2007

Emerging global markets: A Five-country comparative study

Frank Cost

Stanley Widrick

Emerging Global Print Markets: A Five-Country Comparative Study

By

Stanley Widrick, Ph.D.

Senior Associate Dean

E. Philip Saunders College of Business

Rochester Institute of Technology

Frank Cost

Associate Dean

College of Imaging Arts and Sciences

Rochester Institute of Technology

A Research Monograph of the

Printing Industry Center at RIT

No. PICRM-2006-06

R·I·T Printing Industry Center

An Alfred P. Sloan Foundation Center

Emerging Global Print Markets: A Five-Country Comparative Study

Part A

By

Stanley Widrick, Ph.D.
Senior Associate Dean
E. Philip Saunders College of Business
Rochester Institute of Technology

Frank Cost
Associate Dean
College of Imaging Arts and Sciences
Rochester Institute of Technology

R·I·T Printing Industry Center
An Alfred P. Sloan Foundation Center

A Research Monograph of the
Printing Industry Center at RIT
Rochester, NY
October 2007

PICRM-2006-06

The research agenda of the Printing Industry Center at RIT and the publication of research findings are supported by the following organizations:

Table of Contents

Acknowledgements

The authors would like to acknowledge the following students (listed alphabetically) who worked on this project as research assistants:

- Daliana Abreu — *Brazil*
- Anna Boriskina — *Russia*
- Richard Chen — *China*
- Byron Cuellar — *Mexico*
- Justin Doyle — *Overall*
- Amit R. Raina — *India*

Without their assistance, this project could not have been completed.

Abstract

In 2005, the GDP of the emerging economies of the world accounted for more than 50% of the total world's GDP (measured at purchasing power parity). This means that the rich countries (i.e., United States, the European Union, Japan) no longer control the world economy. When combined with the impact of digital technologies, this continuing shift in economic power means that the printing industry is increasingly focusing on emerging markets seeking opportunities and profits. This exploratory study focuses on five of the largest emerging markets: China, India, Russia, Brazil, and Mexico. The study includes two phases. Phase one involves gathering public and industry macro- and micro-economic data in each of these emerging market countries. Phase two involved interviewing local printing experts in each country.

In addition to individual country industry profiles the study looks at several common challenges facing the printing industry in all five countries. These include overcapacity of aging production facilities, fierce price competition for basic commodity products and services, the impact of the Internet on print media consumption, monetary and taxation policies, national industrial and international trade strategies, and changes in educational policies and literacy rates. Comparisons among the five countries result in a number of interesting observations. For example, it is clear that tariff and tax policies in each country strongly influence the rate of development of the globalizing part of the industry. These observations combined with macroeconomic and industry-specific data from each country have led the researchers to a better understanding of how these countries will likely participate in the emerging global print communications industry.

In each of these five countries there are two distinct segments of the printing industry. First, the old indigenous industry that serves traditional domestic markets with products and services that often is price-driven and usually falls short of meeting the needs of domestic companies seeking export business or of multinational corporations doing business domestically. And second, an emerging industry that provides value-intense and world class manufactured goods and services. These include products such as the leading national newspapers manufactured in India, packaging materials manufactured in Mexico, and high-end books manufactured in China.

Chapter One: Introduction

This study focuses on the current state and near-term growth trends of the printing industries in five countries with emerging market economies: Brazil, China, India, Mexico and Russia. The general economies in three of these countries – Russia, China, and India – are growing at rates between two and four times that of the United States. The economies of Mexico and Brazil have recently experienced less robust growth rates. However, in all five cases the printing industry is evolving rapidly to meet the challenges brought about by technological change.

The U.S. printing industry is notoriously difficult to characterize and measure because it is highly fragmented and, for the most part, privately held. When we turn our attention to the printing industries in emerging markets, the problem is compounded by other factors that are hidden from outside view, such as a lack of information about local business realities. In the U.S. and in other developed economies, the industry is mature and its overall growth has not kept pace with GDP in recent years. In contrast, developing economies are armed with opportunities for explosive growth within some market segments. In areas where the per capita consumption of print is only a small fraction of what it is in the developed world, the unsatisfied appetite for print is powerful. As emerging markets afford their residents with more disposable income, the markets for certain kinds of printed products have the potential to expand rapidly.

At the same time, there is the possibility that societies will leapfrog over older media forms altogether. For example, it makes little sense to create a telecommunication infrastructure based on land-lines in developing countries. This begs the question: will certain long-established forms of print be leapfrogged by electronic media in the developing world? This question was often raised in our interviews, inspiring a great deal of debate and speculation about how the future will likely unfold.

Examples include the potential for marketing through direct mail. In Russia, using the postal system to deliver printed transactional and marketing collateral is all but unknown. Will such markets develop to embrace print, or will Internet-based communications meet the growing demand for conveniences that up until now have been unavailable? Questions such as these present an important challenge to printers, as there are many factors at play.

Major suppliers of equipment and materials to the global printing industry have long known that their opportunities for future growth were in emerging markets, not in the mature markets of North America, Western Europe, and Japan. This exploratory study of five national industries was undertaken in response to questions posed about the comparative opportunities for selling new equipment and consumables by leading U.S. suppliers such as Kodak, Xerox, and HP. In each of these five countries, printing businesses serve two distinct segments. First, most traditional printing businesses catering to the needs of their domestic markets have found themselves at a competitive disad-

vantage because their products fail to meet the quality requirements for international export and for multinational corporations with a domestic presence. Second, a new breed of printers has emerged, able to provide "world class" manufactured goods and services. Their products include India's leading national newspapers, packaging materials manufactured in Mexico, and high-end color books manufactured in China.

This study is a collaboration of Stanley Widrick, professor of International Business in the RIT E. Philip Saunders College of Business, and Frank Cost, professor of Digital Publishing in the RIT College of Imaging Arts and Sciences. Professors Widrick and Cost worked with an international team of graduate students (one student from each of the five countries studied) to develop a profile of the printing industries within each country. In addition, interviews were conducted with industry experts and individuals who have had experience doing business in each of the countries. Interviews and plant tours conducted on site in Russia, Brazil, China, and India also contributed to the findings. The authors present a brief profile of the printing industry in each of the five countries, predict growth trends over the next five years, and describe the risks and opportunities for U.S. companies facing competition from and seeking to sell into each of these markets.

The study also looks at several common challenges facing the printing industry in all five countries. These include overcapacity of aging production facilities, fierce price competition for basic commodity products and services, the impact of the Internet on print media consumption, monetary and taxation policies, national industrial and international trade strategies, and changes in educational policies and literacy rates.

Comparisons among the five countries result in a number of interesting observations. For example, it is clear that tariff and tax policies in each country strongly influence the rate of development of the globalizing part of the industry. These observations, combined with macroeconomic and industry-specific data from each country, have led the researchers to a better understanding of how these countries will likely participate in the emerging global printing industry.

Methodology

This study combines reviews of published sources of macroeconomic information, sources of information specific to the printing and publishing industries, and interviews with people who have had extensive experience in each of the five countries. The researchers employed a team of seven graduate students, including one student from each country studied. This enabled us to include published information in Russian, Chinese, Spanish, and Portuguese, as well as English. The international diversity of the research team provided many insights into cultural and social factors at play that would not have been visible to American academic researchers studying these countries alone.

Since the industry is highly fragmented and almost entirely privately held in every country studied except for China, where the state maintains full or partial ownership of

all companies engaged in print communications activities, the reliability of some of the published information is questionable.

To develop a better sense of the reliability of published data and to explore aspects of the industry not visible in the published record, interviews were conducted with key individuals with experience and knowledge of the industry in each of the five markets. A list of the people interviewed is included in Appendix F. An interview guide was prepared to structure the interviews. This is included in Appendix G.

The rapidly evolving business environment in China, India, and Russia makes studying these three countries particularly challenging. With whole economies and some sectors growing at annual rates three and four times that of the fastest growing developed economies, the picture can change dramatically from year to year. We therefore present this work as a first look at these emerging print markets, knowing that the markets and our understanding of them are bound to change within the next few years.

There are several definitions of gross domestic product (GDP) that are reported in various secondary sources. These often become confusing, so we will provide an overview of these terms here.

- *GDP in local currency*—This is the total market value of all final goods and services produced in a country in a given year, equal to total consumer, investment and government spending, plus the value of exports, minus the value of imports, all stated in the local currency of the country.
- *GDP in U.S. dollars*—This is the same as the above total, except the local country currency is converted to U.S. dollars using the average exchange rate for the year being discussed.
- *Purchasing Power Parity (PPP)*—A purchasing power parity exchange rate equalizes the purchasing power of different currencies in their home countries for a given basket of goods. An easy way of understanding this is to use a U.S. example, where the cost of living in Rochester, New York is very different than the cost of living in Los Angeles, California. Likewise the cost of a three-bedroom flat in Dallas is very different than the cost a similar three-bedroom flat in Bombay or Mexico City.
- *GDP expressed at PPP*—These PPP special exchange rates are often used to adjust GDP in order to compare the standards of living of two or more countries. The adjustments are meant to give a better picture of the actual purchasing ability of the people. This type of adjustment to an exchange rate is controversial because of the difficulties of finding comparable baskets of goods to compare purchasing power across countries.
- *Real GDP growth*—A country's GDP growth from one year to the next is the result of two factors: actual productivity increase and the influence of inflation. A country's real GDP growth is based on its productivity growth, with the effects of inflation removed.

Example for India in 2005:

- GDP in Indian rupees 35,314 billion
- GDP in U.S. dollars 801 billion
- GDP at PPP in U.S. dollars 3,633 billion
- PPP equalizer (3,633/801) 4.54
- Real GDP growth 8.50%
- Inflation rate 4.25%

In 2005, the Indian economy generated a GDP equal to 35,314 billion rupees. Considering an exchange rate of one U.S. dollar for 44.1 Indian rupees, we see that this is equal to 801 billion U.S. dollars. The PPP equalization rate reveals that one U.S. dollar spent in India will, on average, purchase 4.54 times as much as it would in the U.S. This results in a GDP measured at PPP of 3,633 billion U.S. dollars. The Indian GDP grew 12.75% between 2004 and 2005, but when adjusted for India's inflation rate of 4.25% we find a real GDP growth rate of 8.50%.

The Importance of Emerging Markets

According to the Economist (Woodall, 2006), more than 50% of the global GDP (measured in purchasing power parity) is now coming from emerging economies. Over 50% of the increase in global output is from emerging markets. Emerging economies have a significant impact on the whole world in terms of wages, inflation rates, interest rates and profits.

Similarly, emerging market countries are a major driver in the printing industry. As incomes in these emerging countries continue to increase and grow beyond subsistence levels, the demand for printed materials (newspapers, books, packaging, etc.) can be expected to see significant growth. Of the ten countries in the world with the largest populations, eight have emerging economies. China, India, Indonesia, Brazil, Pakistan, Russia, Bangladesh, and Nigeria have a combined population of about 3.4 billion, which is more than half of the world population of 6.5 billion.

Market Potential Index for Emerging Markets

Michigan State University maintains a web site named Global Edge that provides some detailed information on emerging markets. Table 1-1 summarizes data on the twenty-seven emerging market countries covered on the web site, which includes the five countries of interest to this study. The dimensions that Global Edge uses are defined more specifically in Table 1-3.

Table 1-1. Evaluations of overall market potential (MSU, 2006)

Countries	Market Size		Market Growth Rate		Market Intensity		Market Consumption Capacity		Commercial Infrastructure		Economic Freedom		Market Receptivity		Country Risk		Overall Market Potential Index	
	Rank	Index	Rank	Index	Rank	Index	Rank	Index	Rank	Index	Rank	Index	Rank	Index	Rank	Index	Rank	Index
China	1	100	1	100	25	23	12	59	16	45	27	1	22	3	13	49	1	100
Hong Kong	24	1	20	23	1	100	13	54	2	97	6	79	2	75	2	90	2	96
Singapore	27	1	18	27	9	59	11	62	6	83	10	71	1	100	1	100	3	93
Taiwan	12	5	6	57	11	57	-	-	1	100	8	76	5	23	3	87	4	79
Israel	25	1	12	45	2	79	4	82	3	94	3	86	4	26	5	63	5	78
S. Korea	7	12	16	30	5	63	2	99	5	90	7	78	10	13	4	65	6	75
Czech Rep.	23	2	9	48	13	55	3	97	4	91	2	93	9	15	6	63	7	73
Hungary	26	1	24	14	3	76	1	100	7	78	4	83	8	16	8	62	8	64
India	2	44	3	63	22	37	7	77	25	17	17	44	27	1	16	39	9	55
Poland	14	5	27	1	10	58	6	80	8	71	5	82	14	7	9	58	10	46
Turkey	9	8	7	55	12	57	10	67	12	51	16	45	18	5	20	27	11	37
Malaysia	20	3	2	70	26	19	19	42	10	53	20	39	3	30	11	53	12	35
Russia	3	34	15	38	23	30	16	53	9	54	25	5	19	4	17	35	13	35
Mexico	5	12	25	9	8	60	21	27	15	48	11	63	6	18	12	52	14	32
Thailand	17	4	11	46	18	44	14	54	20	38	15	49	7	18	15	43	15	31
Chile	21	2	19	25	17	44	23	13	13	51	1	100	12	10	10	57	16	26
Argentina	15	5	10	48	4	65	20	39	11	53	14	49	25	2	27	1	17	21
Saudi Arabia	13	5	4	59	27	1	-	-	14	47	22	15	11	11	7	62	18	18
Egypt	16	4	14	43	14	50	9	70	21	36	26	3	17	5	18	29	19	18
Pakistan	10	6	5	57	6	62	5	81	26	2	23	10	26	1	25	10	20	15
Indonesia	6	12	13	45	21	38	8	72	27	1	21	37	15	6	24	13	21	15
Philippines	11	5	21	22	7	60	18	47	22	29	19	42	13	10	23	17	22	14
Brazil	4	25	26	2	20	39	24	13	17	44	13	55	24	2	19	28	23	14
S. Africa	8	8	17	28	15	49	25	1	24	22	9	75	20	4	14	44	24	10
Peru	22	2	22	20	16	46	15	53	23	23	12	62	23	3	22	19	25	9
Venezuela	18	4	8	51	24	27	17	52	19	39	24	5	16	6	26	4	26	3
Colombia	19	4	23	20	19	42	22	17	18	41	18	44	21	4	21	20	27	1

As can be seen in Table 1-1, the overall market potential index identifies China as the best market generally for products and services. Hong Kong and Taiwan are analyzed separately, and ranked 2nd and 4th respectively. Out of the 27 countries included in this study, India was ranked 9th, Russia 13th, Mexico 14th, and Brazil 23rd.

Table 1-2 includes summary information of these overall market potential rankings between 2002 and 2006. As can be seen, China has moved from a ranking of 5 in 2002 into the top ranking in 2006. India and Russia have moved little in their relative rankings over the last five years. Both Mexico and Brazil have moved down in their overall rankings, with Mexico dropping from 11th to 14th and Brazil dropping from 16th to 23rd. It is noteworthy to mention that in the Global Edge analysis, all Latin American countries are falling in their overall rankings over the past five years. This seems to indicate a regional weakness relative to the rest of the world.

Table 1-2. Rankings over the past five years (MSU, 2006)

Countries	2006 Rank	2005 Rank	2004 Rank	2003 Rank	2002 Rank
China	1	3	4	5	5
Hong Kong	2	1	1	1	1
Singapore	3	2	2	2	2
Taiwan	4	-	-	-	-
Israel	5	5	5	4	4
S. Korea	6	4	3	3	3
Czech Rep.	7	7	7	7	7
Hungary	8	6	6	6	6
India	9	9	8	9	10
Poland	10	8	9	8	8
Turkey	11	15	15	14	14
Malaysia	12	13	14	13	17
Russia	13	11	12	15	13
Mexico	14	10	11	10	11
Thailand	15	12	13	12	12
Chile	16	14	10	11	9
Argentina	17	21	19	23	15
Saudi Arabia	18	-	-	-	-
Egypt	19	16	16	19	21
Pakistan	20	-	-	-	-
Indonesia	21	19	17	16	22
Philippines	22	20	18	20	19
Brazil	23	18	20	17	16
S. Africa	24	22	22	21	20
Peru	25	17	21	18	18
Venezuela	26	23	24	22	23
Colombia	27	24	23	24	24

The dimensions, measures and weightings that Global Edge uses in creating its Market Potential Index are shown in Table 1-3. These dimensions will be supplemented as we examine the printing industry more specifically in Chapter 2, and are also described in greater detail in each of the country sections.

Table 1-3. Dimensions, weights, and measures of market potential (MSU, 2006)

Dimension	Weight	Measures Used
Market Size	10/50	Urban population (in millions), 2005[1] Electricity consumption (billion kwh), 2004[2]
Market Growth Rate	6/50	Average annual growth rate of commercial energy use (%) between the years 1999–2003[1] Real GDP growth rate (%), 2005[1]
Market Intensity	7/50	GNI per capita estimates using PPP (U.S. dollars), 2005[1] Private consumption as a percentage of GDP (%), 2005[1]
Market Consumption Capacity	5/50	Percentage share of middle-class in consumption/income, latest year available[1]
Commercial Infrastructure	7/50	Telephone mainlines (per 100 habitants), 2005[3] Cellular mobile subscribers (per 100 habitants), 2005[3] Number of PC's (per 100 habitants), 2005[3] Paved road density (km per million people), latest year available[1] Internet hosts (per million people), 2005[3] Population per retail outlet, latest year available[4] Television sets per 1000 persons, latest year available[1]
Economic Freedom	5/50	Economic Freedom Index, 2006[5] Political Freedom Index, 2006[6]
Market Receptivity	6/50	Per capita imports from U.S. (in U.S. dollars), 2005[7] Trade as a percentage of GDP, 2005[1]
Country Risk	4/50	Country risk rating, 2006[8]

Data used are those available for the most recent year.

[1] Source: World Bank, World Development Indicators, 2006

[2] Source: U.S. Energy Information Administration, International Energy Annual, 2004

[3] Source: International Telecommunication Union, ICT Indicators, 2005

[4] Source: Euromonitor, European Marketing Data and Statistics, 2006

Source: Euromonitor, Asian Marketing Data and Statistics, 2006

[5] Source: Heritage Foundation, The Index of Economic Freedom, 2005

[6] Source: Freedom House, Survey of Freedom in the World, 2005

[7] Source: US Census Bureau Foreign Trade Division, Country Data, 2005

[8] Source: Euromoney, Country Risk Survey, 2006

Overview of the General Impact of Emerging Markets

When all emerging markets are included, the Economist (Woodall, 2006) makes the following observations. Emerging markets account for:

- Over 80% of the world's population
- About 50% of the world's purchasing power parity
- Nearly 70% of foreign-exchange reserves
- About 50% of the world's energy consumption
- Over 40% of all exports

The International Monetary Fund forecasts that over the next five years emerging markets will expand at a significantly higher rate (6.8%) than developed economies (2.7%) (Woodall, 2006).

