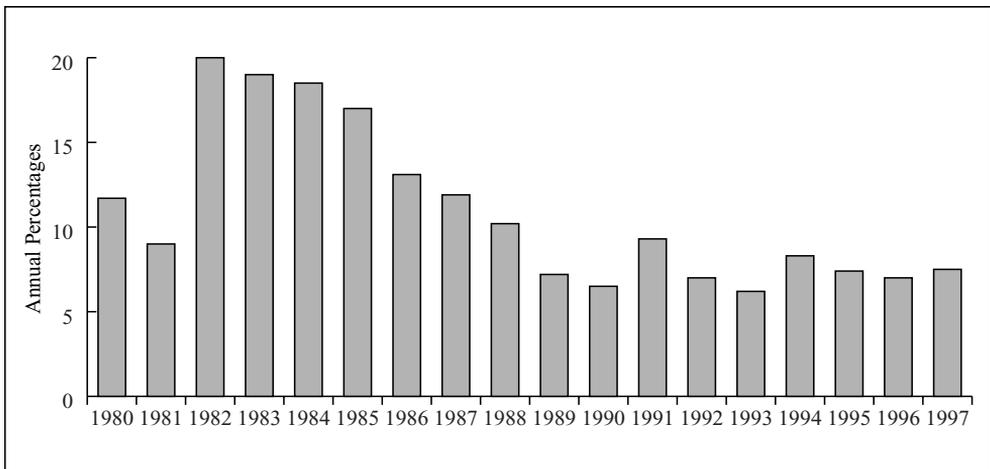
## Unemployment Rate

The unemployment rate was stable from 1989 to 1997, averaging 7 percent (see Figure 8.2). In the 1980s the unemployment rate reached very high levels, for example, during the world economic crises (1982 and 1985).

After 1985, a progressive recovery in the national unemployment rates is observed that coincides with the end of the economic recession. However, it cannot be forgotten that the reduction in the inflation rate in this period happened because the Chilean government implemented employment programs such as the Minimum Employment Rate Program and the Head of Household Employment Program, which tried to reduce unemployment through the creation of new jobs that were focused on cheap labor. Both employment programs failed completely and had to be closed before the transition to democracy.

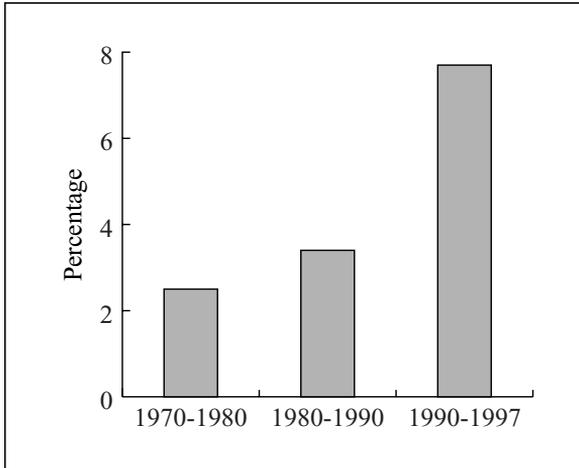
## Growth in the Gross Domestic Product

Statistics reveal that the average annual growth rates of the gross domestic product (GDP) were constant between the 1970s and 1990, ranging from 2.5 percent in 1970–1980, to 3.4 percent in 1980–1990 (Inter-American Development Bank, 1998). However, since the late 1980s it is possible to perceive an increase in the GDP growth levels. Even more from 1991 and until 1997, the annual growth rate of the GDP has stayed almost constant, with an annual average close to 8.0 percent (Figure 8.3). This situation has resulted in a decrease of the unemployment rate, a relative improvement of the wage conditions, and an increase of the internal reserves (savings).



**Figure 8.2.** Chile's unemployment rate in 1980–1997 (percentages).

*Source:* Inter-American Development Bank (1999).



**Figure 8.3.** Chile's gross domestic product average annual growth rates in 1970–1997.

*Source:* Inter-American Development Bank (1998).

Chile's economic growth in the last decade has been followed by the demand for new skilled professionals with different abilities and talents. In this context, the Chilean higher education system has continued its evolution, providing new professionals to the Chilean emerging market. The problem in the short and medium terms concerns the number of graduates from postsecondary institutions and their insertion in the labor market. Statistics suggest that there is a labor saturation in certain knowledge areas. This is one of the greater challenges to be faced by authorities in the new century.

### **Negative Aspects of the Chilean Emerging Economy**

The economic growth levels reached by Chile in the last decade have not produced a significant decrease of the population living under the poverty line. Although during the last democratic government there was a reduction in the poverty levels reaching a 28.4 percent in 1994, this accomplishment cannot be compared to the rate in 1970, when 17 percent of the population lived in poverty conditions (Ministry of Planning and Cooperation [MIDEPLAN], 1996a). Likewise, the gap between higher and lower family income levels increased considerably during the military government (MIDEPLAN, 1996a) and stayed stable under the first democratic government (MIDEPLAN, 1993, 1996b).

The increasing economic gap between rich and poor people has inevitably been associated to the problem of the inequity in the access to the tertiary level. Indeed, there is a strong relationship between family income and enrollment at the higher education level. To confirm this, experts have shown

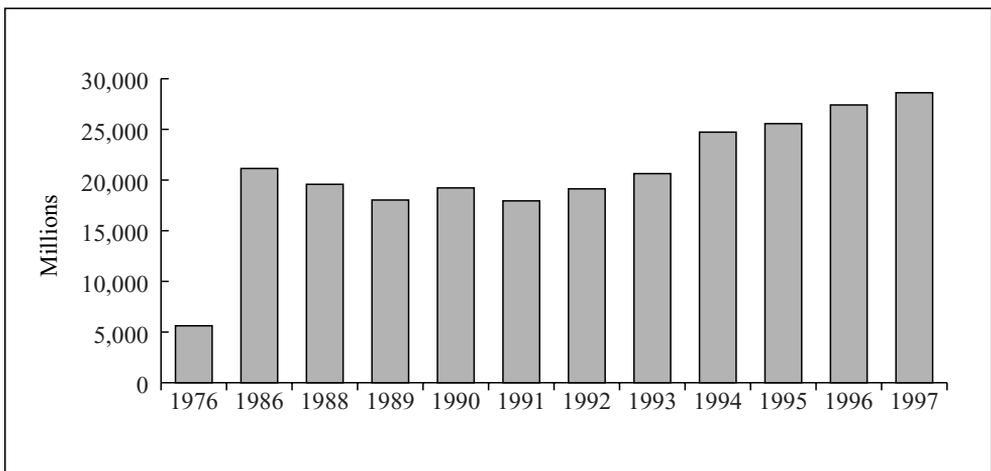
that at the tertiary level in the early 1990s, the probability of attending post-secondary education was 800 percent higher for high school graduates in the top income quintile than for those coming from the lowest quintile (Queisser, Larranaga, & Panadeiros, 1993).

The new Chilean emerging market, in spite of its positive aspects, has not been able to dramatically lower the level of poverty or to solve the problem of equitable access to postsecondary education. In order to overcome these social/economic challenges it is necessary to invest more in sectors like education and health, which may coincide with an improvement in the present conditions of the Chilean economy.

The improvement of the Chilean economy should contribute to reducing the external debt, with the added intention of avoiding the payment of high interests and finishing with the economic/financial dependency with respect to international organizations like the World Bank and the International Monetary Fund.

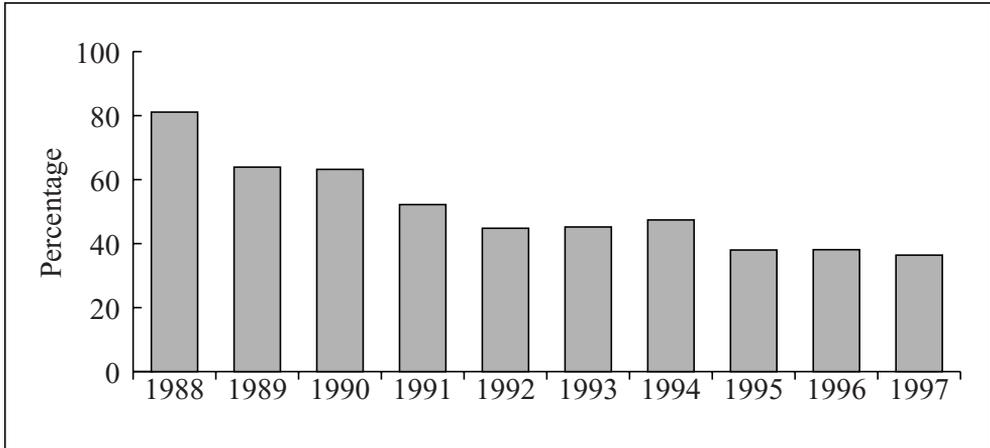
A look at the historical data indicates that in 1976 Chile had an external debt slightly larger than \$5 billion, which would quadruple by 1986. It is interesting to note that the indebtedness level acquired by the private sector with international banks between 1986 and 1993 was \$20 billion. After 1993, the external debt increased progressively until it exceeded \$28 billion in 1997 (see Figure 8.4). During the 1980s, approximately 80 percent of the debt was incurred by the private sector, and the military government did not intervene, under the premise that this was an affair between private agents (Queisser, Larranaga and Panadeiros, 1993).

If the external debt in relation to the GDP is considered, it may be concluded that from 1988 to 1997 there was a significant decrease from 81 per-



**Figure 8.4.** Chile's external debt in 1976–1997 (in millions of U.S. dollars).

*Source:* Inter-American Development Bank (1999) and World Bank (1999).



**Figure 8.5.** Ratio of Chile's external debt to its gross domestic product: 1988–1997.

*Source:* Inter-American Development Bank (1999).

cent to 36 percent of the GDP (Figure 8.5). This percentage decrease of the external debt in respect to the GDP does not imply, though, that Chile has reduced its debt. In fact, this reduction is explained by the increase in the GDP in the 1990s, which does not mean that the debt is going to be surpassed in the short or medium term.

Furthermore, the Chilean economy has not been able to reach a positive current account balance in the last two decades in spite of the increase in productivity levels and the consequent increase of GDP rates. This situation is worrisome in that the current account deficit has grown worse, surpassing \$4 million. This negative current account balance represents the worst performance in sixteen years, which could have unexpected consequences for future economic development of Chile.

These are the main positive and negative aspects of the new Chilean emerging market. Although some macroeconomic perspectives continue to be promising, such as GDP growth, unemployment, and inflation, some social concerns need to be addressed such as unequal income distribution, health, and access to postsecondary education.

## HIGHER EDUCATION: A HISTORICAL PERSPECTIVE

### Global Change in Higher Education: Privatization and Diversification

During the 1980s and the 1990s, public and private higher education systems around the world experienced tremendous changes as a consequence of demand (Altbach, 1996, Neave & Van Vught, 1994; Albornoz, 1993). A key factor in the expansion of higher education has been the growing complexity

of contemporary societies and economies, which have demanded more highly qualified personnel. Therefore, postsecondary institutions have been called on to give the required training.

The diversification and privatization of the higher education system, understood as the establishment of new postsecondary institutions to meet new needs, constitute a recent issue in modern society (Levy, 1986). It is a trend that has been of primary relevance in the last 20 years and it will continue reshaping the tertiary level (Mauch & Sabloff, 1995; Kerr, 1994; Morsy & Altbach, 1996). In fact, the establishment of research institutions, community colleges, polytechnics, and professional institutes, among other institutions, has looked to serve specific populations under a new world context.

### **The Chilean Higher Education System before the 1981 Reform**

Before the 1981 reform, the higher education system consisted only of universities, two public and six private. These universities enrolled 7.2 percent of the population between eighteen and twenty-four years of age, with 65 percent of the students enrolled at the two public universities. The main characteristic of the sector was its centralized and bureaucratic administration.

Other characteristics of the system were: deficit in the number of vacancies offered by both publicly and privately subsidized universities; the universities offering the only higher education alternative to high school graduates; the poor administration of the regional branches of the universities with headquarters in Santiago; a regression in state subsidies given to higher education; a lack of incentive to increase the enrollment and the quality of education because the transfer of resources to the universities was based on its historical allocation; the financing of higher education consisting of public incremental funding based on previous budget allocations, and a distribution formula arranged according to enrollment (students paid no fees).