During the period of 2001 through 2006, the GDP per capita in emerging economies has grown by an annual average of 5.6%, compared with only 1.9% in the developed world. In contrast, during the 1980s and 1990s, the growth rates in poorer countries averaged only 2.5%, about the same as in developed countries. This higher rate of growth in GDP per capita in emerging markets is likely to continue, barring a major disruption in world geopolitical or economic balance (Woodall, 2006).

China, India, Brazil, Russia, and Mexico are the five biggest emerging economies. These five economies account for over two-fifths of the total GDP of all emerging economies. China and India are generally seen as the two giants among them. This is true in terms of purchasing power parity, but in terms of current dollars Brazil and Russia both produce more than India. At market exchange rates, only China and Brazil rank among the world's top ten economies.

In the economic race between China and India, China surpasses India on many of the dimensions key to growth. It is more open to trade, has better macroeconomic stability, has developed more widespread education systems, and has achieved higher GDP growth. However, the long-run population growth of India is projected to result in a population larger than China's between 2025 and 2030. It will also result in India's having a much younger age distribution than China.

While these five economies (particularly China and India) receive the lion's share of multinational corporate attention, it is critical to remain attentive to other emerging market opportunities. The growth in emerging markets is not being overlooked by either local businesses or multinational corporations. This general GDP growth will create increasing opportunities for printers of all stripes.

The analysis and comparison of China, India, Brazil, Russia, and Mexico will be examined in greater detail in Chapters 2 and 3, as well as in the country Appendices.

Chapter Two: Top Opportunities for Printing in Emerging Markets

In evaluating opportunities for the printing industry in emerging markets, there are a number of different dimensions that can impact country market potential. These include several of the general population and business characteristics of each country. Individual items are often called macro-environmental variables, and include information such as population size, average family size, the general economic health of the country as measured by GDP, and others. In addition, there are characteristics that relate specifically to the printing industry. These printing industry-specific characteristics are often called micro-environmental variables, and include items such as newspaper readership, literacy rates, student enrollment, and Internet penetration.

Macro-Environmental Drivers of Print Consumption

Market Size

The market size of a country is an important predictor of demand. We will be estimating market size using four variables: population, urban population, electrical consumption, and gross domestic product (GDP).

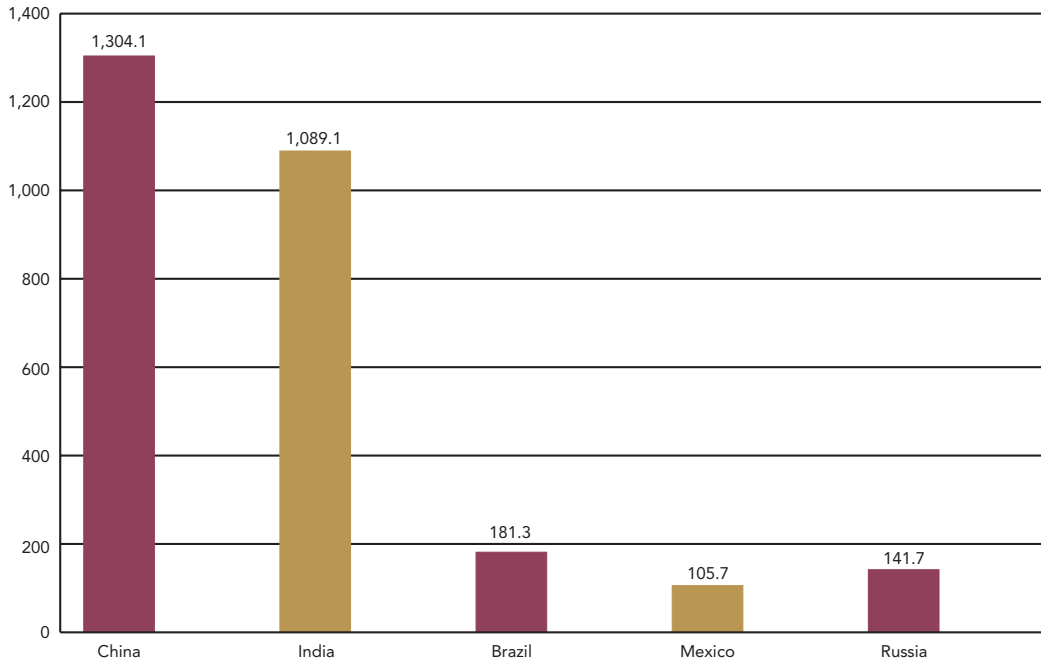

Figure 2-1. 2006 population in millions (CIA, 2007)

Figure 2-1 clearly illustrates the enormous differences in the population base of these five countries. China (1.304 billion) and India (1.009 billion) have more than 10 times the population of Mexico (106 million). Indeed, China and India together make up about 37% of the world's population. Russia (142 million) and Brazil (181 million) are both relatively small markets.

It is likely that those living in urban areas have higher levels of consumption of printed materials (including newspapers, magazines, packaging materials, etc.) as they are also likely to have higher incomes. Figure 2-2 shows the urban population of all five countries on a comparative chart.

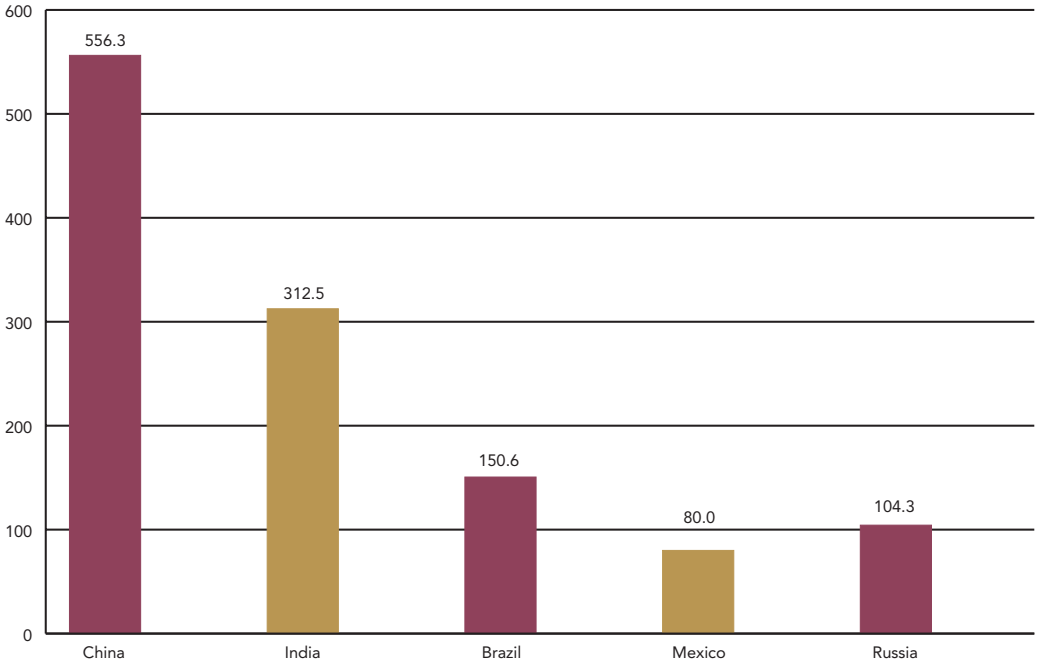

Figure 2-2. Urban population in millions, 2005 (Euromonitor International, 2006)

The world GDP at purchasing power parity is $61.1 trillion U.S. These five countries account for $16.7 trillion of this total, representing more than 25% of the world total. China alone accounts for $9.41 trillion U.S., or 14.5% (see Figure 2-3). The U.S. has a GDP at PPP of $12.28 trillion.

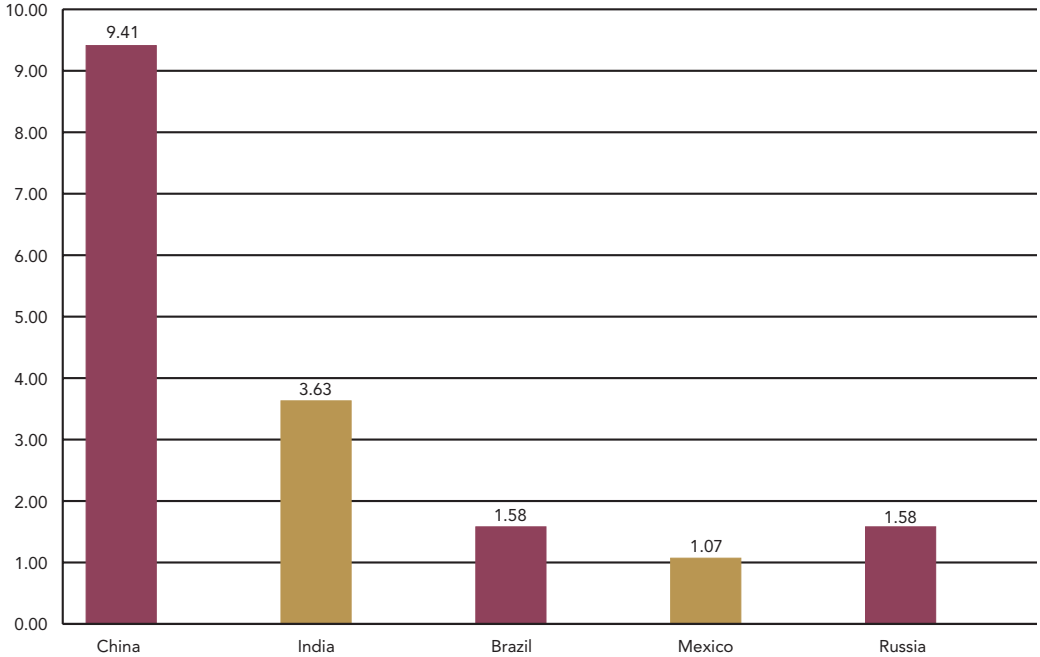

Figure 2-3. GDP at PPP in trillions of U.S. dollars (Euromonitor International, 2006)

The total primary energy consumption data reported in Figure 2-4 includes the consumption of petroleum, dry natural gas, coal, net hydroelectric, nuclear, geothermal, solar, wind, and waste electric power.

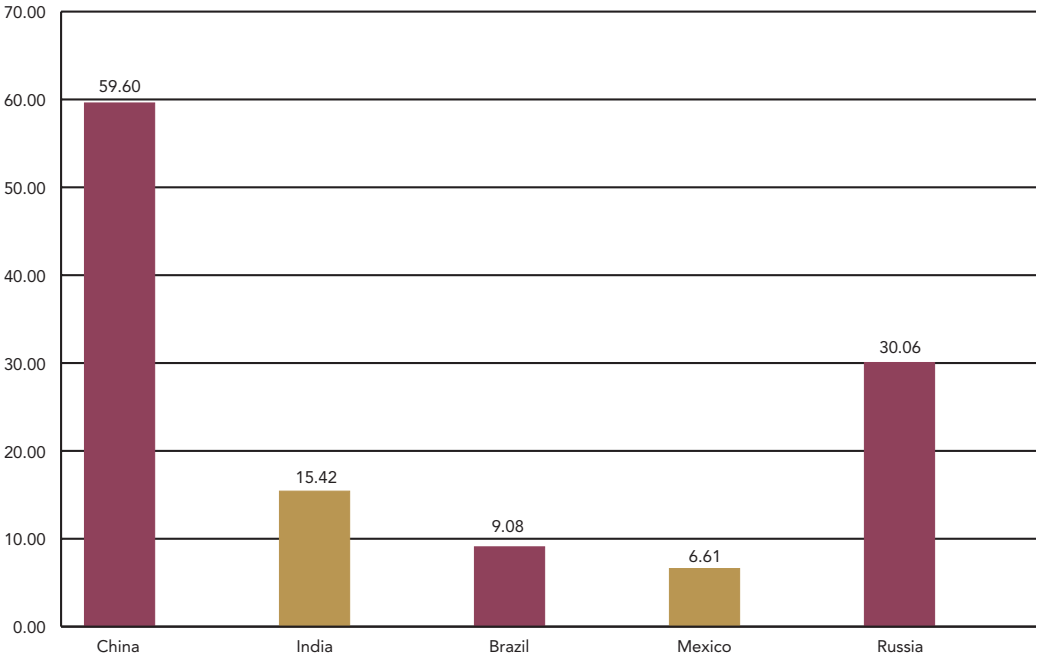

Figure 2-4. 2004 Primary energy consumption in quadrillions of BTUs (U.S. Energy Information Administration, 2004)

The world's total energy consumption in 2004 was 446.44 quadrillion British Thermal Units (BTUs) (U.S. Energy Information Administration, 2004). The total energy consumption of the U.S. for 2004 was 100.41 quadrillion BTUs. Of our five emerging markets, it is not surprising that China had the largest energy consumption at 59.57 quadrillion BTUs. Perhaps more surprising was that Russia, with its relatively small population, had an annual consumption rate of 30.06 quadrillion BTUs, while India's energy consumption was about half of Russia's at 15.42 quadrillion BTUs.

By all four of these measures, China is clearly the largest potential market. By three of the four measures, India is the second largest potential market. By all four measures, Mexico has the smallest market potential.

Market Growth Rate

While market size at present is important, when looking towards the future, growth becomes increasingly important. Growth rates of these markets will be estimated using the following variables: population growth rate, urban population growth rate, energy consumption growth rate, and real GDP growth rate.

When we take into consideration the population growth rate (see Figure 2-5), the population picture takes on additional importance. India's population growth rate is currently nearly 1.4%, while China's is under 0.6%. Assuming that the population rates of both

India and China remain about the same, India's population will be larger than China's by 2025.

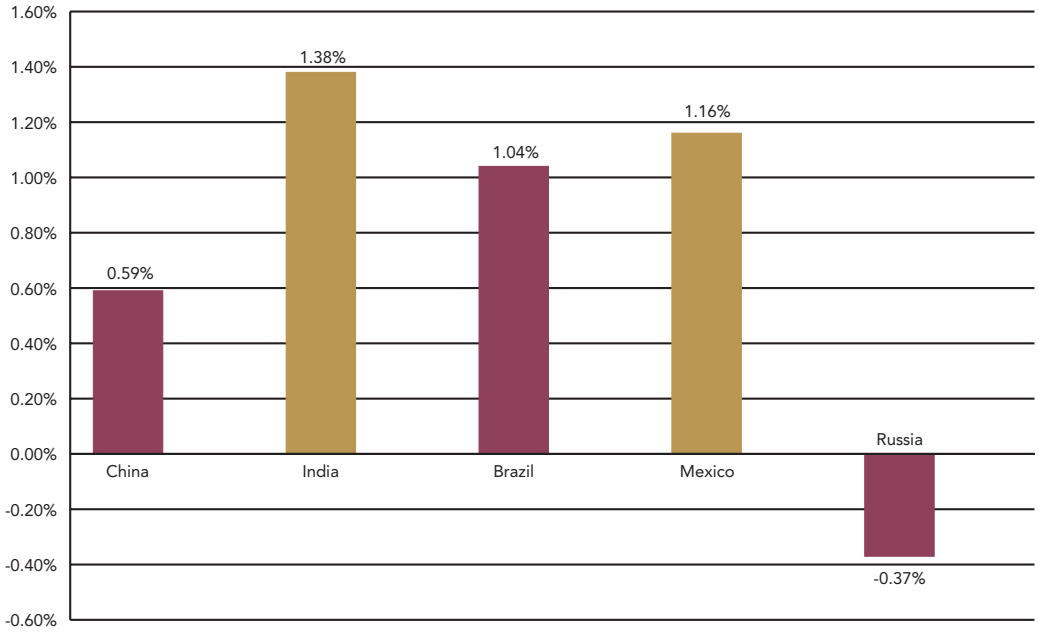

Figure 2-5. Current annual population growth rate (Euromonitor International, 2006)

Figure 2-6 provides a view of the different rates of flow of people from rural to urban areas in each of the countries. First we will look at China and India's populations. China not only has a much higher urban population than India, but its urban population is also increasing at a much faster rate. Over the last five years, China's urban population has increased by 22%, while India's increased by only 12.5%. Brazil and Mexico's urban population growth was in the 10% range, while Russia's urban population mirrored the trend for the entire country's population and decreased.

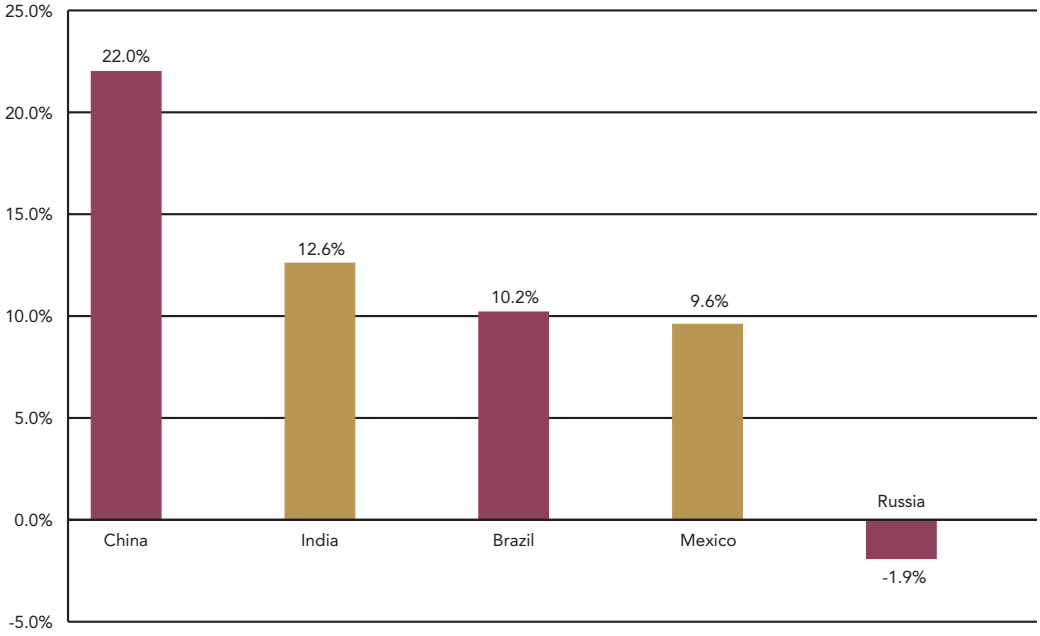

Figure 2-6. Five-year urban growth rate (Euromonitor International, 2006)

Figure 2-7 provides information on the real GDP growth rate. Three of these countries have GDP growth rates higher than the worldwide average of 3.2%. China's GDP growth rate has been within the range of 8 to 10% for each of the last five years, and the country's current policy attempts to maintain a growth rate below 10%. India's GDP growth rate in 2005 was 8.3%, but this growth rate has fluctuated between 4.1% and 8.3% over the past five years. Russia had a growth rate of 6.4% in 2005, but, similarly to India, Russia's growth rate has fluctuated between 4.7% and 10.0% over the last five years.

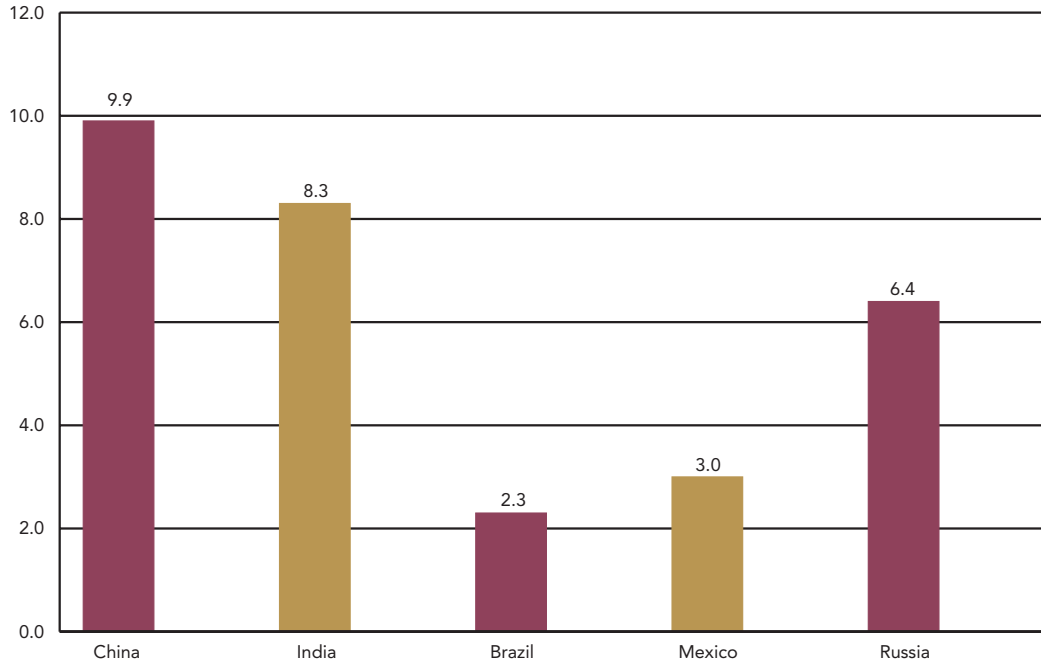

Figure 2-7. Real GDP growth rate (Euromonitor International, 2006)

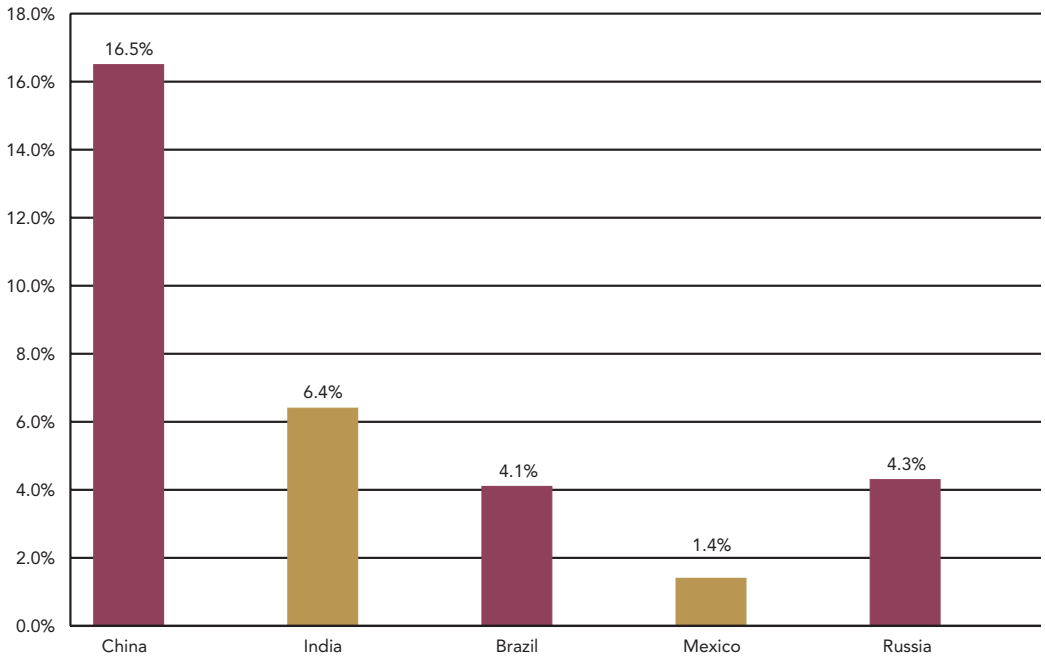

Figure 2-8. Growth in primary energy consumption between 2000 and 2004 (U.S. Energy Information Administration, 2004)

Figure 2-8 provides a picture of the growth of these five markets during the four-year period from 2000 to 2004. China had a 53.5% increase in energy consumption between 2000 and 2004, and India's energy consumption growth rate was 13.7%. The average growth rate in energy consumption of the world between 2000 and 2004 was 11.7%, while the U.S. energy growth rate was just 1.5%.

Not only is China the largest market, but it is also growing at the most robust pace. India is also growing at a solid pace.

Market Intensity of the Population

Market intensity will be measured by gross national income per capita (using purchasing power parity in U.S. dollars) and private consumption as a percentage of GDP. A higher market intensity index indicates a greater appetite for and a greater ability to acquire high-value products.

The information in Figure 2-9 provides insight into the relative income per capita in each of these five countries. Mexico clearly has the highest per capita income, while India has the lowest.

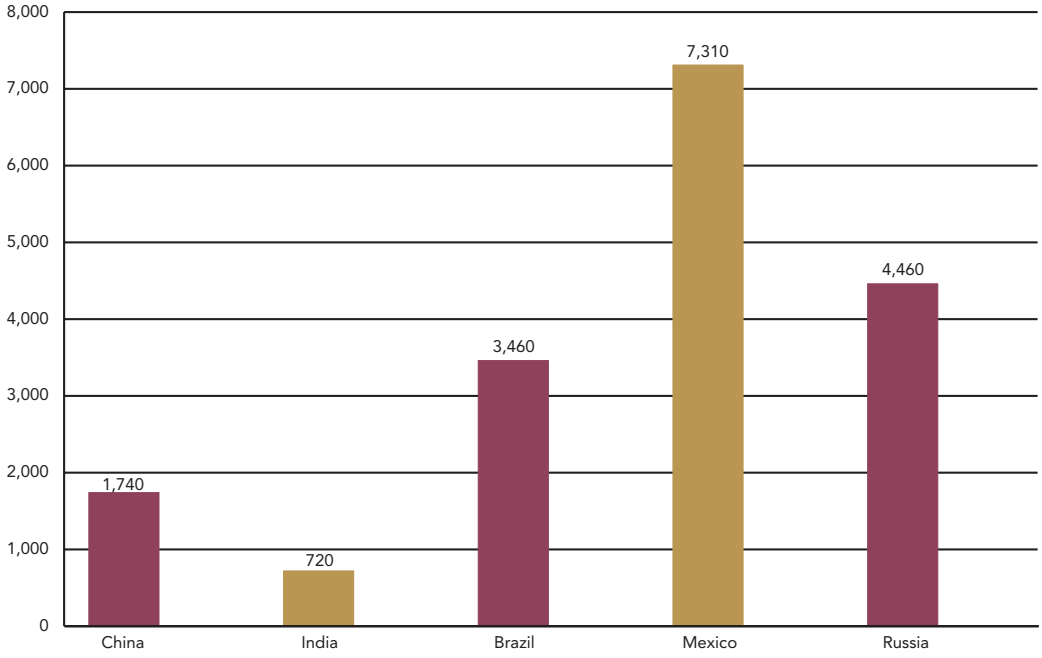

Figure 2-9. GNI per capita at PPP in U.S. dollars (World Bank Group, 2006b)

In Figure 2-10, we examine what percentage of each country's GDP is privately consumed. In Brazil and Mexico, private consumption represents over 60% of GDP. China, a communist country, and Russia, a former communist country, both have lower percentages of private consumption. Most noteworthy is the low percentage of private expenditure in China (33%).

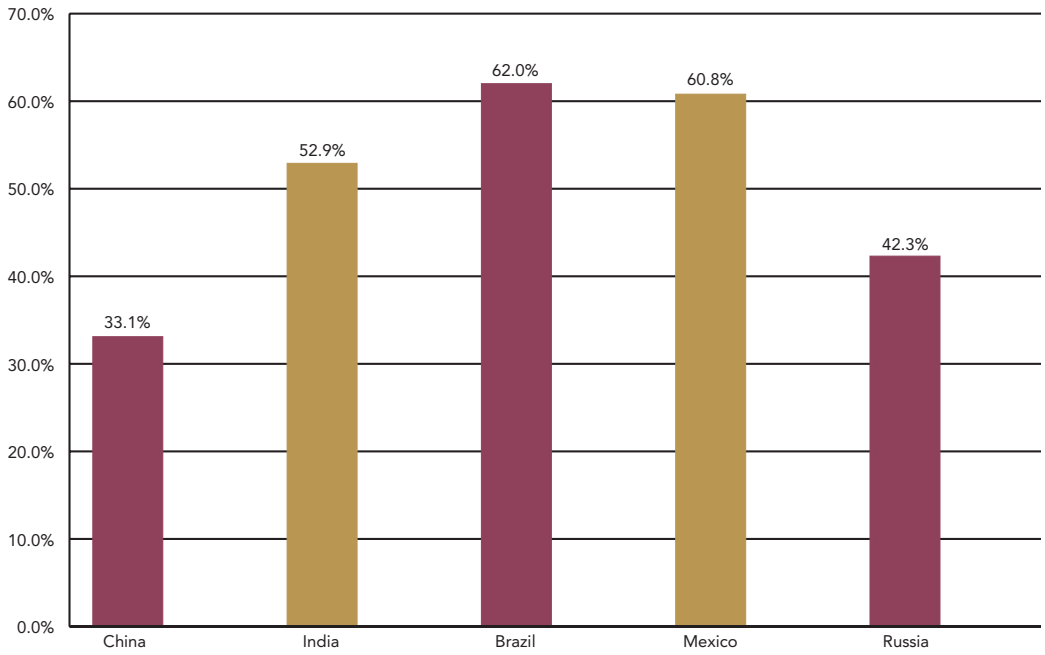

Figure 2-10. Private consumption as a percentage of GDP (World Bank Group, 2006b)

Commercial Infrastructure Development

Commercial infrastructure development provides a significant insight into the readiness for a country to move forward economically. In gaining an insight into infrastructure, the following variables will be examined: telephone (main lines and cellular), PC penetration, Internet access, Internet hosts, density of paved roads, and color television sets.

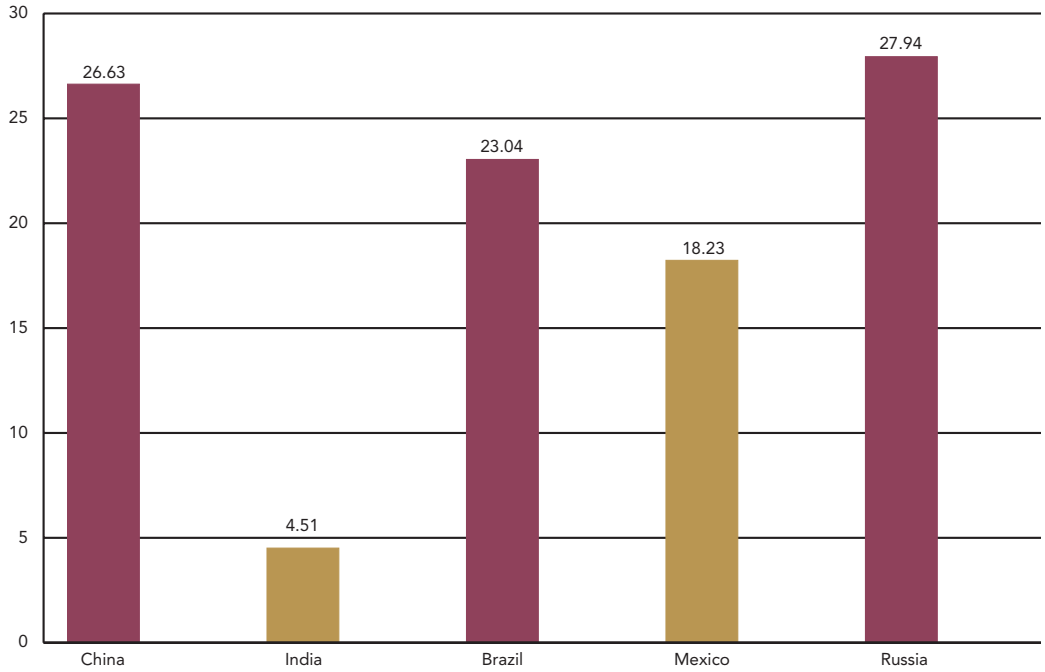

Figure 2-11. Telephone mainlines per 100 habitants (International Telecommunications Union, 2005)

Figures 2-11 and 2-12 provide information on the degree of telecommunications penetration that each of these countries have achieved. Of significant interest is the fact that the use of cellular communication is higher than mainline penetration in all five countries. Clearly, the least well connected for both technologies is India, with an average of one in ten individuals connected. Russia has the highest telecommunications penetration, followed by Brazil and Mexico.

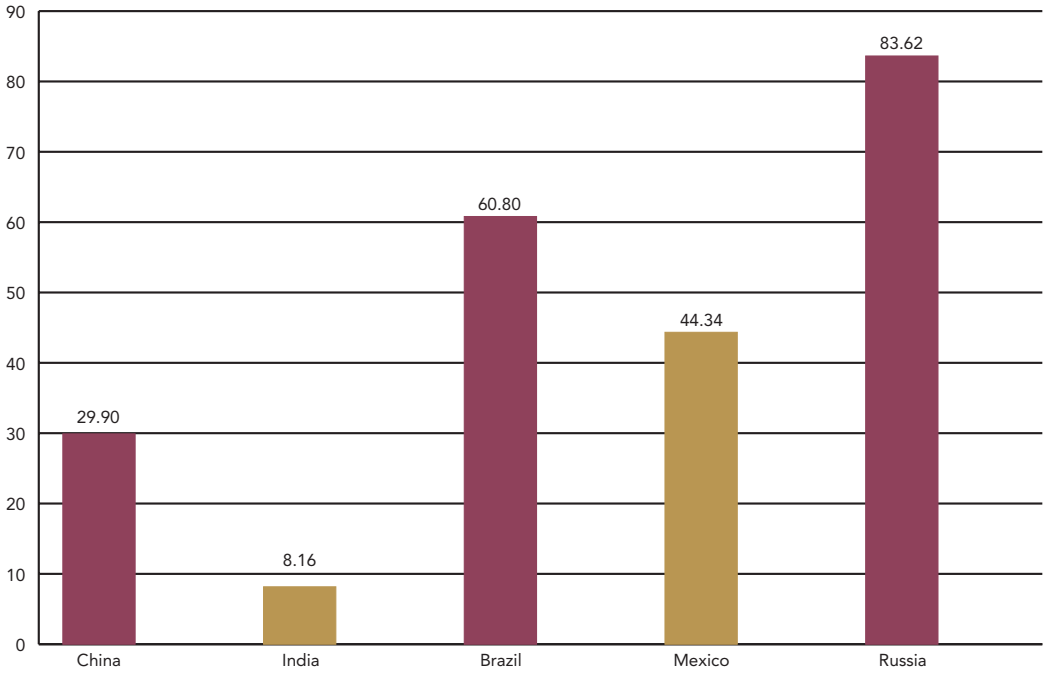

Figure 2-12. Cellular mobile subscribers per 100 habitants (International Telecommunications Union, 2005)

Internet Usage and PC Penetration

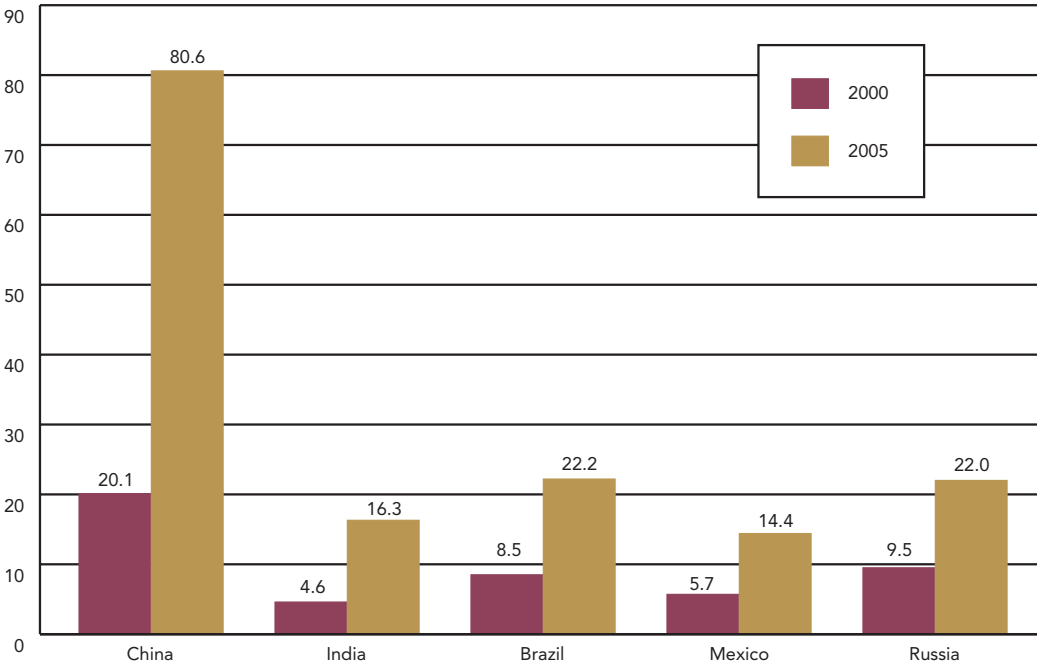

Figure 2-13. PC use in millions of users (Euromonitor International, 2006)

As can be seen in Figure 2-13, access to personal computers has increased by 400% over the last five years in China. Access has at least doubled or tripled in the other four countries. As a comparison, PC use in the U.S. was 161 million in 2000 and 198 million in 2005 – a growth rate of only 22.98%.