### **The 1981 Reform and Its Effects on Higher Education**

During 1980–1990, Chilean higher education underwent drastic changes under Pinochet's dictatorship, and was directed to achieve four main goals: (1) to open up the higher education system; (2) to differentiate its institutional structures; (3) to partially transfer the cost of state-financed institutions to the students and their families, forcing these institutions to diversify their funding resources; and (4) to decentralize the two large public universities.

First, opening up the higher education system implied a deregulation process that was focused on the organization of new institutions. There was minimal control by the military government, which made it easier to create private institutions. As a consequence of the 1980 reforms and the market orientation, the institutional composition of the higher education system experienced important changes. New establishments—almost all of them—were

founded after 1981. Furthermore, the rapid increase in the number of institutions affected higher education in the following ways: Higher education in the nonuniversity levels became predominantly private, while the university level became both private and public in nature; institutions were more regionally dispersed, although overall enrollment distribution changed in the direction of a higher concentration in the capital city, Santiago; and increased enrollment opportunities coincided with the enrollment demand.

Second, diversifying the higher education system involved developing new institutional levels within the system. Indeed, three levels of institutions were recognized based on a functional hierarchy of educational certificates: universities, professional institutes, and technical training centers.

Third, there was a need to transfer the cost of state-financed institutions to the students and their families and to force these institutions to diversify their funding sources. As a result of this policy, incremental funding was discontinued. For that reason, public institutional funding to the traditional universities (public and private universities created before 1981) was considerably reduced. In this way, several mechanisms were encouraged to supplement revenues, such as institutional self-financing through tuition fees, competition for research funds, contract funding, and entrepreneurial training (Johnstone, Arora, & Eperton, 1998). Additionally, a small amount of public financing was given to institutions that enrolled some of the top 20,000 students according to the National Aptitude Test administered the previous year. Furthermore, the government introduced a loan scheme to finance students' academic careers. The funding of new private institutions was associated with resources gained from tuition fees (Brunner, 1993).

The funding of the higher education system was strongly modified by the reforms in the 1980s. In fact, incremental funding was replaced by a diversified funding system that included the employment of four different mechanisms: public institutional funding, competitive public allocations rewarding institutions that enroll the best students, student financing through a grant loan scheme, and competitive financing of research projects.

Fourth, decentralizing the two large public universities meant creating new regional public universities and professional institutes from the Universidad de Chile and Universidad Técnica del Estado. The purpose was to help the university to get closer to the needs of the community and promote regional development.

### **Criticisms of the 1981 Reform**

Even though after 1981 there was an increase in the number of universities, the new private universities concentrated their study programs in a few areas, such as law, psychology, journalism, and economics (thirty-two out of the forty existing new private universities offered business and economics in

1990) (Fried & Abuhadba, 1991). The private universities offered programs that required a minimum investment in material resources.

Although the increasing number of private universities contributed to meeting the swelling demand for higher education, and providing access for more students at a limited cost to the government, they also brought with them problems related to falling quality, high tuition, and an uncontrolled increase in their number (Johnstone et al., 1998). Additionally, the 1981 reform is criticized because the system is highly segmented, as the transfer between the different levels is restricted, which hampers the aspiration of learners and affects equity. There is also a low enrollment at the technical level, as well as in science and technology undergraduate and graduate programs (El-Khawas, De Pietro-Jurand, & Holm-Nielson, 1998).

Moreover, the new private universities have been criticized for their low academic quality. Most of them employ part-time professors who are not engaged in academic research. This is in contrast with the old public and private subsidized universities that have a large number of teachers and researchers highly qualified to deliver a quality education.

Finally, the professional institutes and the technical training centers have also been openly criticized because they only provide teaching in the classroom, and do not give practical training according to their goals and institutional definition.

### **The Chilean Higher Education Policy of the 1990s**

In 1990, a new government was elected democratically after seventeen years of dictatorship. Its higher education policies had three major objectives: (1) to restore institutional autonomy, canceling all measures of governmental intervention and reestablishing the right of faculty members to freely choose their leaders and provide for the self-government of public universities; (2) to increase public spending without changing the diversified-funding approach assumed by Pinochet's government; and (3) to change the legal framework of higher education with the idea of introducing more strict criteria of accreditation evaluation procedures and institutional accountability (Owen & Holm-Nielsen, 1995; Brunner, 1993).

### **THE CURRENT STATUS OF CHILE'S HIGHER EDUCATION SYSTEM**

With the idea of generating permanent economic growth and to give stability to the country, the government supported the qualitative extension of the education system. The government decided, through a radical reform, to diversify the tertiary system into three levels to provide the professionals and

technicians required by the emerging economy. In the Chilean postsecondary education system there are now three levels:

1. Universities focus on long-term (four to seven years), undergraduate programs leading to the *licenciatura* and to professional titles (e.g., lawyer, civil engineer, doctor, journalist, economist) requiring the *licenciado* degree. Only universities are permitted to initiate postgraduate programs (Ministry of Education, 1998a).
2. Professional institutes were established with the idea of offering four-year programs leading to professional titles defined as not requiring the degree of *licenciado* (e.g., assistant farming engineer, assistant fishing engineer, assistant business administration engineer, assistant environmental engineer) (Higher Council of Education, 1999).
3. Technical training centers offering two-year programs and leading to a technical certificate (e.g., technician in agriculture, forest technician, technician in foreign commerce, technician in business administration) provide occupational skills that allow their graduates to support activities of those who have graduated from professional institutes and universities (Ministry of Education, 1998b).

This new structure of the tertiary system has allowed for the training of professionals and technicians for the new market economy, which began to consolidate in the late 1980s. Given the explosive growth experienced by the postsecondary system in terms of enrollment and graduation rate, it can be presumed that the tertiary sector significantly affected the new emerging economy. There have not been enough studies, however, to confirm this assumption, and thus the real magnitude of the impact of the new professionals and technicians, who graduated after the 1981 reform cannot totally be measured.

### **Number and Types of Postsecondary Institutions (1980–1996)**

**Total number of institutions of higher education.** Before the 1981 reform, Chile had only two public universities and six private universities with direct public subsidy that catered to the demand for higher education (see Table 8.1). Once implemented, the 1981 structural reform led to a diversification of the postsecondary system in three levels (universities, professional institutes, and technical training centers), which permitted the appearance of numerous private entities within each level of the tertiary sector.

The contribution of private capital in Chile increased the number of private universities. In the 1980s there was a concentration on the greater growth of new private universities without direct public subsidy, whereas in 1990–1996, all university systems registered an increase of nearly 15 percent.

**Table 8.1. Number of higher education institutions in Chile: 1980–1996**

Type of Institution	Year		
	1980	1990	1996
<b>Universities</b>	8	60	68
Public	2	14	16
Private with direct public subsidy	6	6	9
New private without direct public subsidy	0	40	43
<b>Professional institutes</b>	0	81	69
Public	0	2	0
Private	0	79	69
<b>Technical training centers (private)</b>	0	161	126
<b>Total</b>	8	302	263

Source: Ministry of Education (1997, 1998a).

At the nonuniversity level, as many professional institutes as technical training centers reflected a remarkable growth after the reform. However, between 1990 and 1996 a total of forty-seven nonuniversity institutions closed. One of the reasons for this could be the lack of a relationship between the institutional mission and objectives and the new market economy. Also, the strong competition between the new private institutions forced closure for many.

In 1996, Chile had 26 percent of its higher education institutions at the university level; 20 percent private universities and 6 percent were public universities. All nonuniversity institutions were private, representing 74 percent of the total number of postsecondary institutions.

As Table 8.1 indicates, between 1990 and 1996 the number of postsecondary institutions decreased by about 10 percent, because the Chilean system is going to adjust to three levels that have had an excessive and rapid growth during the last fifteen years, a consequence of the reforms carried out by the government after 1980.

### **Enrollment in Higher Education Institutions**

The educational reform of 1981, in addition to stimulating the creation of numerous post-secondary institutions, allowed for significant enrollment growth in the three levels of the system. This accelerated growth, caused by the creation of new private entities, did not promote an equitable access to the system. The elitist character of the tertiary level extended access to the high school graduating students coming from middle- and upper-income families (MIDEPLAN, 1996b).

The expansion of enrollments was not backed by sufficient resources to maintain per-pupil expenditures in such relevant areas as books, equipment, and teachers. Decreasing expenditures often resulted in decreasing teaching quality.

**Total number of undergraduate and graduate students enrolled in higher education institutions by level.** In 1980–1996, Chilean higher education institutions had an enrollment growth of more than 246,000 students, equivalent to 205 percent.<sup>2</sup> In general terms, the enrollment passed from 120,410 undergraduate and graduate students at all levels to 367,094 (see Table 8.2). The enrollment at the university level grew particularly quickly between 1990 and 1996. In fact, in that period there was an increase in the enrollment of nearly 90 percent, from 131,702 students enrolled in 1990 to 253,506 in 1996. At the same time, in the nonuniversity level (professional institutes and technical training centers) the enrollment less significant than at the university level but equally important figures were despite the fact that they decreased from 117,780 students enrolled in 1990 to 113,588 in 1996.

This accelerated growth in enrollment at university and nonuniversity levels is associated with the 1981 Educational Reform, which permitted the creation of two new levels in the Chilean higher education system, professional institutes and technical training centers. Moreover, the reform facilitated the creation of private universities, taking into account that the law supporting the reform did not establish serious restrictions on their work.

**Table 8.2. Number of undergraduate and graduate students enrolled in higher education institutions by level: 1980–1996**

<b>Institution</b>	<b>1980</b>	<b>1990</b>	<b>1996</b>
<b>Universities</b>	120,410	131,702	253,506
Universities with public funding	120,410	112,193	174,941
New private universities, no public funding	0	19,509	78,565
<b>Professional Institutes</b>	0	40,006	52,170
Professional institutes with public funding	0	6,472	0
New private professional institutes, no public funding	0	33,534	52,170
<b>Technical Training Centers</b>	0	77,774	61,418
Technical training centers with public funding	0	0	0
Technical training centers, no public funding	0	77,774	61,418
<b>Total</b>	120,410	249,482	367,094

Source: Ministry of Education (1998a); Cox and Jara (1989); Brunner (1986).

Professional institutes and technical training centers have increased their enrollment during the last sixteen years to an important number of high school graduating students, giving an opportunity to those students who could not have access to the university level to get occupational skills and qualifications. In this sense, the 1981 reform fulfilled one of its goals.

The development of the different levels within the post-secondary system has been unequal and disproportionate. To guarantee this affirmation it is necessary to mention, for example, that professional institutes have had significant enrollment growth during the last decade. However, this enrollment growth has been basically concentrated in two institutions: DUOC (a professional institute for training in computers, engineering, and other technology areas) and INACAP (National Institute of Training—engineering, computers, etc.) (Gonzalez, 1998). The rest of the professional institutes (sixty-seven institutions) must compete in disadvantageous conditions with the universities that can offer similar programs, but with the advantage of having higher status.

The technical training centers that have a clearer academic profile than professional institutes had significantly diminishing enrollment rates between 1990 and 1996. High school students' lack of interest in this level of higher education could be due to the fact that these private institutions do not have available fellowships or credits. As a consequence, technical training centers are unattractive to high school students coming from middle and middle lower social-economic levels, which should be the population targeted. In these conditions, it is understandable that the proportion of technicians to professionals in Chile is lower than in industrialized countries, from the perspective of the labor force of the country. In fact, whereas in a developed country on average there are four technicians for each professional in Chile, that proportion rises to 1.37 professionals for each technician (Espinoza & Gonzalez, 1994), which results in a situation of underemployment for professionals in technical areas.

**Total number of graduate students enrolled in Chilean universities pursuing master and doctoral degrees.** The importance of vocational training and training professionals for achieving sustainable development is seldom questioned. Economic development and market projections for any country are directly related to the capacity of its professionals. In the particular case of Chile, it is stated the in period 1980–1996 there was a significant enrollment increase in graduate programs offered by universities. Given the infrastructure and tradition of the public system, it was logical to wait for greater enrollment growth inside public university institutions. This sector has experienced an enrollment growth of nearly 153 percent in seventeen years (see Table 8.3).