Even with this significant increase in the last five years, the overall penetration of PCs per capita in these emerging markets is still relatively low. Figure 2-14 reveals that 15.5% of Russia's population has a PC, while only 1.5% of India's population has a PC. In comparison, 66% of the U.S. population owns a PC.

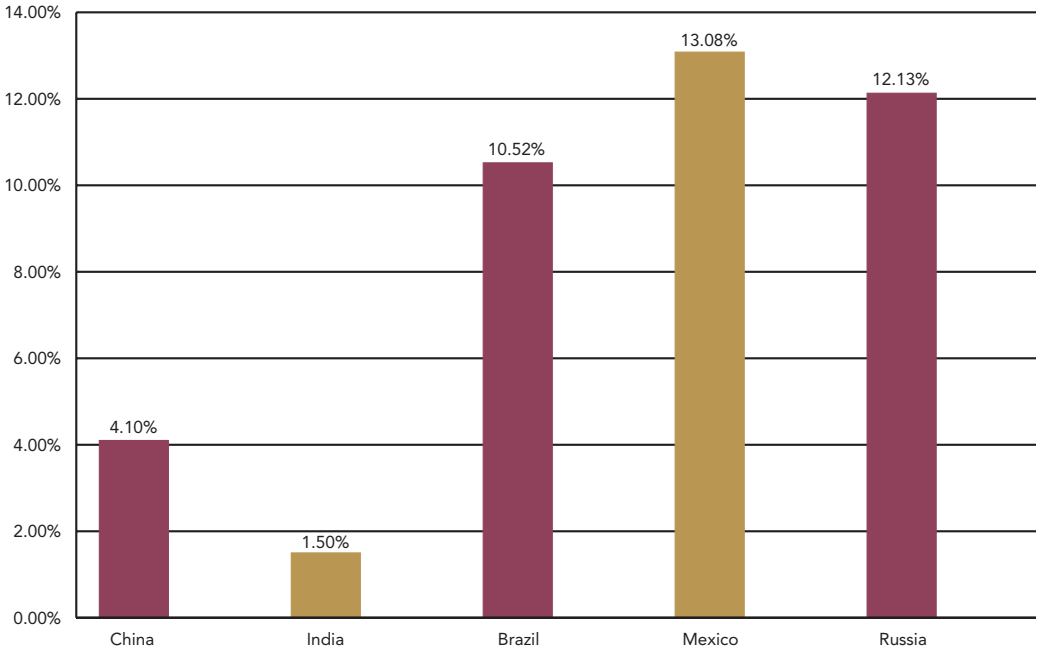

Figure 2-14. Percentage of the population with PCs in 2005
(International Telecommunications Union, 2005)

Figure 2-15 contains information on the percentage of the population in each country that uses the Internet. With the availability of Internet cafés and school web access, Internet usage in emerging markets is higher than the availability of PCs represented in Figure 2-14. In the U.S., 59% of the population uses the Internet.

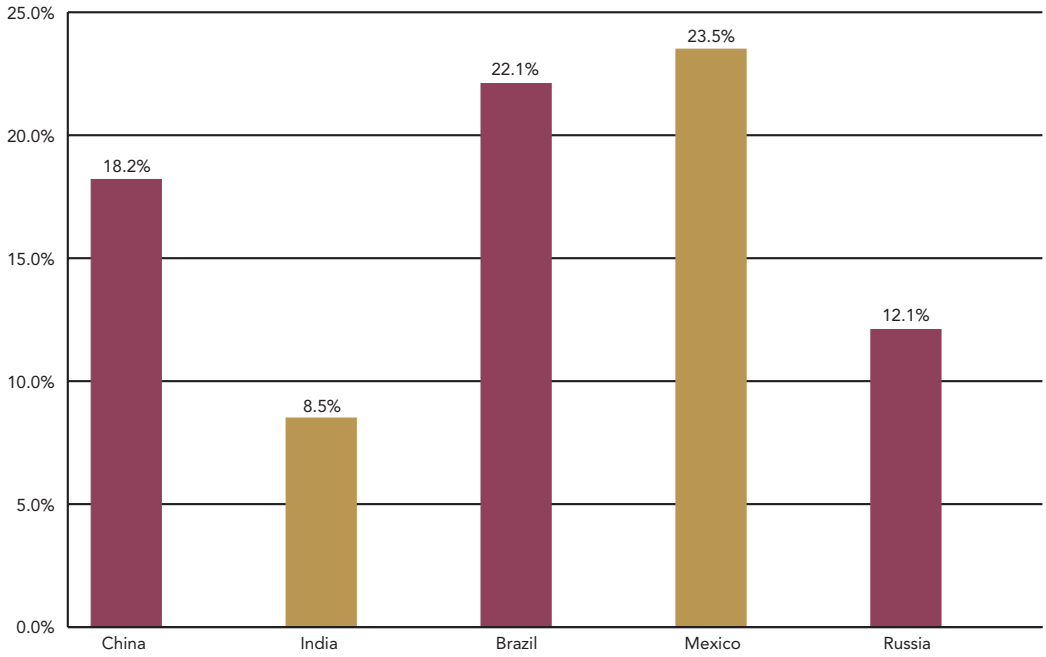

Figure 2-15. Internet users as percent of population (Euromonitor International, 2006)

Figure 2-16 provides data on the number of Internet hosts per million people in each of these countries. Unrestricted data access and sufficient network infrastructure to host web sites are important contributors to a country's ability to conduct business. China and India both have extremely controlled hosting, with only 125 and 133 Internet hosts per million people respectively. The remaining countries have thousands of Internet hosts per million people: 5,937 in Russia, 14,517 in Mexico, and 18,953 in Brazil.

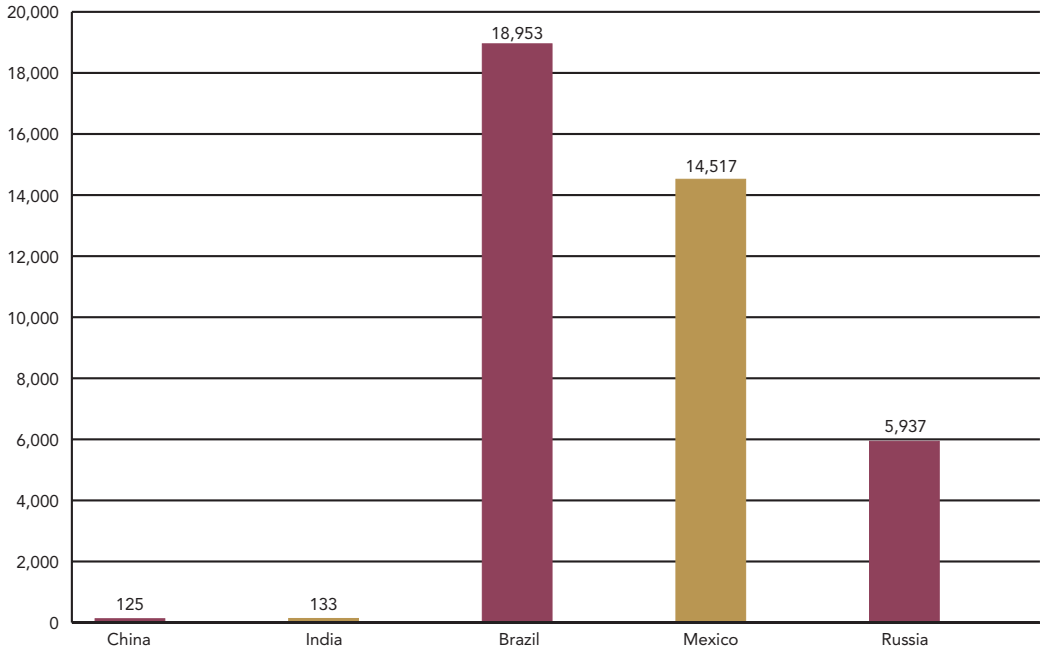

Figure 2-16. Number of Internet hosts per million people (International Telecommunications Union, 2005)

Another challenge in developing economies is the ability to reach people via television. Figure 2-17 provides this data, including both color and black & white televisions. All five countries have good television penetration rates, although India and China are lower with approximately 77% and 84% respectively. Black & white televisions make up a significant portion of household television in India (41%), China (37%), and Russia (17%).

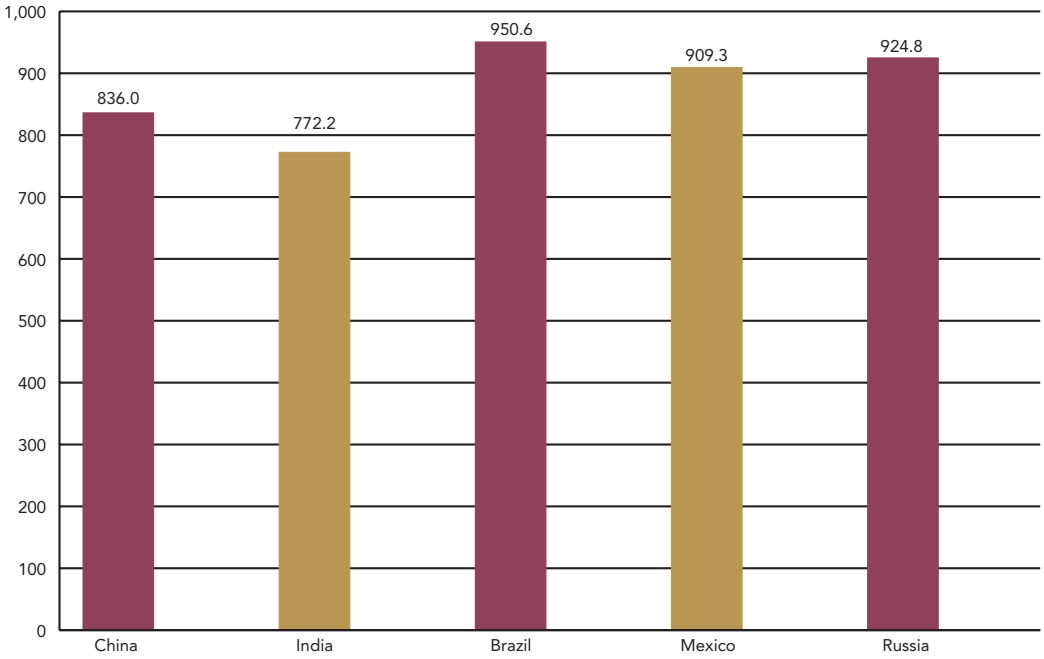

Figure 2-17. Possession of television set per 1,000 households (World Bank Group, 2006b)

Market Receptivity to U.S. and Total Trade

A country's market is receptive if it readily purchases goods and services from other countries. Of course, the predisposition to trade with other countries is influenced by many factors, including, but not limited to: geographic distance, cultural distance, language, and natural resources. Relative receptivity will be evaluated using total imports that the country receives from the U.S., per capita imports from the U.S., and trade as a percentage of GDP.

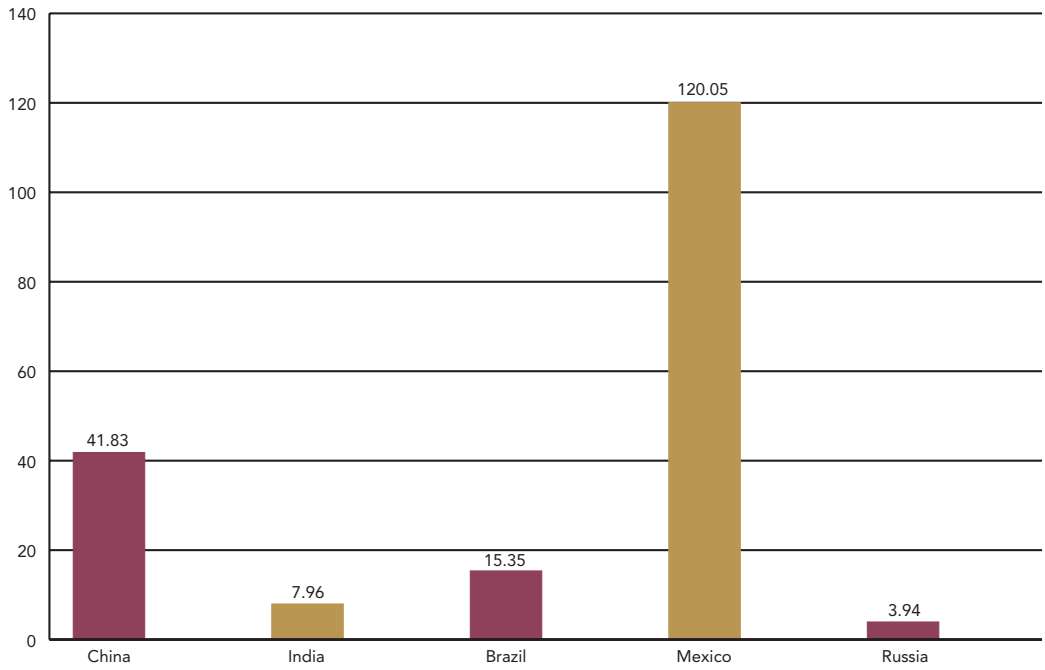

Figure 2-18. Imports from the U.S. in billions of U.S. dollars
(U.S. Census Bureau Foreign Trade Division, 2005)

In Figure 2-18, we see that Mexico purchases more total imports from the U.S. than any of the other countries. The per capita U.S. import consumption in Mexico is over 13 times higher than the next highest country, Brazil (see Figure 2-19). This is not surprising given the NAFTA agreement. When we examine the other four countries, China becomes the second most important importer from the U.S.

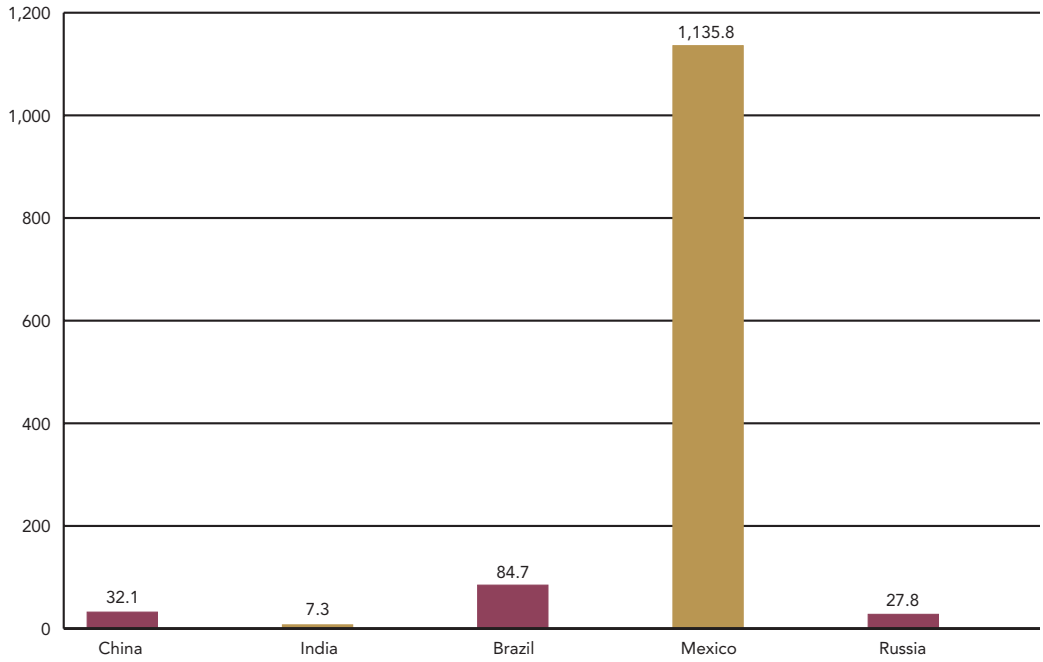

Figure 2-19. Per capita imports from the U.S. in U.S. dollars
(U.S. Census Bureau Foreign Trade Division, 2005)

Figure 2-20 shows that both China and Russia have over one-third of their GDP being exported. With China, much of this is in the form of goods sold in many markets around the world. With Russia, a major portion of these exports are energy sales to Western Europe. India had the lowest percentage of GDP exported.

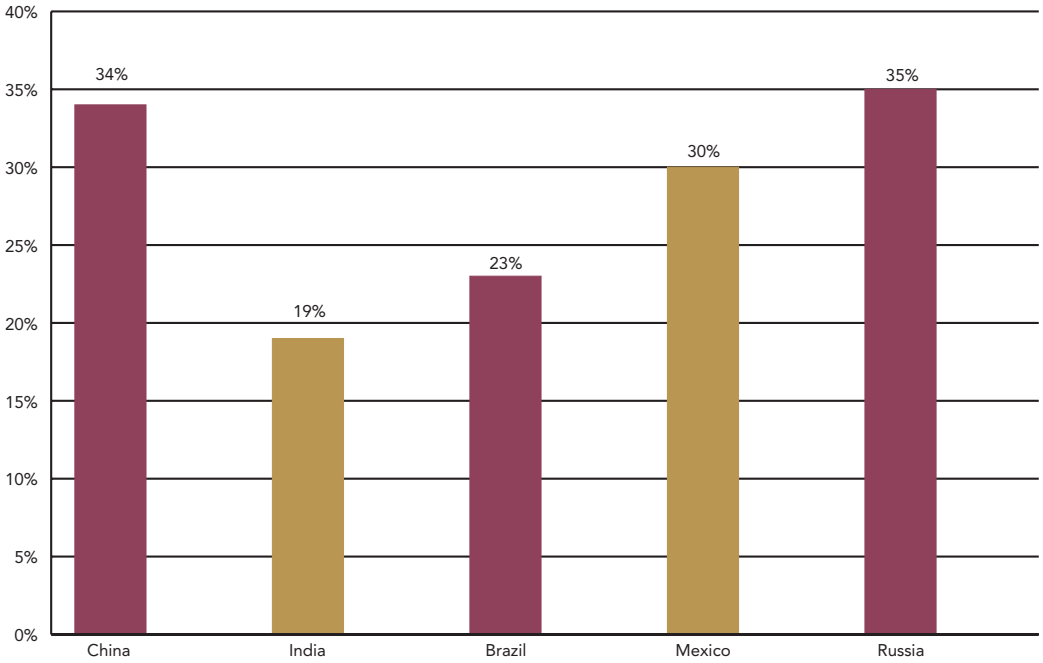

Figure 2-20. Total trade as a percentage of GDP (World Bank Group, 2006b)

Freedom, Opacity, and Risk

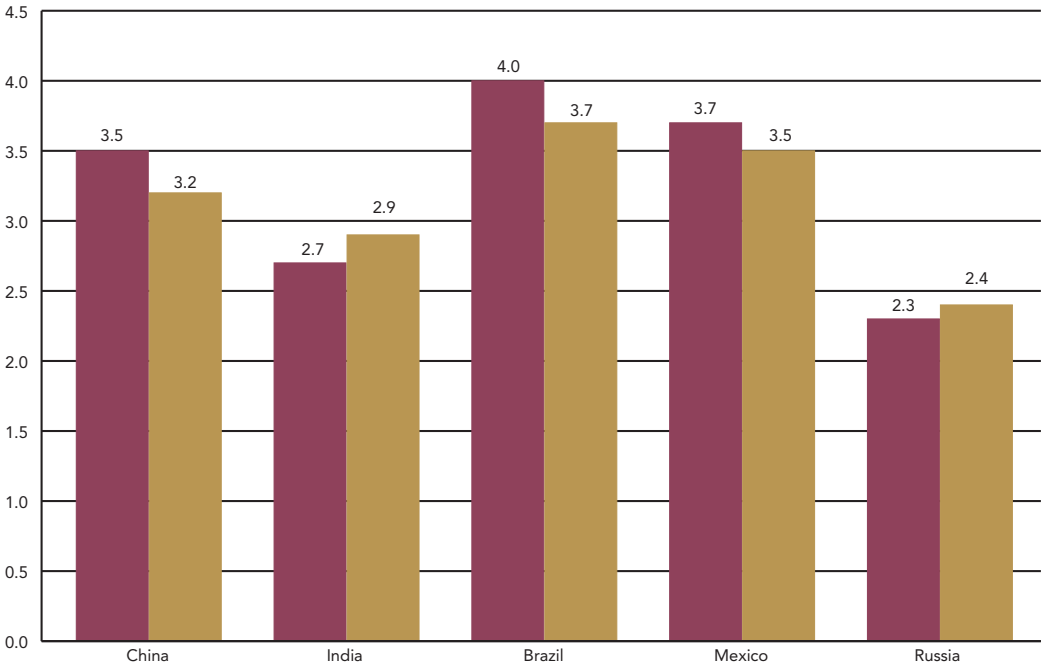

Figure 2-21. Corruption Perception Index rankings from 2001 to 2005 (Transparency International, 2006)

Data has been scaled to show less perceived corruption where numbers are higher. A ranking of 10 is equal to no perceived corruption, while a ranking of 0 is equal to extreme perceived corruption.