Private universities without public subsidy register at the present time 11 percent of graduate students enrolled in the system who pursue master's

**Table 8.3. Number of graduate students enrolled in Chilean universities pursuing master's and doctoral degrees: 1980–1996**

<b>Institution</b>	<b>1980</b>	<b>1990</b>	<b>1996</b>
Universities with public funding	1,432	2,143	3,627
New private universities, no public funding	0	0	465
<b>Total</b>	1,432	2,143	4,092

*Sources:* Ministry of Education (1998a); Brunner (1986).

studies. The low impact of this subsector in the training of graduate students corresponds to the profile of the new private universities established after 1981, which almost exclusively encourages teaching development instead of research, and invests very little to develop graduate programs.

The enrollment growth in graduate programs does not coincide with institutional needs. Consequently, a greater state investment is needed, which implies an increase in the number of scholarships, to ensure the future development of this area.

Abroad there are also a high number of professionals studying in graduate programs with fellowships awarded by the Chilean government (MIDEPLAN Scholarships), international foundations (Ford and Kellogg) and agencies (American States Organization and Fulbright Committee). These professionals studying abroad and those getting training in Chile represent highly specialized human resources that will aid Chile in facing the complex demands of the emerging market economy.

### **Expenditure on Education and Financing**

**Total educational expenditure (all educational levels) as percentage of gross national product.** When observing the levels of investment in the educational system (considering all levels) in relation to the gross national product (GNP), it can be concluded that after the 1981 reform there was a decrease in expenditure. The decline of public investment in education and, particularly, in the postsecondary level, has caused a deep crisis at public institutions. To overcome the economic crisis and high levels of indebtedness, public universities have had to increase tuition and fees and have tended to increase the sale of goods and services. At the same time, several public universities have had to mortgage part of their real estate and other assets to pay debts.

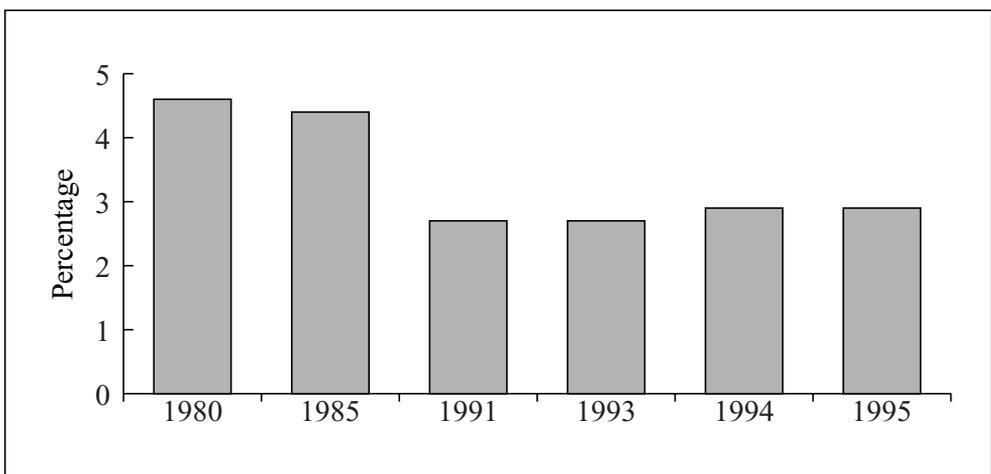
Even since the arrival of the new democratic regime in 1990 it has not been possible to equal the levels of expenditure on education that had been

reached previous to the 1981 educational reform. Comparison of the historical levels of expenditure on education shows that the expenditure as a percentage of the GNP reached in 1980 almost duplicated the expenditure of 1995 (see Figure 8.6).

**Public expenditure by educational level.** While in 1980 tertiary education received 33 percent of public resources set aside to education, in 1985 higher education received 20 percent, a decrease of 13 percent (see Figure 8.7). A result of the educational policy implemented by the military government since early 1980 was the reduction in public expenditure of tertiary education, a direct benefit to primary education.

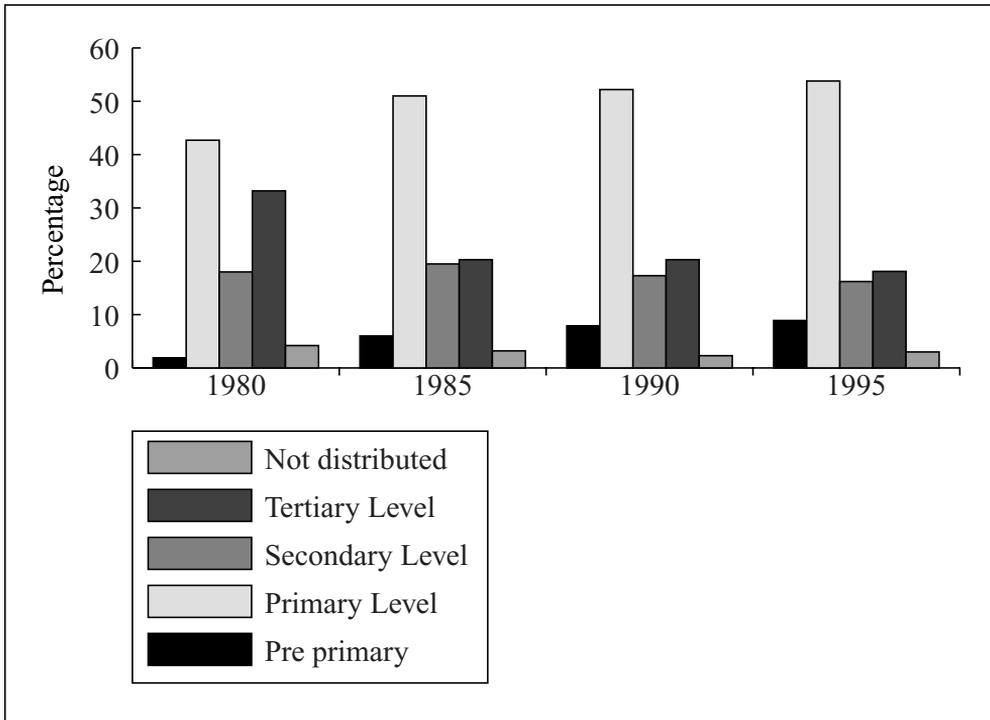
Problems facing public institutions in the last two decades are infrastructure development (remodeling of buildings and construction of new facilities), acquisition of materials (computers, books to update libraries, etc), and wages of faculty and staff. To face the challenges of the international market in the 21st century it is essential to increase public expenditure at the tertiary level and, as far as possible, to reinstitute the investment rate achieved in 1980.

**Revenue sources for public higher education institutions.** The 1981 reform forced public higher education institutions to diversify their sources of revenue due to a reduction of expenditure on education. Currently, public higher education is a complex operation funded by a delicate balance of revenue resources such as tuition and fees, state government, and the sale of services.



**Figure 8.6.** Total educational expenditure (all educational levels) as percentage of gross national product: 1980–1995

*Source:* UNESCO (1997).



**Figure 8.7.** Public expenditure by educational level: 1980–1995 (percentages)

Source: UNESCO, (1997).

Before the reform, public universities received total financing from the state without having to institute tuition and fees for students, nor having to depend on the sale of services. This changed radically after 1982 as traditional universities were obligated to establish tuition and fees and provide different types of services in order to survive in the new market economy. Thus, a new stage of development began, marked by institutional self-financing.

**Table 8.4.** Percentage of revenue fund for public postsecondary institutions: 1990 and 1998

Item	Year	
	1990	1998
State government	27	41
Tuition and fees	36	33
Sales and services, private donations, and international cooperation	47	26

Sources: Brunner (1993); World Bank (1998).

As Table 8.4 indicates, during 1990, about 27 percent of national expenditure in Chilean postsecondary education was directly transferred by the government as institutional core funding for twenty-two universities, 36 percent from the payment of tuition fees, and 47 percent from services, several specific public allocations, borrowing, international cooperation, and non-national private philanthropy. Six years later the distribution of resources has changed. In fact, institutions have up to now generated almost 60 percent of their revenue by themselves, whereas in 1990 it was more than 70 percent.

### **THE CONTEMPORARY ROLE OF HIGHER EDUCATION IN AIDING CHILE'S TRANSFORMATION AS AN EMERGING ECONOMY**

It is recognized around the world that a country's future success, in economic terms, depends to a large extent on its production of a highly skilled labor force. Higher education serves other valuable purposes as well, in particular those related to social cohesion and cultural development. From the point of view of the economy, however, it is important that the efforts of postsecondary education at least take account of future labor market needs. There are two dominant models used to achieve this; a centrally planned economy and a free market economy (World Bank, 1997).

In the near future, Chile will require a labor force that has the ability to adapt to new economic conditions. This will require flexibility in operations and a need for updating knowledge and skills. However, the Chilean government lacks any explicit policy for this issue. Even more, the Ministry of Education in Chile does not have a long-term policy to promote the development of the higher education system, which is one of the biggest challenges in the new century.<sup>3</sup>

In this context, the reform agenda of the 1990s was basically oriented to the market rather than to public ownership or to central governmental planning (Van Vught, 1994). There is no doubt that the main basis of the market orientation for postsecondary level is the ascendance of the principles of a neoliberal economic model.

#### **Vocational and Professional Training: Developing Human Resources**

As it has already been stated, skilled professional training is highly relevant for the future development of Chile. In 1996, 26,000 professionals graduated from universities, and professional institutes, 13,000 technicians graduated from the technical training centers. Of this total of tertiary level graduates, 43 percent obtained academic degrees or certificates in public universities, and 57 percent graduated from private institutions. In 1996, of every three graduates from the higher education level, only one received a technical certificate, which is considered low according to international norms.

The number of undergraduate students graduating from higher education institutions in 1996 in comparison to 1980 increased by almost 130 percent (Granados, 1987). The increase in 1996 is explained by the new generation of professionals and technicians that graduated from the private tertiary sector. Although the research is limited it is argued that the professionals who have graduated from the tertiary level in the last ten years have had a positive impact on the development of the Chilean market economy.

By analyzing the graduation rate by field of study, it can be concluded that in 1996 almost half of the graduates (undergraduates) obtained a professional title or technician certificate in the areas of administration, commerce, and technology (48 percent) whereas 12 percent achieved this in the area of social sciences (Ministry of Education, 1998a). This reveals more clearly the higher education system orientation and its closer relationship with the emerging economy.

### **Supporting the Development of Graduate Programs**

The Chilean government formed the National Commission of Science and Technology (CONICYT) in 1967 and fifteen years later created within it the National Fund for Science and Technology (FONDECYT) with the purposes of stimulating the development of scientific and technological research, and supporting the national graduate programs. In 1996, there were thirty-seven doctoral programs in Chilean universities, most of them accredited by CONICYT, and 183 master programs, 127 of which were accredited (Sarrazin, 1998).

Through the creation of CONICYT and FONDECYT, the government attempted to give a greater stimulus to scientific and technological issues, and to encourage the development of human resources that have the ability to face the challenges of the Chilean emerging market.

### **Fellowships and Scholarships to Pursue Graduate Programs**

Although the government recognizes how important it is to invest in the training of skilled professionals, CONICYT only provides 30 percent of the scholarships to pursue doctoral degrees in Chilean universities. In fact, between 1988 and 1997, CONICYT awarded a total of 1,733 scholarships for students to continue graduate studies in Chilean universities. Of this total, 412 were distributed to those pursuing master studies and 1,321 doctoral studies (CONICYT, 1991, 1998). This is insufficient given the demand that exists in Chile to obtain advanced academic training.

Even though the years 1988 and 1989 showed a distribution more homogeneous of the scholarship's distribution at the master's and doctoral levels, this relationship has been modified substantially since 1990, when it began to favor those professionals who choose to follow doctoral studies. At the pre-

sent time, for each master's degree scholarship awarded, CONICYT provides four scholarships to pursue doctoral studies.

Despite the fact that the cost of financing a doctoral student is higher than the cost of a master's student, the government has focused on financing doctoral studies, believing it will strengthen the country's scientific knowledge base, assuming that at this level it is possible to take advantage of scientific contributions generating progress for the whole of society. It has become more evident that there is a need for professionals with doctoral studies, considering that Chile has had few professionals at this level. In addition, the new market economy requires the development of human resources with multiple skills (technical and scientific).

### **Earned Degrees Conferred at the Doctoral Level (in Chile and Overseas)**

From 1982 to 1997, 400 researchers credited in the CONICYT database earned a doctoral degree in national programs, whereas approximately 1,200 earned the degree in European Union countries and 850 in North America. In Latin America this number increased to 200 graduates, whereas in Asia and Oceania the number of graduates was considerably smaller (Sarrazin, 1998).

Between 1993 and 1998, MIDEPLAN awarded professionals with about eighty scholarships a year to pursue graduate studies in foreign countries, mainly in Europe and North America.

Professional training at the master's and doctoral levels, both in Chile and foreign countries, has had a positive impact on the development of the new market in different ways, such as, the formulation of new projects in research and development, implementation of new technologies, transmission of new knowledge, and the training of skilled professionals. Nevertheless, to quantify the participation of this sector with precision is not easy, because many professionals who have obtained their doctoral degrees abroad have chosen to reside outside Chile since they can receive better wages and a higher life expectancy.

### **Vocational Training according to Knowledge Area and Labor Market: Projections and Perspectives**

At the undergraduate level, 47 percent of graduates from higher education institutions in 1996 studied academic programs related to administration and technology. Professionals graduating in the social sciences, humanities, and education represented 28 percent of the total. At the doctoral level, 43 percent of graduates in 1996 came from biological and environmental sciences (Sarrazin, 1998).

A recent study of professionals in Chile determined the number that graduated nationwide (between 1962 and 1996) in ten key areas that were in

strong demand by the labor market. The authors of the study defined the potential number of professionals that existed in Chile in 1996. The disciplines studied were psychology, journalism, law, commercial engineering, agronomy, forest engineering, civil engineering, architecture, medicine, and dentistry (Gonzalez, Espinoza, Uribe, & Carrasco, 1998). The relevance of this study is that on the basis of the results achieved it was possible to do estimates and projections regarding the graduation rates in the disciplines studied between 1997 and 2002, which concluded that in areas such as journalism, psychology, forest engineering, and agronomy there will be a higher number of professionals than the labor market will require, causing discontent among the new young professionals. There is an obvious mismatch between the demands of the labor market and the product of higher education. As a consequence, an imbalance is developing between the number of professionals graduating from the tertiary level and the demand for professionals from the new emerging market. Most of the new professionals that will be graduating during the next few years will come from the private sector created after 1981. There is already evidence of market saturation, in particular in education and the social sciences. To overcome this problem, the state and its agencies should send available labor information to the different stakeholders (authorities of higher education, parents, and students) to prevent, in the short term, an oversaturation of the labor market.

If there were no state regulation in the short term, the consequences resulting from the market saturation would be as detrimental for the postsecondary system as for the market. If the central government does not intervene, giving appropriate attention to all the components of the system (authorities, parents, and students), the new market economy would lose credibility and could suffer an irreversible crisis. From another perspective, it would affect a high number of young professionals, who would have few possibilities of working in their areas or would earn a salary below their expectations.

### **CREATION OF NEW KNOWLEDGE: RESEARCH AND DEVELOPMENT**

In Chile, the central government continues to play a predominant role in financing research and development. Nevertheless, the state contribution is not enough to cover all the necessities. In 1995, government funds were the most significant source of funds (69%) to cover research and development expenditures, followed by productive enterprise funds (20%) and foreign funds (11%) (UNESCO, 1997). It is important to take note that there is scarce participation of the private sector in funding this kind of activity.

Chile spent 0.7 percent of its gross national product (GNP) on research and development in 1995, which represented a low level of investment in

comparison to industrialized societies such as Canada, the United States, and France, which spent four times more than Chile (UNESCO, 1997).

### **The Contribution of FONDECYT and the Fund for Applied Technological Research**

Between 1982 and 1997, FONDECYT funded a total of 5,614 projects, or 34 percent of the presented projects competing for funding. For each of three projects competing for financial aid, FONDECYT selected one during the period mentioned above. It is not adequate, and the government must invest more money if it wants to encourage higher education development and its impact on the market economy. The total number of research projects carried out between 1982 and 1997 cost \$187 million, with an annual cost of \$11.7 million.

Of the total research projects funded by FONDECYT between 1982 and 1997, approximately 77 percent corresponded to investigations related to natural and exact sciences and technologies. Only 4 percent of projects related to the law and economy obtained some kind of funding. Those disciplines linked to social sciences, arts, and the humanities have undergone an enormous deterioration. In effect, of the total research projects funded by FONDECYT between 1982 and 1997, only 18.7 percent corresponded to the soft sciences area (Sarrazin, 1998). It is not coincidence, therefore, that most of the resources allocated to research and development have benefited those knowledge areas that have contributed to the development of the new market economy.

With the arrival of democracy, the new government realized how important scientific investigation was to development. In this regard, the Fund for Applied Technological Research (FONDEF), related to CONICYT, was created in 1991. The main objective of FONDEF is to contribute, through the strengthening of scientific and technological capacity, to the development of the competitiveness of the main sectors of the national economy. This purpose is being fulfilled gradually through a link between research and development institutions (e.g., technological universities, institutes, and private companies). The relationship between the private and public sector has led to co-financed programs and projects; systems of evaluation, support and monitoring projects; and other initiatives designed to promote an environment conducive to innovative projects.

In its short life, FONDEF has defined eight priority areas to develop its actions: farming, forestry, computer science, manufacturing, mining, fishing, health, water and energy. Between 1991 and 1996, the areas that have benefited the most with a greater number of funded projects have been farming, forestry and mining combining 148 projects for a total of 243 financed projects (Ministry of Education, 1998).

Through these initiatives, the Chilean government has promised to disburse resources of \$122 million. This state investment has simultaneously mobilized the resource allocations by institution and their associated private companies in the projects. This has generated an investment structure in the funded projects of approximately 45 percent by the FONDEF, 38 percent by the institutions and 17 percent by the companies (CONICYT, 1999). All of the priority areas established by FONDEF are narrowly linked to the economic policy designed by the last two governments and are intended to strengthen and consolidate the country's economy as it relates to the global market.

### **Institutional Cooperation and Economic Globalization**

All Chilean universities have been affected in some way by economic and cultural globalization. Many of them have initiated important modifications to their operations, assuming a more diversified political and economic outlook to the new challenges that globalization brings. As a result of economic globalization, Chilean universities have had to communicate with institutions overseas. Chilean universities are interacting with foreign higher-education institutions through different initiatives such as the development of bilateral programs, faculty and student exchanges, joint venture programs with other universities (especially in business administration), recognition of studies from foreign institutions, participation in networks with foreign universities, and opening of branch campuses in others countries (Espinoza & Gonzalez, 1998). An example is the interaction that has been generated between Chilean and South American post-secondary institutions in the context of the MERCOSUR (Common Market of South America).

Certainly the scientific exchange and development of diverse joint activities between Chilean and foreign universities is producing a highly positive impact on the Chilean economy. The advantages that arise from this reciprocal collaboration are in terms of human resource training as well as in regard to the use and implementation of new technologies.

### **CONCLUSION**

The Chilean economy has developed positively over the last decade, especially in regard to the unemployment and inflation rates, and GDP growth. This development has been enhanced by the higher education system's development. In effect, the tertiary system has contributed to the Chilean market economy, providing new skilled personnel and technologies. There has been a constant increase in the graduation rate of professionals and technicians. At the graduate level, however, a low graduation rate is expected that is not related to the new market, and that can be explained because insufficient resources have been assigned by the central government. This is one of the

biggest challenges for the coming governments. If there is little investment in the development of this level of skilled professionals, the brain drain might end up affecting the evolution of the economic process.

In the scientific/technological area, although the government has increased the resources allocated for scientific research, this has not been sufficient to cover the necessities of the research community (for each of three research projects looking for funding, one is supported by FONDECYT). Through its new efforts (FONDEF) the government has tried to generate alternative technologies by strengthening some high-priority areas of the national economy such as agriculture, forestry, and fishing. This new fund, jointly with FONDECYT, has been the main source of funding for researchers. The value of FONDEF is that it has involved higher education institutions as well as the private sector in the financing of projects highly relevant to Chilean society.

The development of the new Chilean market economy has required universities to internationalize. This process has occurred because of economic and cultural globalization. As has been mentioned, Chilean universities have carried out joint projects and programs with national and foreign institutions. This reciprocal collaboration has allowed, among other things, access to new technologies, the training of highly specialized professionals, the establishment of networks, and the creation of a foundation for progressive growth.

One of the biggest challenges to be faced by the authorities of the post-secondary system in the short term is the access to the system for students with intellectual capabilities, but who are restricted because of their family's income levels. Also, the system's regulation through an accreditation regime appears as an important formula to guarantee the quality of those professionals who will graduate in the new millennium. Another important challenge for the Chilean government is to avoid the saturation of the labor market, giving timely and accurate information to all those involved in the higher education system. There is some evidence to show that a saturation in certain knowledge areas exists. If the authorities can address these challenges, the emerging economy could benefit more from the product of the Chilean higher education system.

## NOTES

1. In 1990, the Ministry of Education negotiated the first loan with the World Bank to support the development of educational reform in the primary level (Proyecto MECE-Basica). Then the government asked for a second loan from the World Bank in 1994 to help the secondary level (Proyecto MECE-Media). Finally, at the end of 1998, the Ministry of Education, through its Higher Education Division, negotiated a new loan with the World Bank for \$241 million (\$144 million provided by World Bank and \$97 million provided by the Chilean government), in order to give assistance to the tertiary level for five years (Proyecto MECESUP).

2. According to the United Nations Educational, Scientific, and Cultural Organization (UNESCO; 1997), while in 1980 the gross enrollment ratio in the postsecondary level for the population between 18 and 22 years old was 12.3%, in 1996 it was 27.4%.

3. Recently, the Ministry of Education negotiated a loan from the World Bank to carry out a five-year project (1999–2003) (see World Bank, 1998). Through this project the government wants to invest money in those areas most weakened by the system (infrastructure, accreditation, and evaluation). This project attempts to define a policy framework but it does not contribute to solve the financing problems of the tertiary system.

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# Higher Education

## The Social, Political, and Economic Driver of Mexico's Future

ELSA-SOFIA MOROTE AND JOHN L. YEAGER

In the 20th century, higher education was universally believed to be the foundation upon which a country's economic, social, political, and technological status rested. Global competition increased and nations became increasingly concerned about the quality and relevance of their educational programs. This was particularly true of emerging and developing countries, which were struggling to improve and compete on a more equal footing with the developed countries.

Nations that create well-developed higher education systems can provide the highly trained people necessary to compete effectively. Emerging market countries such as Mexico are seeking to increase their competitive position and are attempting to rapidly construct higher education systems that can be responsive to these challenges.

In the last years of the 20th century, Mexico experienced several major political, economic, and social changes. The economy improved as Mexico positioned itself as a major player within the North American and South American economic regions and became an active participant in the global economy. In addition to economic change, Mexico also opened its political system. Although the Revolutionary Institutional Party (PRI) was the dominant force in Mexican politics throughout the 20th century, successive political reforms have recently provided more opportunities for opposition parties. Further, its Congress is gradually becoming more outspoken as the number of opposition representatives increases (Big Emerging Markets [BEM], 1999).

The social situation in Mexico, however, has improved only slightly. Mexico possesses enormous human and economic potential, but some researchers, such as the Nobel laureate Gary Becker (1994), note that the rebellion in the poverty-stricken Mexican state of Chiapas has dramatized the existing inequality of living standards and that rapid economic development has the potential to increase these inequalities. Becker affirms that economic

development cannot be sustained if a nation neglects quality education for a sizable part of its population and fails to raise the living standards for all its citizens.

The link between education and economic development is a two-way process and most emerging market nations believe that the rapid expansion of educational opportunities holds the key to economic development. Mexico is not an exception to this phenomenon. Mexico's public policy concerning higher education underwent important changes in the 1990s, stressing quality, improving efficiency, and, above all, making education more relevant to social improvement and economic growth (Kent, 1995).

In this chapter we argue that in the 20th century higher education in Mexico has had a modest impact on the country's economic growth. From the 1980s until today there have been important changes in higher education in both its availability and quality. These changes reflect the efforts of the different stakeholders (government, universities and the private sector) to work together to bridge the gap between what industry needs and what it receives from the higher education system.

Higher education contributes to economic growth in three ways: the *transmission of knowledge* through extensive and varied teaching activities; the *production of knowledge* through research and creative activities of university faculty and students, and the development of activities through external organizations such as industry and business; and finally, the *diffusion of knowledge* from the external service activities of their faculty, staff, and students, and the performance of graduates once they participate in the workplace.