Figure 2-21 provides comparative perceived corruption data for the five countries being analyzed. Russia and India have the most perceived corruption, although both of these countries have improved slightly over the last five years. Brazil and Mexico have slightly less perceived corruption than the other three countries. However, all five countries are perceived as having a relatively high level of corruption. In comparison, the U.S. had a corruption index of 7.6 in both 2001 and 2005.

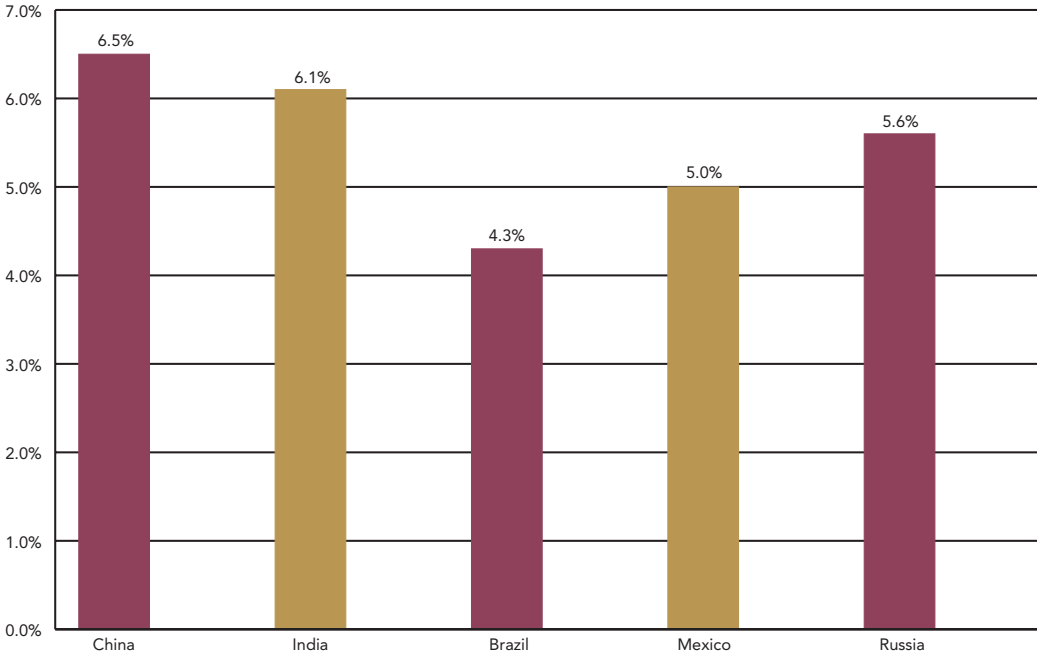

Figure 2-22. Interest opacity premium needed to do business, 2004 (Kurtzman Group, 2004)

Figure 2-22 contains information on how much of a return premium would be needed in order to approve investments in each country in order to adjust for corruption and other country-specific risks as compared to the U.S. As an example, if an investment in the U.S. would be approved if it had 15% rate of return, it would need to have a 21.5% rate of return for approval in China, since China's opacity premium is 6.5%. Brazil has the lowest premium percentage at 4.3%, while China has the highest. Since these percentages are all compared to U.S. investments, the U.S. premium percentage is 0.0%.

Perceived Ease of Doing Business

Figures 2-23, 2-24, 2-25, and 2-26 are all drawn from data provided by the International Finance Corporation. Figure 2-23 is rank order data on how difficult it is to do business within a country. Not surprisingly, due to the NAFTA agreement, the easiest country in which to do business is Mexico, which ranks 73rd out of the 155 countries evaluated. Brazil and India were ranked as the most difficult (ranked 119 and 116 respectively). For comparison purposes, the U.S. ranked 3rd for the overall ease of doing business. This overall evaluation of the ease of doing business takes into consideration a number of dimensions, several of which are discussed below.

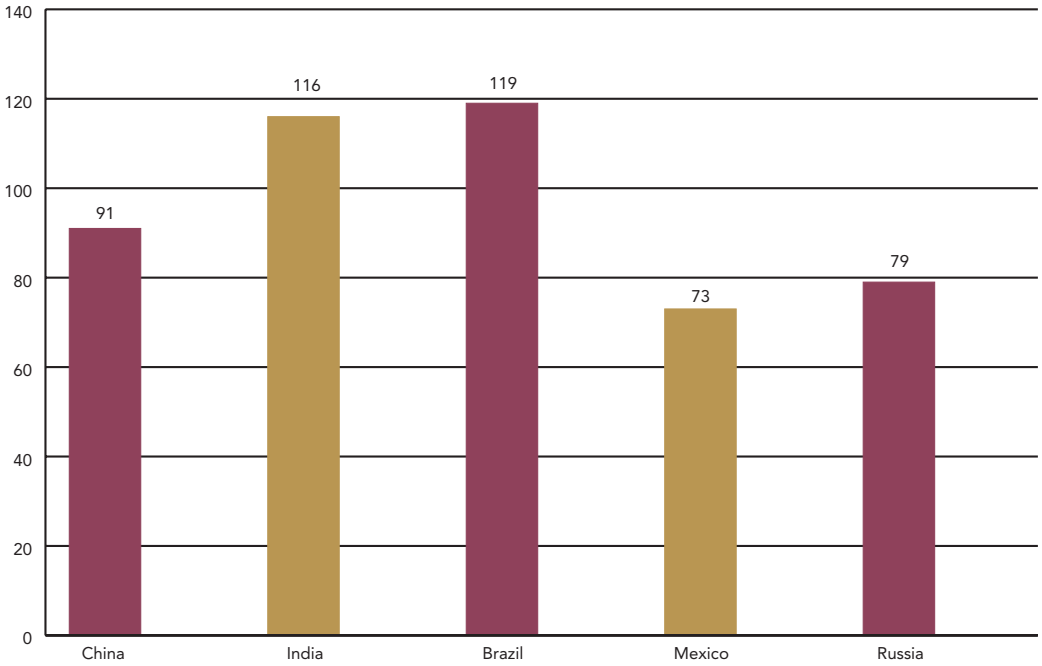

Figure 2-23. Ease of doing business rankings, 2005 (World Bank Group, 2006a)

Higher ranking indicates greater difficulty of doing business.

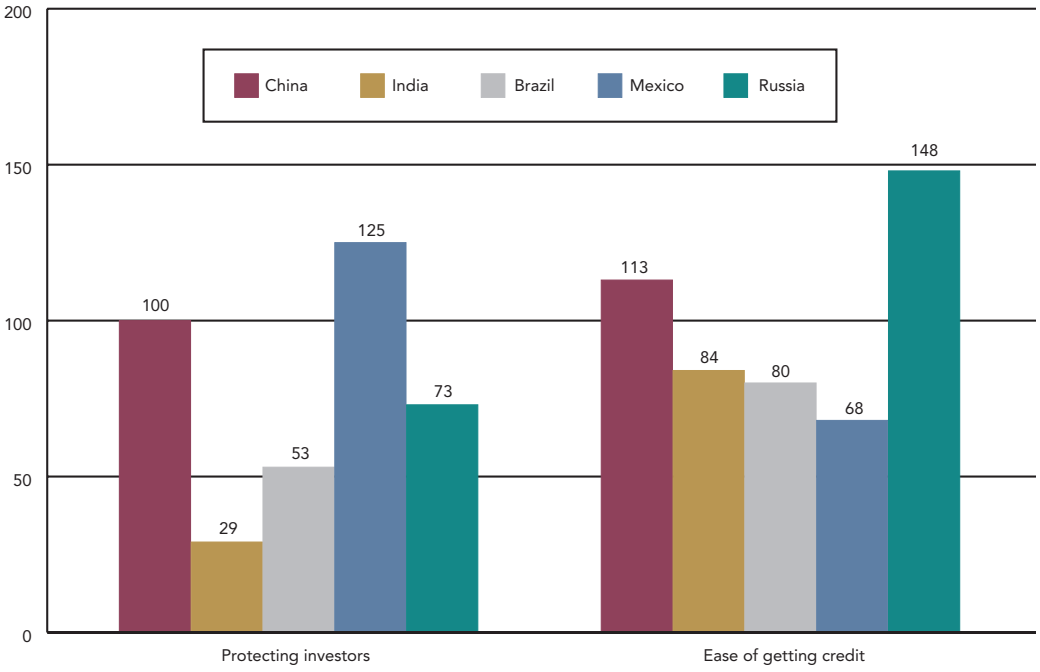

Figure 2-24. Protecting investors and ease of getting credit (World Bank Group, 2006a)

Higher ranking data indicates greater difficulty of doing business.

Figure 2-24 contains ranking data on investment protection and obtaining credit. In terms of protecting a firm's investments, India had the best ranking at 29, while Mexico (rank of 125) and China (rank of 100) had the weakest rankings. In terms of ease of

getting credit, Mexico had the best ranking at 68, while Russia was the most difficult with a ranking of 148.

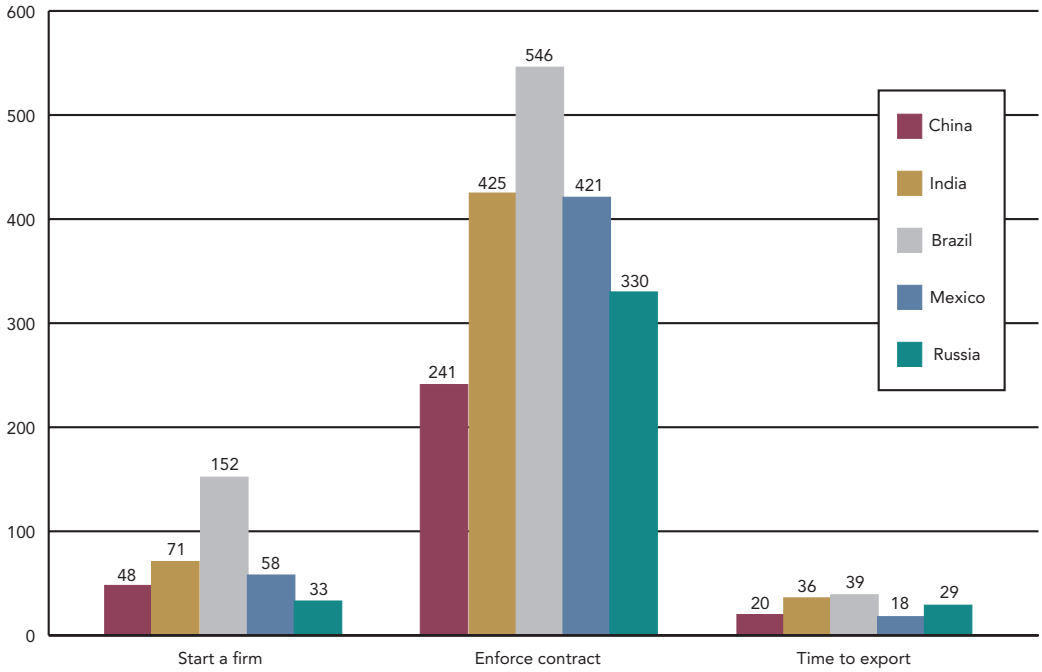

Figure 2-25. Days needed to complete business processes. (World Bank Group, 2006a)
Lower number of days preferred.

Figure 2-25 provides comparative data on the average number of days that it takes to complete selected business processes in each of the five countries. For all three processes, Brazil requires the longest time (152 days to start a business, 546 days to enforce a contract and 39 days to arrange for product export). Overall, China is one of the fastest on each of these dimensions. Russia (33 days) and China (48 days) have the lowest number of days needed to start a business. China has by far the lowest number of days to enforce a contract, with 241 days needed. Mexico (18 days) and China (20 days) have the lowest number of days to arrange for export. As a point of reference, the U.S. requires an average of five days to start a business, 250 days to enforce a contract, and 9 days to arrange for export of a product.

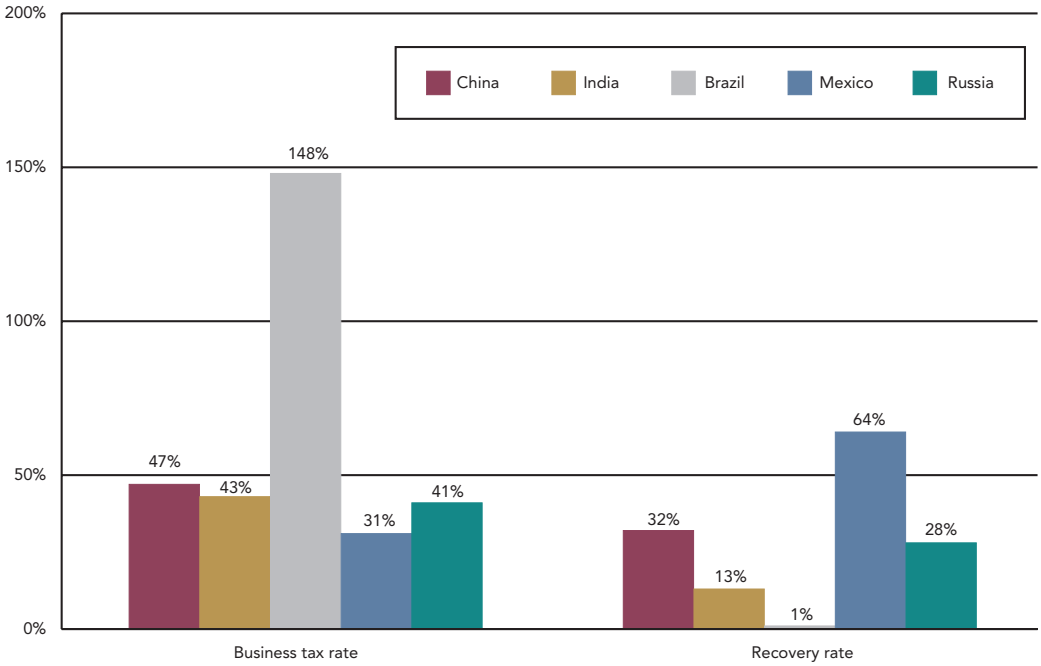

Figure 2-26. Business tax rates and closing recovery rates (World Bank Group, 2006a)

Lower tax rates and higher recovery rates benefit business.

Figure 2-26 includes data on average business tax rates (as a percentage of gross profit) and average recovery rates in the event of closing a business (as cents on the dollar). Brazil is clearly the least business-friendly on both of these dimensions. Brazil's average business tax rate is 148% of gross profit, paid to 23 different national and state taxing agencies. Brazil also has the weakest recovery rate in the event of closing a business, at less than one cent on the dollar.

Mexico has both the lowest tax rate (31.3%) and the highest recovery rate (64 cents on the dollar). China and India both have about the same average business tax level (at 47% and 43% respectively). However, China has a significantly higher recovery rate (32.5 cents on the dollar) than does India (12.8 cents on the dollar).

As a point of comparison, the U.S. has an average business tax of 21.5% of gross profits and an average recovery rate on business closings of 76.2 cents on the dollar.