This chapter is organized as follows: (1) a brief recent history of Mexico focusing on its political and economic development, (2) Mexico as an emerging market country, (3) the context and function of the Mexican higher education system designed for the transmission of knowledge, (4) the production of knowledge through research and development, (5) the diffusion of knowledge through the contemporary role of higher education in meeting the social and economics need of the country, and finally (6) closing observations.

## **THE RECENT HISTORY OF MEXICO'S POLITICAL AND ECONOMIC DEVELOPMENT**

Mexico, bordering the southern part of the United States, is a large country of more than 750,000 square miles, with a vast array of mineral resources. It is the second most populated country in Latin America. In 1998, Mexico had a population of approximately 98 million people, more than half residing in the country's central area. Mexico has a relatively young population; in 1997, for example, 36 percent of the population was under fifteen years of age (U.S. Agency for International Development [USAID], 1999). Its young and

rapidly growing population create problems in terms of the country's capacity to generate a sufficient number of new jobs (USAID, 1997). Nevertheless, because of its large internal market and wealth of natural resources, Mexico has had the opportunity to develop a foundation on which to build a growing economy. The economic development of Mexico in the last twenty years has been oriented to the globalization process. Its efforts to integrate its markets with the global marketplace are evidenced by its participation in the North American Free Trade Agreement (NAFTA), which together with European Union and Japan are the three largest markets in the world.

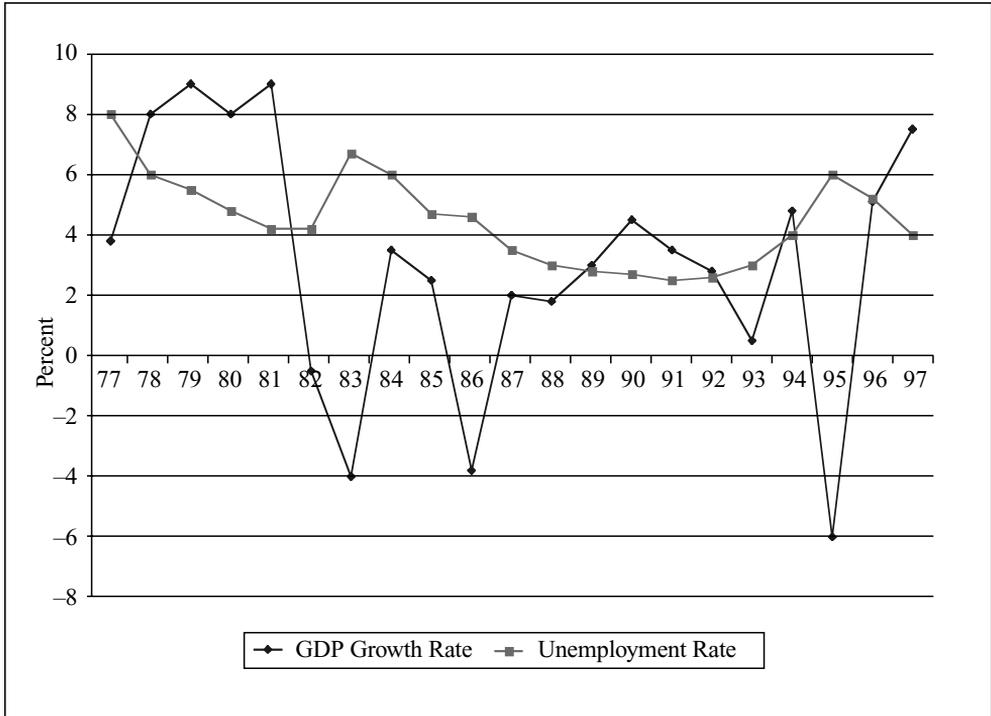
Higher education has contributed to developing a competitive advantage over countries such as Japan and Korea. In a similar manner, higher education must contribute to the economic development of Mexico. Mexico's higher education sector is facing the challenge of improving and increasing both the quality and quantity of their services. It needs to develop more dynamic universities to successfully assist the country in its ongoing political and economic development transformation.

Mexico is confronting several political changes. Before 1997, there was no clear separation between the state and the PRI, which has ruled virtually unopposed since 1929.<sup>1</sup> The close ties between the PRI and the government were reinforced by substantial direct government participation in the country's economy. However, the economic crises of the 1980s and 1990s weakened the PRI, thereby permitting the development of other political parties and non-governmental organizations. Since the early 1980s, there has been a proliferation of popular organizations outside of the PRI demanding political change and social justice. These developments have been influenced by external changes in the international arena and internal transformations within Mexican society (Randall, 1995).

Transformation is not only occurring in Mexico's political system, but also in its economic system. The rapidly changing economy reflects external changes as well as significant internal political and economic shifts. Over the past thirty years, Mexico's economic policies have ranged between the poles of a free market economy and state-directed developments (Warnock, 1995).

The trend toward openness and expanded activity in the global marketplace was largely an outgrowth of the 1970s when Mexico became a major petroleum exporter. The country could not sustain its high level of economic expansion, and the bubble burst in the late 1970s with the collapse of world oil prices. This led the country into an economic decline in the latter part of 1982 and early 1983 that lasted until 1988, during which time Mexico experienced rapidly escalating inflation, negative GDP growth rates, and increasing unemployment (see Figure 9.1).

The economic expansion of the 1970s positively affected higher education. The government increased financial assistance to higher education, which also received support from international agencies such as the



**Figure 9.1.** Unemployment rate versus gross domestic product (GDP) in Mexico.

Sources: Inter-American Development Bank (1999); Economic Commission for Latin America and the Caribbean (1986, p. 109).

Inter-American Development Bank and the World Bank. Both Mexican and international agencies and organizations strongly believed in the importance of the role of education in the industrial development of the country.

There were significant internal social and political pressures for changes as the middle classes pressed for greater educational opportunities. As a result, universities prepared themselves to receive a large number of new students, and undertook major curriculum changes in an attempt to better connect higher education with Mexico's needs (Rodriguez & Casanova, 1994).

During the late 1980s, Mexico experienced relatively little GDP growth and it was not until the early 1990s that economic stability returned (see Figure 9.1). The economic crisis of the 1980s severely affected the growth of higher education enrollments. In this decade the enrollment growth was only 46.3 percent, a sharp decline from the 213 percent growth rate of the 1970s (Rodriguez & Casanova, 1994).

The economic stabilization in the first part of 1990s was mainly accomplished through the privatization of many state industries and firms, as well as the deregulation of trade. The capstone event was the signing of NAFTA in 1994, which brought together Mexico, Canada, and the United States into a

new trading bloc. However, this rapid expansion was followed by a second critical monetary event in late 1994, the devaluation of the peso. This major reversal of economic fortunes was immediately addressed through an increase in financing by the NAFTA partnership and a renewed affirmation of Mexico's willingness to continue to implement the NAFTA provisions. Thereafter, the country's political leaders fully committed Mexico to increased involvement in the global economy.

NAFTA's implementation has influenced not only Mexico's economic situation, but also its political and social spheres. The economic downturn and instability experienced in 1994 was accompanied by political and social turbulence. Despite Mexico's economic recovery in the last few years, social equity and a reduction in poverty have not been significantly improved.

Throughout the 1990s higher education has experienced a crisis, one in higher education enrollment growth, and the other in funding. The rapid increase in enrollments has adversely affected the quality of education. In higher education the requirements for student selection and quality were abandoned, and today the number of students is growing. The financial crisis has also resulted in a cutting of university salaries and in reducing resources that would enable institutions of higher education to improve their teaching methods and research activities (Organization for Economic Cooperation and Development [OECD], 1997). However, neoliberal international organizations and government officials seem to believe that the expanded educational system is inefficient and there is a need to eliminate excessive expenditures that have limited available resources (Puiggros, 1999).

## **MEXICO AS AN EMERGING MARKET**

During the last two decades, Mexican political and economic development has matured to the point where it has been able to recover from several severe dislocations. The country has successfully coped with the economic recession of 1995 largely because of the economic adjustment programs begun at the end of 1994. It has succeeded in averting a sovereign default, has limited the inflationary impact of the financial crisis, and has gained access to international finance markets (USAID, 1997).

As an emerging market, Mexico is an active participant in the global economy and is opening its political system. To maintain these efforts, Mexico is receiving an increasing amount of international financial support from a variety of international programs. Mexico has participated in financial assistance programs from the International Monetary Fund (IMF), the U.S. government, and the Bank of Canada, as well as from banks of several Latin American countries. This assistance recognizes Mexico's importance to the world economy and the country's potential as a global player.

However, Mexico must not only depend on capital inflow from more advanced countries. It needs to continue to be fully engaged in the global economy and to expand its internal capacities if it is to develop and grow. These efforts include participating in trading groups, privatization of business and industry, eliminating trading barriers, and attracting outside investment among others.

### **Promoting Privatization of Businesses and Industries**

From 1974 to 1993, Mexico obtained an estimated \$23.4 billion from the privatization of government owned industries (BEM, 1997). Since the late 1980s, many of the country's state enterprises have been privatized, and more is contemplated in such areas as ocean port terminals, petrochemical plants, railroads, and long distance telephone services. These actions represent additional opportunities for increased foreign investment that can be used to upgrade and modernize operations that can in turn result in increased trade.

### **Encouraging Foreign Direct Investments**

The government's commitment to foster international investing was evidenced in 1991 with the passage of a new industrial property law which has greatly strengthened patent and trademark protection. This action was followed in 1994 by a revision to bring Mexico's laws in conformity with NAFTA requirements. Since then, the government has implemented an active campaign to inform the public about intellectual property rights and to crusade against corruption. All these actions, coupled with stronger enforcement, have contributed to a more positive foreign investment environment in Mexico. For example, in 1995, foreign direct investment increased 66 percent with continued investments from the United States, its largest investor. From 1979 to 1997, foreign investments increased from approximately 3.5 million to \$11 billion (BEM, 1997).

Due to its unique strategic geographical position between North and South America and the Atlantic and Pacific Oceans, and the extensive trading relations that it has developed during the last decade, Mexico has a strong base for future economic development. Nevertheless, as Adam Smith (1976) stressed, the "wealth of a nation" is not found in gold, silver, or a favorable trade balance, but in its *human resources*. During its turbulent history in the second half of the 20th century, Mexico began the process of social, political and economic transformation, which has had a profound impact on its higher education system.

If Mexico is to achieve sustainable economic growth, it must create the appropriate conditions for higher education to contribute to economic growth through the transmission, production, and dispersal of knowledge.

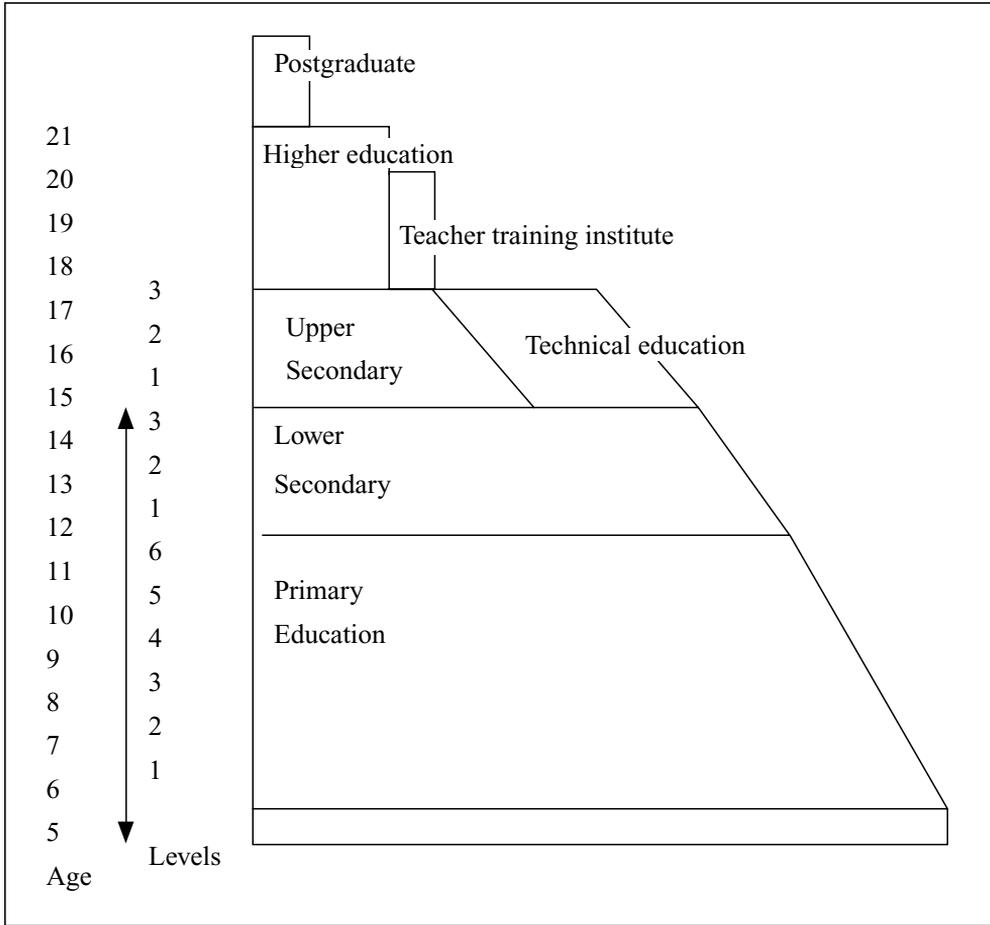
## **TRANSMISSION OF KNOWLEDGE: HIGHER EDUCATION IN MEXICO**

Higher education reflects the social, political, and economic needs of society, as well as the plans and priorities of the government. The government is responsible for the establishment of national policy and for providing funding to public higher education, therefore, it represents a major controlling factor in the growth and development of these institutions. The institutions themselves do not have the ability to independently undertake the necessary initiatives. Consequently, institutions are often placed in the position of responding, as opposed to initiating. Since public institutions are heavily dependent upon the government for support, the fiscal ability of public institutions coincides closely with existing economic conditions, and as the country's economic fortunes change, so do those of the higher education.

To understand higher education in Mexico today, it is necessary to understand the development of Mexican society and culture. Mexican society has its roots in the Spanish colonization that took place in the early 1500s, and much of the development in its higher education institutions reflect this Spanish influence. In 1551, the Spanish Crown established the first university in Mexico, the University of Mexico. The second university, the University of Guadalajara, was established more than two hundred years later in 1791. In the late 18th century, the government founded four additional colleges: the College of Engraving, the College of Fine Arts of San Carlos, the Botanical Garden, and the Royal Mining Institute (Osborn, 1976). These institutions were established to educate the elite of Mexican society.

The revolutionary and postrevolutionary periods of the 19th century were filled with great turbulence and political uncertainty. Many universities were closed and reopened several times, resulting in a substantial degradation of these institutions. Modern educational reform in Mexico dates from the 1910 reopening of the National University of Mexico, which was closed in 1895. In 1921, Alvaro Obregon was elected president and succeeded in returning political stability to Mexico. Jose Vasconcelos, a famous writer and philosopher, became the Minister of Education and gave immediate attention to the establishment of a modernized school system. Compulsory, free, secular education was the objective of the state. However, in the 1920s and early 1930s political and economic obstacles remained, and this was reflected in the relative lack of development of the education system. It was not until the presidency of Lazaro Cardenas (1934–1940) that Mexico achieved a stable government and that the state's educational efforts achieved high priority status and sustained funding (Osborn, 1976).

Mexico has a system of education that is organized into primary, mid-level or lower secondary, upper secondary, technical education, teacher training, and higher education (see Figure 9.2).



**Figure 9.2.** Structure of Mexico’s formal education system: 1999.

Sources: Husen & Neville (1994) and Secretary of Education–National Association of Higher Education Institutions and Universities (1999).

Basic education comprises preschool, primary school, and the lower secondary school. Until 1992, six levels of primary education were compulsory by constitutional mandate. Upon completing middle-level education (primary education and lower secondary), students followed one of two streams for the next three to four years: technical studies preparing graduates for the world of work, or upper secondary preparing students for higher education (Husen & Neville, 1994). Upon completion of an upper secondary program, students are admitted to study at higher education institutions. Although for many years there was no standard procedure for student admissions, in the early 1990s a number of institutions established entrance examinations, and national competency tests were developed for graduates within certain professions (Kent, 1995).

Mexico's higher education system is divided into four primary subsystems: (1) public universities—thirty-nine institutions that account for approximately 60 percent of all enrollments; (2) National Technical Institutes, a national network of eighty-seven institutions with 14 percent of all enrollments; (3) private institutions; more than 180 mostly small institutions that represent 40 percent of the higher education institutions but only 15 percent of total enrollments; and (4) public and private teacher's colleges and institutions with specialized teacher training programs (Puglisi, 1995; OECD, 1997).

In 1994, more than 1,358,000 students were enrolled in higher education. Advanced degree programs were closely associated with research activities within universities, and almost 55,000 students were engaged in various types of postgraduate study with approximately 5.6 percent pursuing doctoral work (OECD, 1997). The OECD estimated that approximately 250 students graduate annually at the doctoral level, which is extremely low for a country of approximately 98 million inhabitants.

In Mexico, as well as in many other Latin American countries, enrollment in public universities dominates higher education. While private institutions have greater operating autonomy than public institutions, they have the added responsibility for generating their own sources of financing. Independent funding status, while challenging, is also a positive factor. It allows them to be more competitive by responding to changing socioeconomic conditions more rapidly than public institutions, which have broader social obligations. They are, however, not totally independent, because the government does have the ability to regulate programs and the curriculum of private institutions through its power of certification (OECD, 1997).

Funding directly affects the number of students that are admitted to public institutions and the number of faculty employed. In spite of the yearly variability in funding, the government has continually supported increased development of the higher education sector. This increased funding has given institutions the ability to provide larger pools of trained people to meet the needs of industry and society.

Furthermore, government/university interactions have changed, indicating that the leadership has begun to accept change and innovation. Between the 1970s and 1990s there were a number of major adjustments among stakeholders in Mexico, including union leaders, leading scientists and academics, politicians, businesspeople, and donors. In addition there were changes in the duties and responsibilities of rectors and students (see Table 9.1).

All stakeholders recognize the importance of education to the growth and development of the country, and as a result the government has attempted to encourage the expansion of educational activities. Mexico's overall funding commitment to education has experienced positive growth since the recovery from the economic crisis of the early 1980s. Between 1980 and

**Table 9.1. Changes in the dominant relationships and values among basic personnel in higher education in Mexico**

1970s and 1980s	1990s
Rectors as coalition chieftains and power-brokers	Rectors as managers, aided by expert staff, interested in stability, competition for funds and public respect
Unions mobilized for wage raises and influence	Leading scientist and academics participating in evaluations, funding decisions, and development strategies
Student groups demanding free access and influence	Individual students as clients and investors, interested in jobs
Political parties mobilized within universities, the only political liberal zones of an authoritarian political system	Businesspeople and donors interested in making decisions and developing the economy
Government as “benevolent” funder and seeker of political stability	Federal and state governments as selective funders and guardians of quality and efficiency
Association of Rectors as political buffer for resolving major conflicts and as formal vehicle for legitimizing government’s plans	Association of Rectors pushing for participation in designing evaluation policies, while not losing political influence
Demand-led expansion: regulation by political relationships and entitlement pressures	Expenditure-led and evaluation-led policies: regulation by incentives and demonstration of results

*Source:* Kent (1995).

1998, the proportion of the GNP the government provided for all educational sectors increased from 4.7 to 5.9 percent and higher education’s share has remained relatively stable ranging between 0.54 to 0.76 percent of the GNP. The years in which educational support lagged has coincided with downturns in the general economy; from 1983 to 1989 Mexico experienced a downturn in economic growth, which paralleled downturns in education support (see Table 9.2).

There are two types of financial support provided by the government. The first is the transfer of public funds to higher education institutions as general institutional grants. The second is the transfer of public funds to students

**Table 9.2. Mexico's support to education in relation to its gross national product**

Year	Total education as % of GNP	Higher education as % of GNP
1980	4.70	0.65
1981	4.20	0.56
1982	4.00	0.66
1983	3.80	0.57
1984	4.20	0.60
1985	4.00	0.54
1986	3.90	0.56
1987	3.70	0.56
1988	3.50	0.56
1989	3.80	0.63
1990	4.00	0.67
1991	4.40	0.66
1992	4.70	0.74
1993	5.60	0.60
1994	5.80	0.65
1995	5.50	0.60
1996	5.80	0.65
1997	5.70	0.70
1998	5.90	0.76

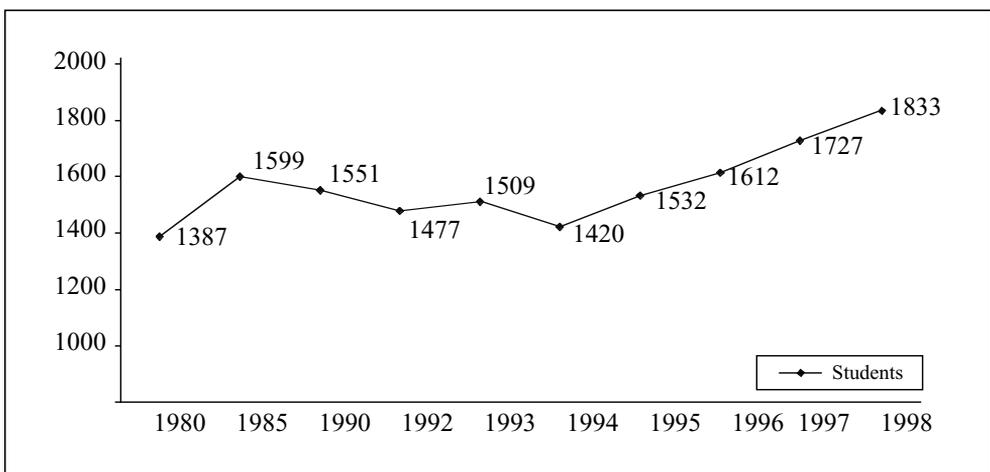
*Sources:* Secretary of Education–National Association of Higher Education Institutions and Universities (1993, 1999); Hayashi (1992); United Nations Education, Scientific, and Cultural Organization (1997).

to provide general student aid support. Article 135 of the Constitution stipulates that all public education (including higher education) should be tuition free. Students receive financial aid for living expenses, but individual institutions are responsible for deciding the amount and who will receive such aid. At the national level, the National Council of Sciences and Technology (CONACYT) and the National Council of Technological Teaching (NCTT) also provides student loans. CONACYT also provides support for sponsored research and development projects. Other important sources of funds are those generated by individual private and public universities, funds through sources such as student services, professional examination fees, and lotteries.

Some universities also generate funds from the operation of selective business ventures, such as agronomic businesses, or the operation of industrial enterprises. Finally, most institutions also receive donations from corporations and individuals.

Institutions of higher education have responded to the shifting and changing needs of the nation, some in response to governmental funding plans, others by initiating activities responding to the external marketplace. In either case, changes are occurring that are embedded in the context of Mexico's transforming political, social, and economic conditions.