Micro-Environmental Data Impacting the Printing Industry

Student Enrollment

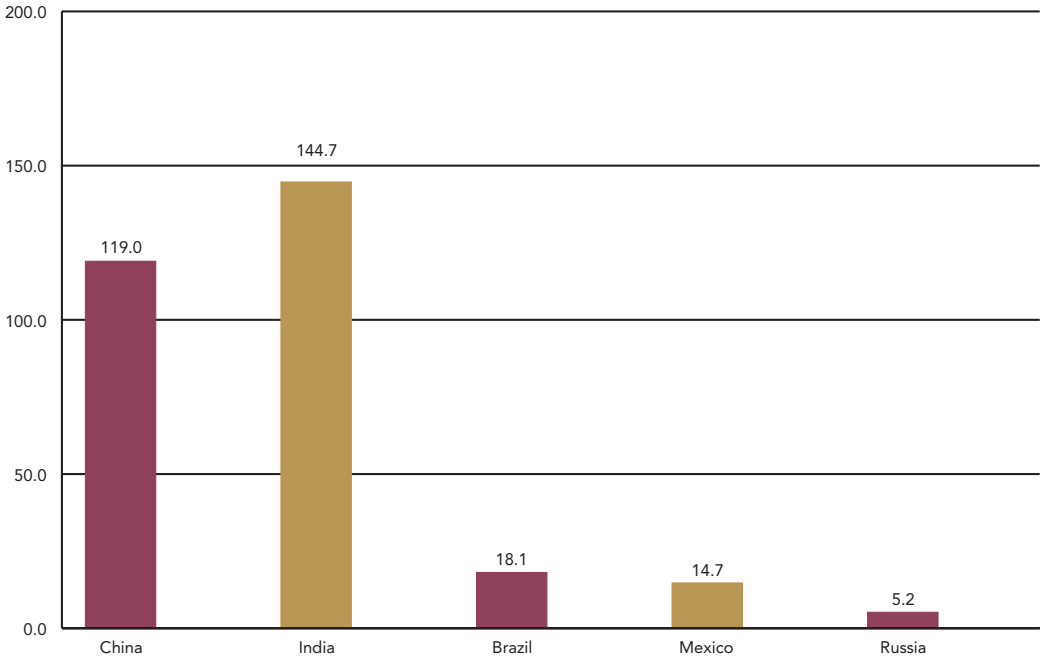

Figure 2-27. Number of primary students in 2005 - shown as millions of students (Euromonitor International, 2006)

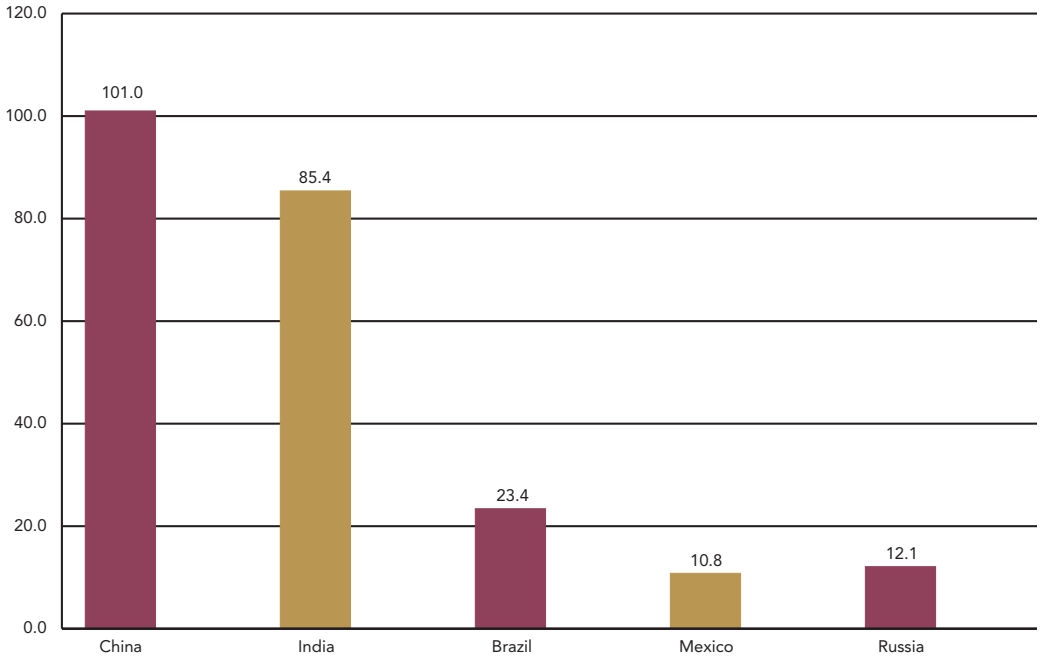

Figure 2-28. Secondary students in 2005 - shown as millions of students (Euromonitor International, 2006)

Students, whether they are at primary, secondary or university levels, require books and other instructional materials. Figure 2-27 indicates that India has the highest number of primary students. It is also useful to note that in India the number of primary students has grown by 27% over the last five years. In contrast, all of the other countries have a contracting number of primary students during the same time period.

Figure 2-28 provides data on the secondary student population levels in each country. Four of these countries had increasing numbers of secondary school students over the past five years, ranging from a low growth rate of 10% in Brazil to a growth rate of almost 25% in China. The one exception to this growth is a 19% decrease in Russian student enrollment, which is particularly noteworthy. This is consistent with the dropping Russian population and low birth rates.

Newspaper and Magazine Consumption

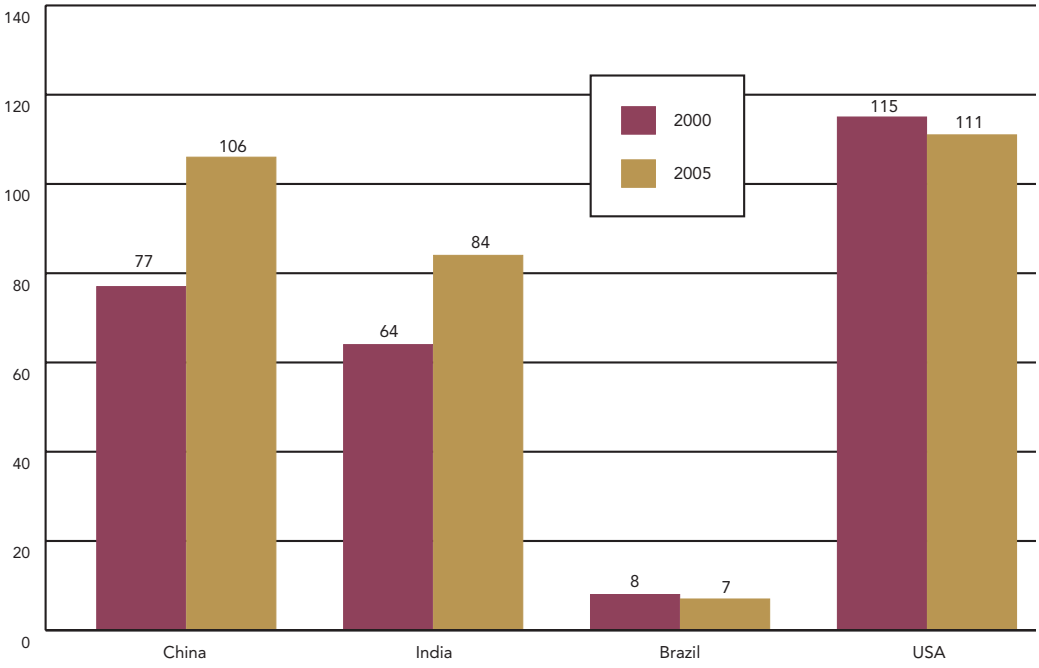

Figure 2-29. Daily newspaper circulation in millions of subscribers (Euromonitor International, 2006)

Reliable data on Mexico and Russia was unable to be found.

Figures 2-29 and 2-30 provide two different views of printing as it relates to newspaper circulation. While reliable data was not found for either Mexico or Russia, a couple of observations are noteworthy. In both China and India, daily newspaper circulation has increased significantly between 2000 and 2005. In China, the circulation has increased from 77 million to 106 million (a 37.7% increase). In India, the increase was from 64 to 84 million (a 31.2% increase).

Figure 2-30 provides a slightly different picture of this circulation. It takes into consideration the population increase as well as the circulation increase. To obtain this calcu-

lation, we took the daily newspaper circulation, multiplied it by 365 (days per year), and divided by the population size. This gave us an estimate of the average number of newspapers read per year per capita. This calculation has some weaknesses, since young children do not normally read newspapers and one newspaper may be read by several people, but it does provide us with an insight into the general trends. Here again we see very similar patterns for China and India. In China, the average person read 26.6 newspapers in 2000 and 32.9 in 2005. In India, the average person read 26.5 newspapers in 2000 and 31.8 in 2005.

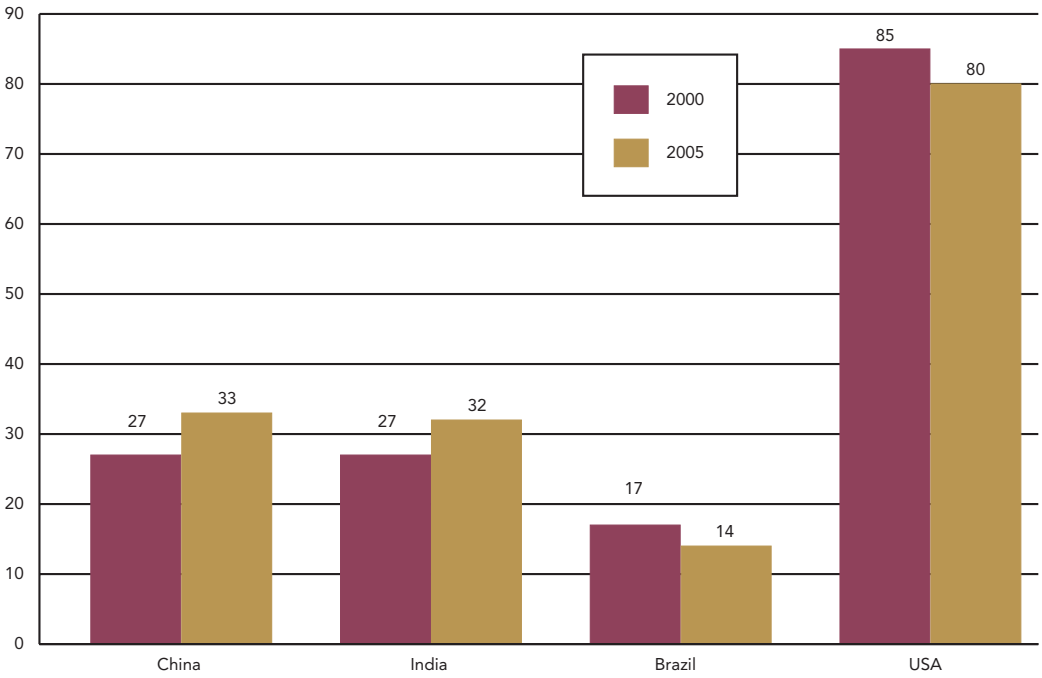

Figure 2-30. Annual number of newspapers consumed per capita (Euromonitor International, 2006)

Reliable data about Mexico and Russia was unable to be found.

The newspaper readership trends seen in China and India are not typical of what is being observed in many developed and emerging countries. Figure 2-29 shows circulation decreases in both Brazil and the U.S. Figure 2-30 shows these decreases on a per capita basis. Newspaper readership is dropping in developed economies such as the U.S., the U.K., Germany, and other members of the European Union. Readership is also dropping in Brazil, Poland, and other Central and Eastern Europe markets.

The World Association of Newspapers (2007) indicates that global newspaper sales were up 2.3% over the past year, with a total increase of 9.48% over the past five years. Most of the sales growth is in Asia. When free dailies are added to the paid newspaper circulation, global circulation increased 7.8% over the past five years. Free dailies now account for 6% of all global newspaper circulation, and 17% in Europe alone. Free dailies were not included in the data reported in Figures 2-29 and 2-30.

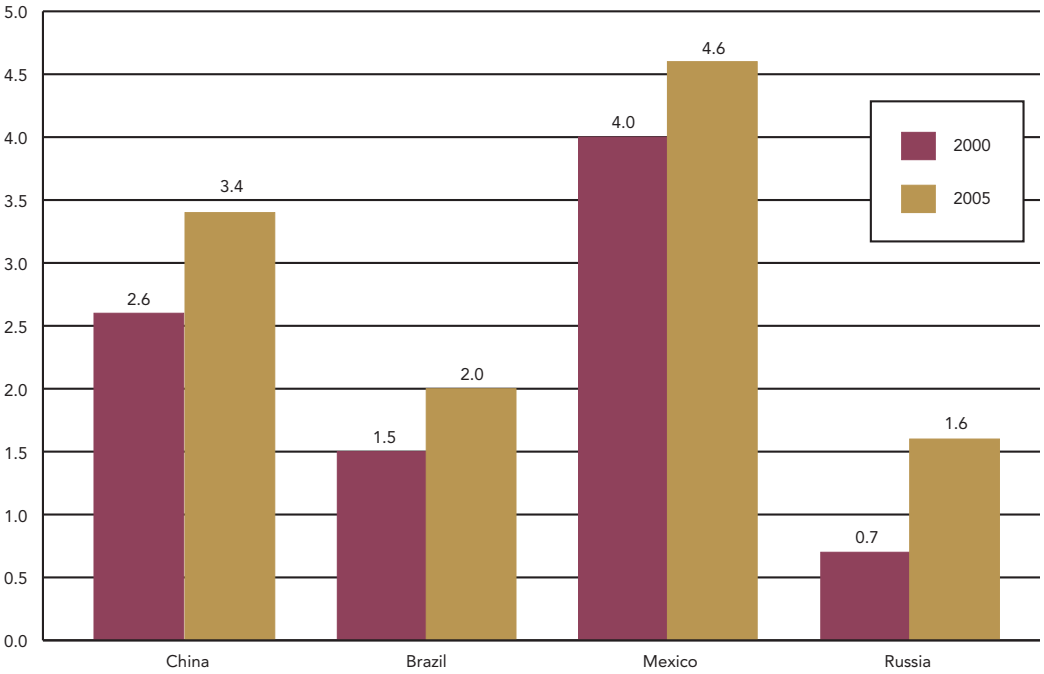

Figure 2-31. Consumer expenditure on newspapers, books, magazines, and stationery in billions of U.S. dollars (Euromonitor International, 2006)

Reliable data about India was unable to be found.

Figure 2-31 provides data on each country's total expenditure on newspapers, books, magazines and stationery in billions of U.S. dollars (except for India, where data was not available). In every case, there has been a significant increase between 2000 and 2005. Most notable is the increase in Russia, where purchases have more than doubled, although the country's total expenditure is still less than the other three.

Segment Printing Performance

Table 2-1. Brazil industrial segment sales in billions of U.S. dollars (U.S. Commercial Service, 2005)

Industrial Segment	2003	2004
Publishing	1.14	1.35
Packaging	0.92	1.15
Business Forms	0.75	0.92
Office and School Supplies	0.46	0.60
Advertising Printing	0.49	0.58
Calendars & Letterhead	0.25	0.30
Prepress	0.14	0.15
Miscellaneous/Other	0.38	0.45

Table 2-1 provides printing information for Brazil. Unfortunately, this type of data was not available for the other countries of interest. The real problem is the lack of a common definition of segments by both the industry and by government agencies. For

example, in some countries the packaging associated with products can be lost when it is combined with the cost of the product. In other countries, these package printing costs are captured and reported separately.

Relationship of Printing to GDP

Summary data about printing in each country is not available in a uniform format. However, the research team did find summary data available about printing in Brazil through the U.S. Commercial Service (2005). Table 2-2 includes this information, along with information about the changes in GDP from 2000 through 2004.

Keep in mind that 2001 and 2002 were turbulent years for the Brazilian economy. There was a nearly 25% drop in GDP over those two years. There was also a similar pattern of variation (although with larger variances) in total printing sales. Of most interest is the ratio of printing sales to GDP. This ratio ranged from a high of 1.11% to a low of 0.89% during the years surveyed.

Table 2-2. Printing sales growth compared to GDP in Brazil
(U.S. Commercial Service, 2005)

Industrial Segment	2000	2001	2002	2003	2004
GDP (billions of U.S. dollars)	602	510	459	507	599
GDP growth (%)	--	-15.3%	-10.0%	10.5%	18.1%
Printing sales (billions of U.S. dollars)	6.72	5.28	4.42	4.53	5.50
Printing sales growth (%)	--	-21.4%	-16.3%	2.5%	21.4%
Printing sales as a percentage of GDP	1.11%	1.04%	0.96%	0.89%	0.92%

During the early years of the twenty-first century, total printing sales data for the U.S. reveal that sales across all segments represented between 1.79% to 1.82% of U.S. GDP (as reported by the Printing and Graphic Arts Directory, C. Barnes & Co., and Compass Capital Partners). All three of these companies indicated rather stable printing sales to GDP ratios, although C. Barnes & Co. argue that this tight relationship may be diverging.

Using a Datamonitor report on the commercial printing industry (2004) provides us with information on the size of the printing industry worldwide. Datamonitor defines the global commercial printing industry as having five major segments, which are shown in Table 2-3.

Table 2-3. Worldwide printing industry segments and size - shown as share of the market (Datamonitor, 2004)

Segment	Share
General Commercial Printing*	47.0%
Newspaper Printing	29.7%
Book Printing	7.4%
Magazine Printing	4.9%
Other	11.1%

*General Commercial Printing includes catalogs, commercial magazines & journals, advertising

Packaging is not included in the Datamonitor report of printing. Looking at the ratio of worldwide printing sales in U.S. dollars (as defined by Datamonitor) to GDP (as reported by Euromonitor), we find the following:

Table 2-4. Ratio of worldwide printing sales to worldwide GDP in billions of U.S. dollars (Datamonitor, 2005a; Euromonitor International, 2006)

Year	Printing Sales*	WW GDP	% of GDP
2004	$362	$42,236	0.85%
2005	$369	$45,608	0.81%

*Without package printing

Forecasting the Future in Emerging Markets

Table 2-5. Overview of economic outlook in next one to three years (Adapted from *The Economist*, 2006)

China	Stable at high level (maybe slight contraction)
India	Stable or slight contraction, but still in the very healthy rate
Mexico	Tied to U.S. economy; stable to lower
Brazil	Low but steady
Russia	Downward pressure as Russia faces loss of political and economic freedoms

Table 2-5 draws upon the insights provided by the Economist as it relates to the economic and political outlooks for the five emerging markets of interest.

Economic-Political Outlook: China (Economist, 2006)

Political stability over the next few years will be a priority for the Chinese Government, as two major events are on the short-term horizon. In October of 2007, there will be the 17th meeting of the Chinese Communist Party. Then, in August of 2008, the Olympic

Games will be hosted by Beijing. This means that a great deal of infrastructure, environmental cleanup, and civil engineering work will be done in the Beijing region.

However, there has been very little countrywide attention to these issues. For example, some 70% of China's lakes and rivers are heavily polluted, largely because more than 80% of its sewage flows untreated into waterways.

China is tightening its economic policy. In November of 2006 the People's Bank of China raised its reserve requirement from 8.5% to 9.0%, thereby removing money from the economy. This is part of a national policy to slow GDP growth and cool off the economy. The Chinese government also wants to make the economy less tied to exports and foreign direct investment. To compensate, the government is encouraging domestic consumption.

Economic-Political Outlook: India (Economist, 2006)

The economy of India is very healthy, leading to political stability through leveled power structures. The visit of the Chinese Premier to India in November of 2006 is likely to facilitate increased trade between the two countries. Border disputes will likely continue between India and China, as well as between India and Pakistan.

On the economic side service exports continue to explode. The IT outsourcing boom has been well documented, although India is working to expand its value-added services by leveraging its population of more 400,000 technical professionals, which is growing at a rate of 20% per year. India also has a large number of English speaking professionals.

Perhaps the chief challenge to India is the need to distribute economic growth more evenly across all members of the population. Real GDP growth is strong and is likely to remain strong, but oil prices are important influencers of economic well-being.

Economic-Political Outlook: Mexico (Economist, 2006)

Mexico's recently inaugurated president, Felipe Calderon, is off to a weak start, considering the recent close election and his party's minority position in Congress. The disputed election is likely to have some continued tension, at least in the short-run.