Mexico's expanding oil-exporting economy of the 1970s permitted the government to increase financial support to universities. This is reflected in the increase of employed faculty from about 25,000 professors in 1970, 70,000 in 1980, and more than 100,000 in 1985 (United Nations Educational, Scientific, and Cultural Organization [UNESCO], 1997). However, in 1983 the economic recession, hyperinflation, and growing unemployment all had an extremely negative impact on higher education. For example, from 1983 to 1988, professors' salaries lost almost 40 percent of their real earning power. Enrollments per 100,000 inhabitants, which had increased between 1980 and 1985 from 1,381 to 1,599, fell rapidly as a result of the economic crisis, to a low of 1,477 enrollments per 100,000 inhabitants in 1992. The enrollment rates began to increase again in 1993, with 1,509 students per 100,000 inhabitants. In 1998 it had risen to 1,833 (see Figure 9.3). The number of professors increased from 140,000 in 1993 to 190,824 in 1998. However, it is important to note that the growth in the mid-1990s was predominantly in pri-



**Figure 9.3.** Higher Education in Mexico: Number of students per 100,000 inhabitants.

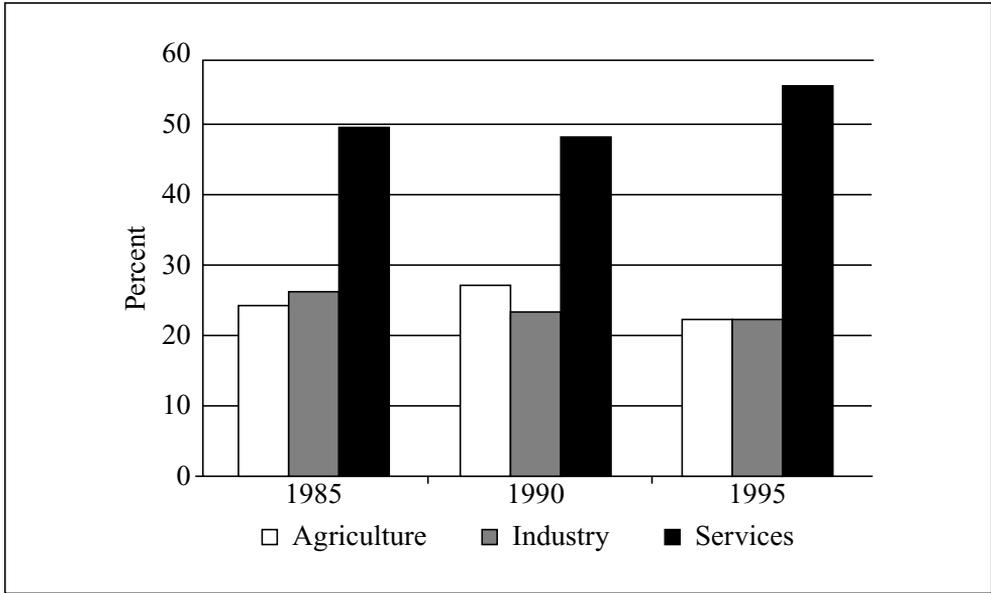
*Sources:* UNESCO (1997); Secretary of Education–National Association of Higher Education Institutions and Universities (1999).

vate institutions (Kent, 1995). This situation raises doubts about the accessibility to higher education of lower income students, since the tuition-free public institutions did not fully participate in this growth.

Accessibility to higher education is a major concern for any country trying to promote economic expansion. It is held that it is necessary for students to complete at least twelve years of schooling in the new knowledge-based global economy if they are to contribute to the modernization of Mexico. The Institute of Higher Education Study in Technology in Monterrey conducted a study in 1995 on the education cycle beginning with primary school through university, focusing on the rate at which students complete or continue their studies at each level. The findings were staggering: of those who started primary school, only 14.2 percent finish preparatory (high school, secondary), and only 2.2 percent finish technical school. Furthermore, only 9 percent went on to universities and fewer than 1 percent to postgraduate studies. Almost 84 percent of students who enter the education system do not complete twelve years of schooling (Puglisi, 1995). In December 1994, President Zedillo, aware of the seriousness of this situation, pledged that all Mexican children would complete high school by the end of his administration (2000). If these proposed improvements come even close to being successfully implemented, they would have a profound impact on higher education by providing a larger and better-qualified pool from which institutions can select students. It would also create a steep increase in the demands for rapid institutional growth and at the end of the 1990s there is evidence of a growing number of students attending universities.

Accessibility to higher education is not the only concern; quality and type of knowledge and skills acquired are also important. Mexican businesses and industries need students with specific skills, which at the present are not matched by those provided by universities. A study by American Chamber/Mexico concluded that “if a profile of 21st-century Mexican employee were pared down to a few absolute necessities, it would include language and communication skills, state of art computer skills, strong math and science skills and proficiency in English” (Puglisi, 1995, p. 28). However, in 1995, fields with lower enrollments in higher education included communications, math, and computer sciences—areas identified as in the greatest need.

The skills acquired by the labor force directly affect economic growth. Figure 9.4 indicates that the industrial labor force (including technical and scientific activities) has decreased since 1985, which could cause problems for a country trying to promote economic growth and employment. Furthermore, the labor force is growing in the service sector, exclusive of technical and scientific areas, which requires less highly trained people. Agriculture does not generally require a highly trained workforce, but this sector has also declined over the years, due, in part, to the migration from the rural to urban areas, and as a consequence of the concentration of economic and political power in Mexico City.



**Figure 9.4.** Labor force by major sectors.

*Source:* Inter-American Development Bank (1999).

Training young people for employment in an emerging Mexican economy will require the revision of existing programs: the development of new work-related programs, and the participation of employers who will hire the graduates. If Mexico is to achieve sustainable economic growth, it must have a national pool of an appropriately trained workforce, a significant number of which must be provided by its higher education system. This training has to be in all fields of knowledge, and requires investing in research and development activities. Thus, Mexico must not only transmit knowledge, but also produce knowledge.

## **THE PRODUCTION OF KNOWLEDGE: RESEARCH AND DEVELOPMENT**

Mexican higher education institutions have expanded their research capabilities in direct response to government programs, as well as to increased pressure from business and industry. While research and development activities have increased, expenditures are still extremely modest in comparison to its more economically developed NAFTA trading partners. At the current level of expenditures, it will take many years before Mexico begins to fully realize the benefits of these modest investments in higher education.

Expansion of research activities—particularly those associated with the sciences, computing, and information sciences—must be increased at a faster rate than research activities associated with the arts, humanities, and social

sciences. This will create tensions within the system and the need for refocusing institutional management activities. While most of the pressure for these changes has been from outside to the universities, it is imperative that the universities initiate appropriate programs to maintain and sustain these changes and become the initiators of research and development activities. This is important because such a large percentage of Mexico's government budget for research and development goes to universities. To capitalize on these investments, it will be necessary that an appropriate infrastructure for higher education be established, including facilities, equipment, and technological support such as effective computing and communication systems. It will be difficult to maintain these research activities because they are expensive, but without such investments there is little hope that universities can effectively conduct research and development activities that are competitive on a global basis.

While public institutions have been reactive rather than proactive, private institutions have demonstrated a much greater amount of flexibility and willingness to meet the needs of business and industry by developing curricula for specific skills. Since private institutions are enrollment driven, it is imperative that they develop quality programs that can attract tuition-paying students who, upon graduation, are gainfully employed. Private institutions of higher education have demonstrated greater willingness to initiate new academic programs. It should be noted, however, that few private institutions actively undertake new research and development activities, but rather concentrate primarily on teaching. One reason for this is that the government largely provides the research funds that are used mostly to support public institutions.

CONACYT is responsible for providing support to stimulate research and development (R&D). It was reorganized in 1990 to facilitate a national priority to encourage R&D. As a result, between 1989 and 1993 national research and development expenditures increased 140 percent, from \$564 million to \$1,375 million, or the equivalent of 0.3 percent of the GNP (Salazar & Lorey, 1997).

The number of researchers in Mexico had been on the increase for more than twenty years. During the economic downturn of the 1980s, the government established the National System of Researchers to assist in retaining the most highly qualified staff at research institutions (OECD, 1997). However, by the late 1980s, continued growth of research was challenged by several issues: (1) the numbers and quality of available human resources, (2) the ability to obtain advanced degrees out of the country, (3) limits on the number of available scholarships, (4) appropriate infrastructure and support material, (5) publication of research results, and (6) access to research from other countries. To begin to address these issues it was necessary to establish a statistical base for monitoring scientific and technological activities. This task was

assigned to CONACYT, and in 1991 it began developing science and technology indicators on an annual basis. According to CONACYT, in 1994 48 percent of Mexico's scientists and engineers were working in public institutions of higher education and only 1.6 percent in private education. In addition, almost 95 percent of the scientific articles published each year were by Mexican scholars in public universities. Most of the research projects conducted dealt mainly with the social sciences and humanities, followed by mathematics and the sciences (OECD, 1997).

In 1996, CONACYT implemented a new structure based on a methodology proposed in the Frascati Manual of the Organization for Economic Cooperation and Development (OECD). Its R&D activities were organized into three basic categories: research and experimental development scientific and technical education and training; and scientific and technological services (OECD, 1997). Both the private and public research sectors receive support from CONACYT, with institutions of higher education in institutions receiving the largest proportion of funds. In 1996, research expenditures were distributed as follows: public education 67 percent, energy 16 percent, agriculture, livestock, and rural development 8 percent, health and social security 3 percent, and the remaining 6 percent went to other sectors (CONACYT, 1996).

To better understand the support of the Mexican government for R&D and the amount of effort that will be required to compete successfully in the global economy, a comparison between the support of research by Mexico and its two NAFTA trading partners, Canada and the United States, is presented in Table 9.3. As indicated, in 1992 the United States expended \$626, Canada \$296, and Mexico \$12 per capita for research and development activities. An examination of other measures such as the total expenses in R&D as a percentage of the gross national product indicate the wide disparity between the countries in terms of support of R&D efforts. These comparisons indicate the Mexico's vulnerability in terms of the amount of research support necessary to facilitate an expanding economy, particularly one requiring high levels of technology.

All three sectors—academia, industry, and government—believed that earlier policies had failed. In addition, Mexico is one of the few OECD member countries whose main source of financing research and development is the government (66.2%) followed by business and private institutions (17.6%), and individuals and international governments (16.2%). In most of the OECD countries, unlike Mexico, the private sector provides the majority of R&D financing, so there would have to be an enormous increase in funding support from all sectors to begin to approach the level of research commitment of neighboring countries.

Technology transfer, the process of moving research and innovations to commercialization and exchanges of technologies between nations, is also an

**Table 9.3. Selected research and development (R&D) comparison among NAFTA partners**

	United States (1992)	Canada (1991)	Mexico (1991)
Total expenses in R&D (in millions of dollars)	157	8	1
Total expenses in R&D as % gross national product (GNP)	2.7	1.4	0.4
Percentage of total of expenses in R&D assigned to universities	18	25	31
Population (in millions)	250	27	86
GNP per capita (in thousands of dollars)	21.8	20.5	2.5
Expenses in R&D per capita (in dollars)	626	296	12

Source: Bruner (1994).

important way to expand Mexico's R&D base. Technology transfer and R&D are forms of knowledge diffusion, as well as producers of knowledge. Castaños (1991) indicated that technology transfer was a hotly debated issue in Mexico during the 1980s and 1990s, and has been a topic of growing interest since the 1982 debt crisis through the more recent NAFTA signing. While universities, the private sector, and the government all went on record to officially support knowledge transfer from academic institutions to industries, there were also many people within universities who were reluctant to support this activity. During this debate, the past practice of being overly reliant on imported knowledge was noted by several institutions as a major drawback that had negatively affected Mexico's ability to compete in a high tech environment. It was felt that Mexico's industries were too often based on technologies that were either obsolete or did not fit Mexico's needs. This was mostly the result of a large gap between research and industrial applications. Although foreign investment is a way to obtain new technologies, there is also an increased reliance on professionally trained immigrants from highly developed countries, thus mitigating its beneficial impact. An effective link between Mexican higher education and industry was not developed, thereby prohibiting technology production and transfer, both of which are essential to Mexico's development. Mexican efforts at the production of knowledge must be a high priority in the 21st century, and the results of these efforts must be disseminated to business and industry.

## THE CONTEMPORARY ROLE OF HIGHER EDUCATION IN SUPPORTING MEXICO'S TRANSFORMATION TO THE 21ST CENTURY

One of the key elements in Mexico's efforts to achieve sustainable growth will be the development of new methods for the *diffusion of knowledge*, geared toward the creation of human resources with the necessary skills to meet its more technologically advanced economic needs. Since 1992, higher education has been an important consideration in the formation of plans for the country's economic development. Two major goals for higher education institutions are to provide trained professionals for business and industry and to enhance social mobility. In 1993 there were four major characteristics identified in the development of the Mexican economy in respect to human resources (Lorey, 1993):

1. Limited employment opportunities for professionals resulted from the highly protective nature of Mexican industry from both domestic and international competition. Without modern equipment and investment for R&D, there is little opportunity to expand production.
2. The Mexican economy was overly dependent upon the importation of capital goods and technology for industrial expansion, which reduced the need for native professionals.
3. Much of the increase in employment occurred in industries that had limited needs for the skills of highly trained professionals.
4. The government, particularly after the late 1950s, became an employer of last resort, absorbing many professionals not needed by the private sector.

These characteristics of Mexico's economy with respect to human resources began to change after the NAFTA regulations were implemented. While Mexican industry is not as highly protective as before, it stills depends on the importation of capital goods and technology, despite its own increased expenditures on R&D activities. Privatization, particularly since the early 1990s, has created higher expectations in terms of employee skills and knowledge.