This lack of strength is likely to inhibit significant steps towards global competitiveness and growth. Mexico is also tied heavily to the economic health of the U.S.

Economic-Political Outlook: Brazil (Economist, 2006)

Brazil's president, Luiz Inacio Lula da Silva, began a new four-year term on January 1st, 2007. His socialist policies are not likely to change substantially.

Domestic demand will drive modest economic growth. GDP is not likely to exceed 3.0%. The real interest rate will remain relatively high.

Economic-Political Outlook: Russia (Economist, 2006)

Political tension in Russia is likely to continue, but stability is not likely to be threatened. When Vladimir Putin steps down in 2008, rival factions of the Kremlin will complete for influence. There have been some recent high profile murders in Moscow and in other cities in Russia. Those murdered include journalists, which will likely contribute to the weakening of the free press. Russia also has disputes with Georgia and other former states as they try to change gas prices to these states and to Western Europe. The former states (i.e. Belarus) are fighting rate increases. Western economies are feeling the effects of this disruption in their supplies.

Although oil prices are providing support to the economy, the GDP growth will remain in the mid-6% range. Russia is likely to gain admission to the WTO by mid-year 2007, which will likely increase the level of FDI in the country.

Forecast of Likely Growth

Table 2-6 translates these Economic- Political Insights into estimates of the likely GDP growths over the next three years. Keep in mind that as the forecasts push farther into the future, the estimates may become less accurate.

Table 2-6. Forecasts of country's real GDP growth (Economist, 2006)

Country	2006	2007	2008	2009	2010
China	10.5%	9.5%	9.0%	8.3%	7.9%
India	8.7%	7.8%	7.6%	7.1%	7.0%
Mexico	4.7%	3.3%	3.4%	3.2%	3.2%
Brazil	2.9%	3.2%	3.6%	3.6%	3.6%
Russia	6.6%	5.8%	5.3%	4.6%	4.3%

Table 2-7 uses the values included in Table 2-6 to estimate the likely GDP levels from 2007 through 2010.

Table 2-7. Estimated GDP assuming no inflation (in billions of U.S. dollars)

Country	2006	2007	2008	2009	2010
China	2,517	2,760	3,000	3,250	3,510
India	871	939	1,010	1,080	1,160
Mexico	804	831	860	890	910
Brazil	819	845	880	910	940
Russia	814	862	910	950	990

By using the data in Table 2-7 and applying the percentages included in Table 2-6, it would be possible to estimate the total revenues of the printing industries in both China

and Brazil. Forecasts for India, Russia, and Mexico could also be made, but without the same degree of precision.

Table 2-8. Percentage of GDP created by printing

Country	Percentage Range
China	1.83% to 1.98%
Brazil	0.98% to 1.11%
U.S.	1.77% to 1.82%

Overall Priority for Printing in These Five Emerging Markets

Considering the estimated GDP for China in 2010 and the high percentage of printing as part of that GDP, we project the country's printing industry growth to be two to three times larger than India's, which is the second largest emerging market.

Global Edge creates estimates of the overall market potential of countries without focusing on any one specific industry. Their ranking of our five countries were in the following order for 2006 (MSU, 2006):

- China
- India
- Russia
- Mexico
- Brazil

This ranking is consistent with the projections we report in Table 2-7 from 2006 through 2010. Based on our analysis, we fully agree that China and India are the number one and number two markets for the printing industries. Our analysis puts Russia, Mexico, and Brazil in virtually a dead tie in terms of overall GDP and likely demand for printing.

Any specific printing firm or supplier can earn a healthy market share and profits in any of these countries. In the next chapter, we will focus on the similarities, differences, and challenges facing firms who plan to do business in each of these countries.

Chapter Three: Doing Business in These Emerging Markets

The Importance of Emerging Markets for Suppliers

"Without China, we would be out of business tomorrow." It was with these blunt words that an executive from one of the leading suppliers of manufacturing equipment to the printing industry expressed the importance of emerging markets to his company's bottom line. This statement has been echoed many times over the past few years by representatives of Printing Industry Center partner companies. Those in the business of selling machinery and/or materials to the printing industry know clearly that the mature and slowing markets in North America, Japan, and Western Europe do not present enough opportunity for revenue growth to keep their businesses healthy and growing.

Thus, companies are looking to the developing world for growth opportunities. The countries in this study are on everyone's top-ten list of the most important emerging markets. However, each of these countries presents a unique set of challenges to anyone who seeks to do business there. To complicate matters further, the printing industry is highly fragmented worldwide, and therefore difficult to define and measure. This is equally true for businesses serving the industry, and for researchers studying production printing trends. For example, in China the number of printing firms has been reported by various sources to be in the range of 90,000 to 100,000. The figures for India are of the same order of magnitude. But of these vast numbers, the great majority are small one-person or "no-employee" businesses that could easily be missed if you walked by them on the street. These include a large number of indigenous companies that serve extremely localized markets with simple commodity products and services.

In this regard, these countries are no different from the developed world, where a large number of small firms serve local markets with commodity products and services. For every country in this study, we have learned from our interviews with industry experts and business leaders that there are large numbers of these relatively undifferentiated small companies that compete mostly on the basis of price, and that deflationary pricing threatens to drive many out of business.

The equipment base serving indigenous businesses is largely ancient and long depreciated. In some cases, these small businesses are sustained by social networks that underlie long-standing commercial relationships, and are therefore relatively stable. However, with the rapid development of national economies, many of these small firms have been driven out of business by competitors who are able to acquire new equipment and offer higher quality products and/or more responsive services.

In some cases, competition among small local firms has presented a short-term selling opportunity for equipment suppliers. But in countries like Brazil and India, we have learned that when companies acquire new equipment and use it to compete on the basis

of price alone, this often leads to general price erosion in the market and eventual business failure. This same problem also exists in developed economies, where the problem is exacerbated by the phenomenon of Internet-based reverse auctions.

A New Industry Arises

In each of the countries studied a new industry is coming into existence that is quite separate from the indigenous one. New printers have emerged that execute world-class projects for a global client base, producing deliverables that are on par with the rest of the world. This new industry is intimately tied to the globally-connected segments of each economy. In addition, while print projects generated for export markets are crafted with exceptional quality and meet each client's expectation at handoff, the quality of projects created for domestic distribution has increased as well. A Chinese packaging printer seeking work from a Japanese consumer product manufacturer who exports to the United States must be able to deliver the highest quality product obtainable with the latest generation of technology. In most cases, this means that the printing company must import equipment and materials from U.S., Western European, or Japanese suppliers.

In China, India, and Brazil, domestic suppliers of equipment exert influence on governments for protection against foreign competition. In India, for example, tariffs on most imported print manufacturing equipment were hovering around 34% at the time of this writing. Printing companies seeking the highest quality manufacturing capabilities must therefore pay a premium for imported equipment. In some instances, powerful companies are able to win tariff exemptions for certain kinds of imported equipment, but most commercial printers lack this kind of influence. We will discuss tax and tariff issues in a separate section below.

Domestic and International Print Markets

Growth rates for domestic print markets in some of these developing economies are running higher than the overall growth of total GDP. In India, where recent annual GDP growth has been reported at anywhere from 7 to 9%, leaders of industry trade associations such as the Indian Printing Packaging & Allied Machinery Manufacturers Association (IPAMA) and the All India Federation of Master Printers (AIFMP) quoted annual growth rates for the Indian printing industry in the range of 12 to 14% in interviews conducted by Frank Cost during a U.S. Department of Commerce-sponsored trade mission to India in February 2006. While there is no way to independently verify these growth rates, the consensus among all of the industry interviewees during that visit was that the printing industry is growing at a consistently higher rate than the general economy. Several commentators have suggested that the reason for this difference is that companies put a special emphasis on advertising to gain brand recognition and market share at the early stages of development of consumer markets.

This is supported by observations made in recent visits to India. Major regional and national newspapers, such as the *Hindustan Times* and *Deccan Chronicle*, have made

large investments in new state-of-the-art manufacturing plants. These newspapers are also enjoying annual circulation increases in the double digits. One example is the *Hindustan Times*, which reported circulation increases of 25% from 2004 to 2005 (Sharma, D., personal communication, February 7, 2006).

Competition for advertising space is increasing dramatically, and these and other leading newspapers are expected by their advertising customers to deliver image quality and service on par with the best newspapers in the world. All of the new equipment being installed in these plants is imported from Western Europe, the U.S., and Japan. These large and powerful newspaper companies have won exemptions from import tariffs on specific pieces of production equipment, such as mammoth high-speed multi-color web offset presses, that cannot be matched by anything manufactured domestically. All materials, such as paper, ink, plates, etc., are also being imported. The paper is imported from Canada and Russia, and ink is imported from the U.S.

In all of the countries studied, the export markets for printed products are developing, but there are great differences in approaches and results. China has the clearest set of policies and has had the greatest success in developing export markets. Printing exports are more-or-less an extension of Chinese foreign trade policy, and the government plays a major role in helping companies compete for international business. Leadership of the industry and the government agencies that regulate it are intertwined. In many cases, the same people hold powerful positions in government as well as in the management hierarchies of the major companies. These same individuals are also directly involved in managing the vocational education system up through the university level.

This tight integration of government with industry and education gives many advantages to the Chinese printing industry in its bid for international business. To compete effectively, it is mandatory that companies equip themselves with relatively modern and largely imported equipment. This is changing as Chinese printing equipment manufacturing standards rapidly improve and domestic machinery manufacturers, who incorporate many patented design features of imported brands, illegally in many cases, become competitive with imported machinery.

Because government officials have personal interest in the competitiveness of the companies they own, tariff policies can be modified to their advantage. This does not mean that "China Printing, Inc." runs smoothly and without conflict. It only means that the conflicts are largely fought internally among the various interest groups within the government.

The consequences of this fact are manifest in the massive volumes of Chinese manufactured print products resident on U.S. retail shelves. The two major categories at present are books and packaging materials. These are products with long manufacturing lead times that can effectively be shipped by boat from China to the U.S. In an unpublished 2004 study conducted by graduate students in the RIT School of Print Media, it was discovered that over 80% of the full color books on the shelves in Barnes & Noble and

Borders stores in Rochester, New York, were produced outside of the U.S., and that the top country of origin was China.

Recently, the Indian government has begun to support export growth by relieving commercial printers of the high tariffs on imported equipment that have historically been in place. The tariff rates are currently at 34%, down from 75% only a few years ago. Indian companies can now apply for a tariff waiver on imported equipment for a period of 8 years, at the end of which they must show that they have exported product worth eight times the deferred tariff value or pay a heavy penalty. If companies are able to meet these targets, the tariff rates are reduced to only 5%. Several of the larger commercial printers in India are purchasing equipment under these rules and are highly motivated to grow their export volumes so as to avoid the penalties.

This study incorporates interviews with officials from a handful of companies with significant export businesses. These include Pragati Offset, IPP, Multivista Global, and Express KCS. The first three companies export printed products, and Express KCS is a back office services firm in New Delhi. Indian printing companies are exporting manufactured products to markets in Asia, the Middle East, and Europe. Logistics challenges inhibit Indian printing companies' entrance to the U.S. market for manufactured goods. Instead, companies have looked to services, driven by Internet transactions, as a more desirable market offering in the U.S.

Because tariff relief only applies to companies that have the capability and intent to export enough value to qualify for the deferments, the industry that serves the domestic market struggles with an older equipment base. This is having the effect of creating two very distinct branches of the Indian printing industry: one that serves the domestic market using older technology and processes, and one that serves international markets with state-of-the-art technology. The differences between these two branches can be seen clearly in the quality of the respective printed products. The older technologies rely more heavily on manual adjustments, and do not allow for the high levels of graphic precision that are associated with the image of multinational companies. Therefore, it is increasingly difficult for companies that fall behind in technology to compete for work from the fastest growing part of the economy.

Much of the equipment imported into India for domestic production is used, purchased from international companies upgrading to more modern equipment. For example, during a visit to Thomson Press in New Delhi, the research team discovered an old Harris M1000B web offset press that had been used at RIT from 1987 until 2003. It is now being used to produce magazines for the Indian domestic market.

This older equipment base is functional within the domestic market in India, but it is not adequate to produce the levels of quality needed for export. As a result, relatively few companies have the capital and the confidence to take the risks needed to enter these export markets.

Nearly everyone we have talked to about the prospects for growth in Indian print exports has cited tariffs as the number one impediment to commercial success. Over the past few years, the rates have been steadily declining as the government balances the pressures from domestic equipment manufacturers with those from the printers who want to export. This tension between printers and domestic equipment manufacturers comes out into the open in public forums where the two groups interact. In China, on the other hand, it would be highly unlikely that an outsider would ever witness anything other than perfect consensus in a public setting.

If there were no import tariffs to pay, the price of imported print manufacturing equipment is still significantly higher than the price of domestically manufactured equipment of "equivalent" specifications. Within some categories, imported equipment can cost as much as 3 times more than domestic equipment. Regardless of price, imported equipment, such as Heidelberg printing presses, is generally perceived to be capable of producing higher quality output than domestic machinery. Thus, many Indian printers prefer to buy used imported equipment to avoid duties and to bring the price closer to that of new domestic equipment. Several respondents have commented to us that the long-term trends of bringing used equipment into India will leave the country at a disadvantage as compared to China.

All of the people we have interviewed have generally agreed that India lags behind China in exports for several reasons, which can be summed up as follows:

- Higher import tariffs on foreign manufactured equipment
- Comparative labor and capital costs
- Overcapacity and commoditization
- The impact of the Internet on the printing industry
- Monetary and taxation policies
- National industrial and international trade strategies
- Education and literacy

Higher import tariffs on foreign manufactured equipment

The Chinese government has a financial interest in most of the large printing companies, so the risk associated with the purchase of new equipment is reduced. In India, most companies are privately held, and therefore the risk is greater.

Chinese monetary policy tightly controls the value of the yuan to keep the cost of labor low. Several Indian printers and printing industry experts have told us that they expect the pressures to mount on China to loosen up these controls and let the value of the yuan rise. They expect that this will occur as a response to increasing international pressure as well as from internal pressures, as Chinese consumers increasingly want access

to imported goods. Even if the controls are loosened, it is unlikely that the yuan will float freely, at least in the intermediate term.

Chinese shipping times to the U.S. west coast are several days shorter than Indian shipping times to the U.S. The differential may be as much as a week. This is perceived as a large disadvantage for Indian printers.

In most cases, packaging materials manufactured in India for export are shipped empty to customer plants where they are filled with product, finished and shipped to distribution channels. In China and Mexico, packaging materials are often joined with manufactured products that are also manufactured domestically, then shipped out, ready to line store shelves. This is also a potential disadvantage for Indian printers.

Comparative Labor and Capital Costs

With each successive generation of technology, more of the work that was once performed manually is being automated. In each of the countries studied there is still a large installed base of older equipment being used to service long-established domestic markets. The combination of inexpensive labor, long-depreciated capital equipment, and the lower cost of domestically manufactured materials are common ingredients among competitors for a great deal of this printing business.

When multinational corporations shop for print, including projects for export and increasingly for their domestic markets, their quality requirements often dictate the use of imported equipment and materials. The step up from an old platform to a new is a steep one. A new printing press manufactured in Germany, Japan, or the U.S. costs roughly the same anywhere in the world, but with high tariffs in countries such as India, equipment can be significantly more expensive. Most printing materials are commodities and are priced accordingly. These prices cannot differ significantly from one part of the world to another.

The only significant cost difference between a high-quality print manufacturing operation in India or China and one in the U.S. comes from labor. The cost difference, depending on the type of work and the level of education required, may range anywhere from one-fifth to one-tenth the cost. We learned from discussions with Express KCS, a prepress services company in New Delhi, that their lower labor costs allow them to charge hourly rates that are one-third to one-fifth the going rate for the same work in New York. In service, this differential is huge, and will likely remain very significant for a long time to come.

In manufacturing, where the cost of materials and equipment accounts for most of the cost of the finished product, and where the labor cost advantage is reduced further with each succeeding generation of technology, prices are slowly equalizing around the world. At some point the increased overhead required to source print from overseas offsets the price break. As labor becomes more expensive in developing countries and

governments enforce regulations more stringently, it is likely that the outsourcing of print to China and other low-labor-cost countries will slow.

Overcapacity and Commoditization

In every country studied, the problems of overcapacity and commoditization are common themes. This is true for industries in the developed economies as well, and has been true for decades. To a large extent, this is endemic to an industry that is highly fragmented, where there has been little ability to balance work from overstressed to underutilized resources. Among the thousands of printing shops and plants in the U.S., there is a large amount of necessary redundancy and underutilized equipment kept on hand so that is available when needed. Idle capacity, especially on equipment that has not yet been fully depreciated, leads to pricing strategies that often fall below actual costs in order to keep the equipment and employees busy. We have learned that this same scenario is happening in all of the countries included in this study.

In India, we have learned about some effective methods to mitigate the chronic problem of underutilization of equipment among small printers operating in close proximity to one another. Informal networks of small companies outsource work to one another on a regular basis to adjust capacity to demand. Specialty services operate among these networks to provide capabilities that would be too expensive to maintain under one roof. An example is the attachment of colorful decorative ribbons to promotional pieces or invitations. Similar relationships exist to some degree in the U.S., but tend to be more formalized.

A common theme among all of the countries studied, and one that is echoed in the U.S. and other developed economies, is the need for companies to differentiate themselves by offering services that add value to the basic commodity. The industry in each case would appear to be bi-modal in this regard. Many companies still think of themselves in the business of selling commodities to their customers. Some of these customers are more loyal than others. In our discussions with experienced people in each of the markets surveyed, we have heard stories of "cut-throat price competition" among commercial printers and the need to occasionally "sell services below cost to keep the presses running."

We have heard variations of some of the same themes in each of the countries studied. The most common themes include the following:

- Many companies in the printing industry are poorly managed without modern controls. There is a lot of waste and lost opportunity.
- Printers must change their mentality from being mere reproducers to service-oriented companies. For many existing printers, this sounds theoretical and they do not know how to do it. New companies are coming along that understand the new model, and they are succeeding.

- Printers are still thinking in terms of product technology and not in terms of business solutions for their customers. It is very difficult for many companies to escape this mentality. They think the answers to all of their problems are buying pieces of technology like CTP, but CTP doesn't make sense in the absence of a well-designed workflow. When asked to describe their workflows, many printers do not know how to answer the question.
- Many traditional printers do not understand the need for new business models. They simply complain about price competition in the existing commodity markets they serve.