In the 1960s, universities expanded their efforts to include students from lower socioeconomic backgrounds. These efforts often resulted in higher enrollments of students from lower socioeconomic backgrounds, but also increased dropout rates prior to graduation. Public universities increasingly took on the task of promoting upward social mobility by providing higher education programs students from low-income families, while private universities focused on middle class students seeking professional degrees.<sup>3</sup>

The continued emphasis of public higher education to providing upward social mobility is deeply rooted in the history of Mexican higher education.

Having the major benefits of higher education affect all strata of Mexican society is necessary if the country is to realize the potential benefits of all its human assets in fostering economic development. This task falls largely to Mexico's public higher education institutions. Private universities have only a small percentage of lower income students, and these institutions have historically demonstrated higher levels of program quality than public universities, although not in the area of research. While some public institutions were improving the quality of their programs, their efforts generally lagged behind private institutions. Public universities had difficulty competing and began to produce a larger number of "egresados," individuals who had finished undergraduate coursework but not their final requirement such as an undergraduate thesis, final examination, or public service activity. During the latter decades of the 20th century, the demand for high-quality graduates has been greater than the public universities could meet; therefore, private institutions have expanded and grown rapidly in order to meet these emerging needs.

Changing economic demands traditionally have had a profound effect upon Mexican universities, both public and private. A system of public and private universities has been in continual development since the 1940s, and each has contributed to different aspects of Mexico's trained workforce. Yet the disconnection between historical economic development and social mobility has been a persistent problem. On one hand, as Lorey (1993) notes, this is reflected in the number of professional university graduates seeking employment, and in their ability to find suitable employment. However, many in the business world feel that the curriculum and training received by students in the areas of business administration, communications, finance, and accounting were inferior compared with universities in the United States, Europe, and South American countries such as Argentina, Chile, and Peru (Puglisi, 1995). Also, Governor Canales (1998) of Nuevo León, Mexico, noted that the problem in Mexico is not the lack of jobs, but the adequate training and education of the graduates.

The issue of social mobility and economic development is also underscored in a study conducted by Psacharopoulos (1985) in which he compiled different sets of estimates for a diverse sample of countries concerning the contribution of education to economic growth. He concluded that in the case of Mexico between the 1950s and 1970s, education explains only 0.8 percent of the economic growth, while the average found was 8.8 percent of the entire sample (with Argentina at 16.5 percent, Brazil 3.3 percent, Canada 25 percent, and United States 15 percent). This finding is disturbing not only because Mexico was well below the average, but also because in that period Mexico, with its GDP growth rate averaging 6 percent per year, had experienced tremendous enrollment growth at its universities. Nevertheless, in that same period income distribution among all economic strata did not change, nor did the Gini coefficient, indicating a near absence of social mobility.<sup>4</sup>

Londoño and Székely (1997) showed that sustained growth over time reduces overall income disparity and facilitates the creation of new jobs and mobility opportunities. They found that increased investment in capital formation of between four and five points of GDP has been associated with a one-point decline in the Gini coefficient, and a one year increase in average education is associated with a reduction of the Gini coefficient of over two points. Consequently, Mexico not only needs to increase investments in capital and open markets, but also needs to increase its population's access to higher education.

A Mexican worker who does not have twelve years of schooling does not have the necessary knowledge and skills to contribute to Mexico's economic growth. Whereas the average U.S. and Canadian worker has 12.6 and 11.7 years of schooling respectively, the average Mexican worker has only 6.4 years (Puglisi, 1995). This lower level of general education also reduces the size of the pool from which students can be drawn to attend institutions of higher education and thereby to contribute to the country's transformation.

It is very important that a country fully develop its human resource assets if it is to attain world-class status. Therefore it is imperative that Mexico increase the number of students from all socioeconomic groups, as well as improve the quality of the education provided. While this is a necessary condition for world class status, it is not sufficient. Mexico must also open its commercial ties with other world markets, thereby creating an internal demand for personnel with appropriate training and educational backgrounds.

While this need to develop a high quality workforce is viewed as a major priority by many, there is much dissatisfaction with the training graduates receive. As Castaños (1997) has indicated, many individuals who participated in his study believed that the role of universities was to provide quality educational programming, thereby developing the highly trained resources necessary for business and industry. One participant stated, "I have been here now for twenty-three years and the quality of chemical engineering graduates keeps getting worse year after year. We hire whatever we can but we have to re-train the kids. If we screen the applicants using reasonable selection criteria, none of them would make it. Higher education is a mess and the graduates lack the proper outlook" (Castaños, 1997, p. 369).

It is currently not clear whether there exists an acceptable understanding by the government, the private sector, and universities as to appropriate policies and priorities for the universities. However, there are many existing examples of cooperation between these three sectors such as the American Chamber/Mexico (AMCHAM). AMCHAM's education task force was formed in 1994 to define a role for AMCHAM in education and to recommend an action plan to its Board of Directors and includes nine of the country's industrial leaders. AMCHAM diagnosed the causes of conflict and dysfunction between the needs of industry and the graduates of the Mexican

education system. They also identified strategies for change which could address those differences and develop a workable plan of action (Adelman, 1995).

Nevertheless, there still does not appear to be a coordinated policy as to how the public universities in particular will be involved in direct support of economic development. Recently, the public universities have come under criticism for not providing high quality, professional graduates. There has been concern about the ability of the public universities to be at the forefront of advancing Mexico's technological base to support economic development. Expanding Mexico's technological resources will require state-of-the-art laboratories and increased governmental funding for research. Incentives will have to be developed to actively foster appropriate change in public institutions. Private universities currently seem to enjoy a more positive public perception in terms of their ability to produce quality technical professional graduates. The expectations that public universities must have a duality of missions—quality professional training as well as the promotion of social mobility—while not necessarily in conflict, can potentially reduce a university's ability to achieve either successfully. Public institutions must have a clear understanding of their missions and the types of programs they will implement to accomplish these equally important missions. This will require a closer alignment of government, business, and university interest and programs.

Currently, public universities offer educational opportunities to the largest segment of the college-age population and are attempting to develop quality research programs. Yet, they are not adequately funded and are having extreme difficulties with these two missions. Either expanded funding must be made available from the government, or students must be given greater responsibility for funding their own education through family contributions or loans. Funding at the current levels is simply inadequate, and this problem of inadequate resources will become more pressing as a larger number of students obtain high school diplomas and attempt to enter universities. This may require a reexamination of the policy of free tuition for all.

It is instructive to note that private higher education has been able to grow and prosper over the last several decades, relying almost exclusively on tuition as well as private gifts. This may be partially due to the operation of these institutions in a more businesslike manner, and to their willingness to respond and adjust to changing external requirements imposed by the economy and society in general. It is important for universities, both public and private, to continuously evaluate their current array of programs and the changing human resource needs of society. Further, since there is a growing reluctance on the part of government to continue to be the "employer of last resort" of all college graduates and to reduce the size of government in general, many students need to seriously examine their educational programs if

they are to obtain suitable employment. The needs of Mexico's emerging market economy require new academic programs as well as the termination of some existing programs. Universities, if they are to survive and prosper, will have to continue their efforts to develop linkages with business and industry. It will be through such changes that universities can become an important element in Mexico's sustainable economic development.

## CONCLUSION

Mexico has taken many steps to improve and expand economically, socially, politically, and technologically. The question remains as to whether the political will of the country's leadership is to continue and to accelerate this change process. At the very least, this will require a reasonably stable political and social environment. The need for political stability and openness is clearly reflected in the negative consequences of the turmoil that has struck the economies of other emerging markets, particularly in Asia. The disruptions caused by political and social instability can quickly decimate any economic gains that have been attained. Successful market-driven economics require the development and implementation of democratic practices. Political stability can only be achieved through the reduction of government corruption at all levels, by increasing upward social mobility, and a more equitable distribution of wealth, thereby reducing the Gini coefficient through accessibility to education. As Mexico continues its development it will confront some major challenges. The country's wide rich/poor stratification is a problem that could severely hinder future economic development and political stability. The extent to which social unrest can be alleviated will depend on Mexico's ability to integrate all marginalized people into an expanding economy and political system. Although there has been some reduction in the degree of social stratification, there is still a very wide gap between the haves and the have nots in terms of economic well being. Increased accessibility to higher education will be one of the keys to enhancing social mobility and reducing this potentially dangerous gap.

Mexico's economic success will also depend on the country's efforts to continue its privatization of state-owned businesses, and to open its markets to an expanding number of international trading partners. Expansion of trade and domestic production can provide the country with the economic capacity needed to develop an appropriate infrastructure in terms of highways, water management and air pollution to more fully meet the needs of its people.

One major unknown confronting Mexico's future development will be the condition of the global economy. Without a relatively stable world economy, it will be difficult for Mexico to continue the development of its own economy. The economic problems that were experienced in 1997 in Thailand, Japan, Malaysia, and Russia had major implications for Mexico. Although it

has become a major trading partner with Canada and the United States, it will still need to establish additional trading relationships if it is to sustain its own development. If global economic conditions worsen it can be anticipated that Canada and the United States may also suffer a general economic decline, thus reducing their imports from Mexico. It is therefore important that Mexico continues to explore economic ties with other countries, particularly Central and South American countries and the European Union. Interdependence is indeed a double-edged sword.

Although the three trading partners have made a good start in the implementation of NAFTA, there are many steps yet to be taken by Mexico, including a more uniform treatment of patents, copyrights, privatization, and the stabilization of its currency. While most observers recognize that this will not be a smooth and straightforward task, and that there will be setbacks, it nonetheless is now a major opportunity for Mexico to develop and grow over the next few decades.

All three sectors—higher education, business, and government—believe that previous policies had failed to develop an effective link between higher education and the private sector, thereby limiting technology production and transfer, both of which are essential to economic growth. Developing links with industry and supporting economic growth will also require an attitudinal shift on the part of the current administration and faculty of public and private institutions. There will have to be a close monitoring of graduates to ensure that the quality of students being trained is of the highest order and that their skills are relevant to their future areas of employment. While universities have begun to develop research facilities, increased investments in R&D must be made if Mexico is to be a more equal partner with Canada and the United States in terms of technology exchange and development. Collaboration and partnerships may provide the most viable available strategy in developing the technological base required by Mexico's economy. Government, business and industry, and universities must recognize the symbiotic relationship that exists between them and they must begin to identify strategies that will develop the country's ability to become a major player in the global economy. One of the opportunities that needs to be explored is the establishment of partnerships between Mexican universities and universities in other countries such as the United States and Canada. Collaboration programs between the NAFTA countries can be of major assistance in "jump starting" Mexico's technological development.

While education can be a driver for social mobility, and economic growth, Mexico's past performance of higher education in transmitting knowledge has been poor, failing to meet economic needs and often creating a misfit between industry, business, and graduates. While there is as yet no clearly designed plan to coordinate the efforts of government and the private sector, there is increasing communication. Industry and business have began

to retrain higher education graduates and are collaborating more closely with higher education institutes in an effort to define future needs.

Higher education's activities in the transmission of knowledge have to be extended in quantity and quality through coordination and consultation with business and industry to match effectively the supply and demand of human resources. In this way, the diffusion of knowledge can be effective in contributing to the nation's wealth. The transfer of technology will assist in the diffusion and transmission of knowledge, contributing to the promotion of economic growth. Mexico's political leadership has demonstrated a high level of commitment through the policies of CONACYT to increase the production of knowledge, yet it still needs to invest more in higher education in order to generate more opportunities for economically relevant R&D.

Mexico has taken a series of initial steps to improve its education system and help develop and expand its economy. It has begun to successfully achieve sustained economic growth based on its internal capacity and utilization of its human resources. To continue this development it will require the necessary political will to reform economic policies, create a more open political system, and promote social stability. Higher education will play a critical role in this process.

## NOTES

1. On March 6, 1929, the Revolutionary National Party was founded, which became in 1938 the Party of the Mexican Revolution. In 1946 they adopted the name Institutional Revolutionary Party (PRI).

2. Mexico is the only nondeveloped country belonging to the OECD.

3. Certificates of study and recognition are provided for programs that have a short period of study and low or no tuition fees.

4. The Gini coefficient is an inequality indicator. It is a measure of dispersion within a group of values, calculated as the average difference between every pair of values divided by two times the average of the sample. The larger the coefficient, the higher the degree of dispersion.

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