We have also learned about exceptional companies in each country that have been able to differentiate themselves from the competition with innovative and unique services. An example is the Brazilian company Antilhas, which creates customized bags for retailers. They supply both paper and plastic shopping bags to 12,000 retail shops throughout Brazil. They have a huge logistical operation with a highly efficient production system using batch production methods that enable them to keep production costs to a minimum. Antilhas is growing at 30% per year, and is planning to start an operation in Mexico in the near future (Costa, H.T., personal communication, June 9, 2006).

The Impact of the Internet on the Printing Industry

The Internet plays two important roles in the development of the printing industry throughout the world. First, it is the platform upon which new media competes directly with print. It is also a backbone for much of the commerce that is transacted between printing companies and their customers. As such, the Internet makes it possible for printing companies to attract business from customers throughout the world.

The creation and refinement of digital files used as input to print manufacturing processes are complex and labor-intensive. For example, in the preparation of files for the production of a catalog, the products to be featured in the catalog must be photographed and then the photographs must be digitally edited to optimize their appearance in print. A common operation that must be performed on each individual image is called "masking." This involves the delineation of the product from the background, so that the photographic image of the product can be superimposed on a common background with other products on the page. While there are automated masking programs available, they generally do not perform the task as well as a person. A single catalog may require thousands of masks to be made. This amounts to a lot of manual work. Since the rules for masking are extremely simple to communicate, this is a perfect example of a job that can be easily outsourced. Consequently, most of the masking that is necessary during the production of catalogs in the U.S. and Europe is actually performed by workers in India or China.

The infrastructure required to send work of this kind offshore is surprisingly simple, and consists of servers connected to the Internet. These same mechanisms can be employed to instantly transfer design specifications to manufacturing plants anywhere

in the world. The major print exporters in China maintain sales offices in major U.S. cities. Indian print exporters are also beginning to establish offices in the U.S.

Monetary and Taxation Policies

All newspapers and publishing houses in India are privately owned. The largest companies, such as the *Hindustan Times*, *The Times of India*, the *Deccan Chronicle*, and Thomson Press, have enough influence over tax policies to mitigate some of the negative impacts of high tariffs.

Monetary policy has a profound impact on the general performance of the printing industry in Brazil. High interest rates make money very expensive to borrow. This prevents undercapitalized players from easily entering the market, and favors players who are able to finance their own expansion.

The tax situation in Brazil has been described as "very complicated," and "a real mess." Taxes are charged at each step in the production chain. This becomes very complicated when different tax rates apply to different components in the manufacturing process. This requires multiple invoicing to minimize the tax liabilities. Complying with or evading taxes is a major cost of doing business in Brazil. Different taxes applied to the same printed product throughout its manufacture and sale can increase the price by a factor of two. Books and magazines are exempt from many of these taxes, but printers have ways of using tax-exempt paper for commercial printing, thereby altering the products enough to qualify for exemptions. For example, some catalogs have evolved to include "news articles" so that they can be classified as a magazine.

National Industrial and International Trade Strategies

There are great differences among the countries studied with regard to international trade strategies and policies. One of the major factors is the relative power of domestic manufacturers of materials and equipment versus the printers interested in exporting. In China, the government has financial interest in both the equipment manufacturing sector and the commercial printing sector, and is actively promoting exports in both areas. Chinese commercial printers producing for export markets are among the most modern facilities available in the world, and are able to acquire the necessary machinery to achieve world-class product quality. Some of the most advanced printing plants in the world are in China.

In India, there are a growing number of printing companies exporting products to Asia and Europe. Several of these companies are interested in competing for business in North America, but few have succeeded. More significant for India at present is the export of IT-related prepress services to the English-speaking world. Several large U.S. printing and publishing companies have established offshore operations in India and in China. High tariffs on imported machinery are acknowledged as a major impediment to the growth of export markets for Indian printing companies. Indian printers actively lobby the government for tariff relief while the domestic equipment manufacturers

lobby to keep the status quo. The net result is that India continues to have more tariffs and regulations on the import of Western manufactured equipment.

Brazil enjoyed a brief period a few years ago when its currency was devalued and exports were on the increase. Recently this trend has reversed, and the Brazilian printing industry now mainly serves the domestic market. Given the policies of the government to protect domestic manufacturing, along with the high tax and interest rates, it is unlikely that Brazil will become a significant exporter of print in the near term.

Unlike China, India, and Brazil, Russia has no domestic equipment-manufacturing base to speak of. During the Soviet era, the Russian printing industry was supported by a comprehensive printing equipment sector that supplied the entire Eastern Block with all of its equipment needs. This industry collapsed along with the old political system, and it has not been rebuilt. Consequently, all of the newer production equipment used by the Russian printing industry is imported.

Mexico is in a unique position of being a member in the North American Free Trade Agreement (NAFTA). As such, the movement of printing equipment, supplies and printed materials between the U.S. and Mexico is simplified.

Education and Literacy

We have interviewed educators from some of the leading institutions offering programs in graphic communications in the countries studied. These include the Shanghai University of Science and Technology and Wuhan University in China, Moscow State University for Printing Arts in Russia, Anna University and Manipal University in India, and Senai and PUCRS in Brazil. Several common themes have emerged from these interviews.

In some cases the facilities on these universities are extremely up-to-date, with the latest generation of manufacturing equipment consigned by leading suppliers to the industry. The most impressive facilities we have seen are in the SENAI School in São Paulo and in the Moscow State University for Printing Arts. Some (perhaps most) schools are less well-equipped. However, with the exception of SENAI in Brazil, educational programs are heavy on technical theory and light on commercial practice. For example, students in the Moscow State University for Printing Arts may learn how to model the behavior of a substrate as it passes through a printing press using differential equations, but may not learn why print buyers may prefer one paper over another in light of their business goals.

This theory-oriented education produces graduates who are extremely capable intellectually, but lack a sense of how the theory they have learned applies in the real world. This contrasts with U.S. educational programs in graphic communications that tend to stress application. In our meetings with educators from around the world, we have found an almost unanimous agreement that the best education for individuals who wish

to have successful careers in the printing industry should combine theory and practice. The combination of undergraduate degrees from institutions like Anna University in India and graduate degrees from U.S. institutions like RIT is very desirable for this reason.

In all of the countries that we studied, demand for technical education far outstrips supply. The Chinese government has taken the most aggressive approach among the countries studied to increase supply by investing heavily in the creation of new institutions and expanding existing programs. The Chinese government has encouraged institutions to form partnerships with foreign schools and universities as a way of adding capacity to serve larger numbers of students. The Russian government has instituted similar policies on a smaller scale. (Both the Shanghai University for Science and Technology and the Moscow State University for Printing Arts have sought formal partnership agreements with RIT in bids to receive expansion grants from their respective governments.)

In the following sections, we will focus more specifically on considerations for doing business in each of the five countries studied.

Doing Business in China

Tariffs and Trade Administration

The tariffs for U.S. imports into China have reduced dramatically since the country has become a member of the WTO. In 1997, the tariff for most U.S. imports was 25% of the base rate. Today, tariffs average around 7%. The following is specific information for the import of U.S. production printing equipment:

- Printing machinery falls under the Harmonized Schedule 8443 heading, and includes all printers with engines that are not laser-based. This includes traditional printing presses (i.e. gravure and offset) as well as all inkjet printers, which include the wide format, production-level printers used by commercial graphics firms. The final bound rate for tariffs in this category ranges from 8% (inkjets) to 18% (gravure).
- The 8471 heading 182 also includes laser printers and inkjets. This is under the broader technology heading, rather than the manufacturing heading the 8443 items fall under. There are no tariff rates for both laser and inkjet printers coming into China under this Harmonized Schedule number.
- Tariffs for imports are "binding", meaning that there is an upper limit for the tariff, given in the Tariff Schedule, but that rate can be lowered in order to attract particular products and services.

While a 0% tariff rate implies that there are few barriers to entry for printing industry

exports, there are issues of transparency that hinder true elimination of the difference between domestic and internationally supplied goods.

Customs Valuation and Reference Pricing

The WTO Agreement on the Implementation of the GATT Article VII Agreement on Customs Valuation is designed to ensure that products imported into any country have duties and tariff rates applied uniformly, using a standardized base price for the items.

Base price is calculated as the price the Chinese company paid for the item or order. This is done to ensure customs officials and agencies do not overvalue products to create higher tariffs, hindering international companies' interest in importing to China.

A 2005 report from the Office of the United States Trade Representative found that the WTO is concerned with China's customs application of the Article VII Agreement, with a particular concern that customs officials often use reference pricing instead of the purchase price to establish tariff rates (Office of the United States Trade Representative, 2005). Reference pricing is valuing a good to apply tariffs based on the price the good would command if resold in the Chinese market. This valuation results in a much higher price than would be normally applied. For example, if a Chinese importing company was buying a product for $1,000 (base price) and expected to sell it for $1,500 (reference price), the tariff should be based on the $1,000 and not on the $1,500.

A second complication with reference pricing comes from the import of software into the country. Customs officials often roll licensing and software royalties fees into the price of the computer hardware. Additionally, software that includes instructions for distribution to multiple PCs or servers is valued for the price of the software on each potential machine. For printing equipment manufacturers, production equipment often comes bundled with software to make the systems more productive for users, and to facilitate creation of commercial print materials by workgroups. Licenses are almost always a part of the sales package for these products, so overvaluation is likely a concern for production printing manufacturers.

Non-Tariff Measures

Non-tariff measures include the import quotas, licensing fees, and tendering requirements that generate additional costs companies face when importing goods into the country. This area faces the greatest amount of opacity in the importing process. The lack of transparency surrounding non-tariff measures is high, making it difficult to know whether standards are being applied fairly. This is a larger problem for consumer goods manufacturers, who face quotas for goods more frequently than business-to-business technology suppliers, but it is still necessary to pay attention to this issue.

Intellectual Property Rights

China's enforcement of intellectual property rights has been the largest regulatory chal-

lenge for technology and media companies with an interest in doing business in China. Digital media, in particular high-value media content and software, are obtained and copied for mass distribution with little or no copyright payment made to the product's owners. The WTO and IP owners are very interested in curbing the copying of content, but they are facing enforcement issues within China's boundaries. However, it is unlikely that intellectual property violations are the primary concern for U.S. print equipment importers. At the production level, while the software and firmware shipped with these machines are expensive, they are highly specialized and are only functional when paired with a production printer, making them poor candidates for mass distribution. The use of presses to illegally produce copyrighted material is an indirect problem for printing equipment manufacturers. A more direct problem for equipment manufacturers is patent violation.

Trading Rights and Distribution Services

In 2004, China officially agreed to open distribution channels to its markets, effectively removing the middleman that had been previously required in order to trade in China. Unofficially, the implementation of this policy has been less successful. It is still difficult for American companies to operate without a middleman in China.

For U.S. printing equipment manufacturers, distribution channels are of critical importance. This issue should be watched carefully as it applies to specific companies and products.

The ability to sell directly is critically important to the sale of production level printing equipment in China. Often priced in the six and seven-figure U.S. dollar range, production printing equipment is high-value and technologically complex. These product offerings require direct communication of the technical and commercial value of this type of equipment. While the official position of the Chinese is that direct selling (open-market) is permitted, the devil is in the details. For example, one provision prohibits the award of team-based commissions for direct selling enterprises. For printing equipment manufacturers, this means that direct sales people cannot share commissions with their selling team. When selling a production-level machine, "team selling" is often involved in the sale, and commission is seen as a critical component of the sales function.

Industrial Policies

According to the WTO (Office of the United States Trade Representative, 2005), China has increasingly resorted to industrial policies that either limit market access by non-Chinese goods or bring substantial government resources to support increased Chinese manufactured exports. This trade orientation has potentially serious implications for U.S. printing equipment manufacturers. The Office of the United States Trade Representative (2006) feels the reason China is doing this is to support the development of "high-value" industries and products domestically, while shifting focus away from the labor-intensive, commodity markets with which the country has traditionally been associated.

There are two areas of concern within this issue: excessive subsidies for domestic manufacturers of high-value goods and government preference for sourcing from domestic suppliers. While there has been an elimination of tariffs for most information technology products being imported into China, bureaucratic processes remain in place to protect certain national manufacturers. These include:

- Creating unique standards in many areas of high technology, effectively permitting extraction of content while bypassing intellectual property rights,
- Subsidizing certain high-value domestic industries, giving them a competitive advantage in the marketplace, and
- Government policies to procure software from domestic sources.

Transparency

China's transparency has increased dramatically as the country has pursued a Westernized business model over the past 25 years, but some aspects of trade continue to occur behind closed doors. China's Ministry of Commerce, the initial point of trade contact for many U.S. companies, has significantly increased its transparency since the country's accession into the WTO. However, many Chinese ministries and agencies have been reluctant to move forward on the changes called for by China's WTO obligations. As a result, many of China's regulatory regimes continue to suffer from a lack of business transparency, frustrating the efforts of foreign and domestic businesses to achieve the potential benefits of China's WTO accession.

Cost of Capital

The reforms enforced by China's entrance into the WTO and membership in the International Chamber of Commerce have lowered the cost of financing projects and imports for Chinese companies. The two primary financing methods are:

1. Letters of Credit – more formal, more secure, slow
2. Documentary Collections – flexible, importer assumes risk, fast

There are additional financing pathways, but these are used less frequently. They include bank or enterprise loans, foreign supplier loans, and joint ventures. The two numbered methods will be the focus of this discussion.

Letters of Credit

Although the Bank of China dominates China's trade and finance business, most Chinese commercial banks have the authority to issue letters of credit for imports, such as, China Construction Bank, Industrial and Commercial Bank of China, Agricultural Bank of China, Bank of Communications, China Merchants Bank, CITIC Bank, and et cetera. Foreign banks with branch or representative offices in China can also issue letters of credit.

As a member of the International Chamber of Commerce since 1995, China is subject to the Unified Customs and Practice (UCP) 500 code regarding international trade payments. However, in local Chinese practice, terms and conditions are generally negotiable and set on a transaction-by-transaction basis.

Documentary Collections

This method of payment is similar to a letter of credit, but less formal and more flexible. Just as with letters of credit, the exporter submits a full set of trade documents for payment collection to the bank designated in the contract. The Chinese bank will send the documents to the home office, which examines them and, in some cases, passes them to the buyer for further examination. Payment is made after the documents have met the approval of all parties. This method of payment provides only limited coverage against default. It can be considerably less expensive than a letter of credit, but should be used with caution. It is the responsibility of the exporter to determine the specific instructions to be used in the collection letter.

Cost of Loan Financing for Chinese Companies

The cost of capital requirements for Chinese businesses is lower than it has been historically, and the administration of loan rates is dependent on many factors. The loan amount and the purpose of the financing have a great deal of influence on which banking institution handles the loan. While foreign banks are allowed to enter into the banking market in China, the qualifications to do so are exceptionally challenging, so there is noticeably less internationally-financed banking in the country than in most other countries. Additionally, the overwhelming majority of banking business continues to be state-owned. The People's Bank of China is the primary financial institution in the country. There are also four state-owned commercial banks that are making the gradual transition from government-operated to publicly-traded corporations as specified by China's WTO agreement.

Printing Industry Characteristics and Performance

Geographically, China's printing industry is seated in three distinct clusters, with the Pearl River Delta, Yangtze River Delta, and Bohai Sea as the regional centers. Each region has its own advantages, and each is expected to continuously improve and grow in its respective circle of influence. Industry in other regions of the country, particularly West China, Central China, and Northeast China, still lag far behind.

Guangdong is intensifying its efforts to expand the influence of the Pearl River Delta and implement the "Greater Pearl River Delta" (GPRD) concept in an attempt to strengthen the position of the Pearl River Delta in the international market. In 2003, China adopted "Mainland and Hong Kong Closer Economic Partnership Arrangement" (CEPA), which allowed printing products, to enter the Chinese market with no tariffs as of January 2004 (Hong Kong Trade Development Council, 2007).

Shanghai is intensifying its efforts to create the fastest-growing region in China with many clustered printing groups. The establishment of Shanghai Package Printing City and Asian Packaging Center in the Yangtze River Delta, along with vigorous support and extensive labor division from developed manufacturing enterprises in the Yangtze River Delta region and the attractive conditions of Shanghai for foreign investment as well as intensified regional cooperation, will possibly make Shanghai the region with largest potential for the printing industry.

While leveraging its opportunity as the host of the 2008 Olympic Games, Beijing will seize commercial printing opportunities using the region's competencies in printing and publication to intensify cooperation with surrounding regions and achieve mutual benefits.

In recent years, printing has expanded rapidly in Hong Kong. As of September 2005, Hong Kong had 4,262 establishments employing more than 37,000 people (Hong Kong Trade Development Council, 2007). Hong Kong's printing industry is now involved in greater cooperation with mainland of China. About 70% of Hong Kong's printing enterprises have already moved their production to or invested in joint ventures on the mainland of China.

Taiwan's printing industry is also spreading to the west to move closer to mainland China, and about 400 Taiwanese printing enterprises have already relocated to the mainland. In addition to interest in market entrance from Hong King and Taiwan, many other countries are actively seeking opportunities in the Chinese printing industry.

Printing enterprises in China are generally small, and lack the economies of scale to achieve international corporate productivity levels. In 2005, China had more than 90,000 printing enterprises, but the total industrial output value was RMB 310 billion (Zhou, Y., personal communication, July 7, 2006). That means the average output value of each enterprise was about RMB 3.45 million, which indicates extremely low productivity. Reluctance to innovate is one of the main reasons Chinese printers compete poorly in the marketplace. Few Chinese enterprises have mastered core print workflow competencies. As a result, while there are some Chinese companies that produce world-class deliverables, many products lag behind international competitors in function, quality, and efficiency, resulting in insufficient product quality, low market share, and low exports.

Doing Business in India

India's size, population, growing industrial base, and scientific and technological strength has given it a prominent place among the world's economies. However, India's economy needs to grow faster in order to catch up with more developed economies, and it could benefit from further global integration. Faster trade liberalization will promote

India's export growth. In recent years, India has made significant progress in tariff reductions, which will enhance the country's competitiveness and substantially increase its share in world trade. The Indian government sees regional trade agreements, such as the South Asian Free Trade Agreement, as an important aspect of its trade policy. This agreement is expected to enhance economic cooperation and help build support for multilateral liberalization.

Two print industry experts in India suggest that printing growth is believed to be directly relational to the growth in GDP, which has been increasing at a solid rate over the last six years.

Geographic Factors

India is a large country without a good highway system or transportation infrastructure. Roads in urban areas are generally well developed, but in rural areas dirt roads may be the norm and are likely to become impassable during heavy rains. As regions become wealthier, the local printing industries will grow to serve local and regional markets. This may be an opportunity for digital printing, where content can be generated in urban centers and then transmitted to remote regions for production.

Trade Barriers: Tariff and Taxes

India's tariff schedule is exceptionally simple; most goods fall under a flat 15% tariff rate, and some goods are not charged import tariffs. This holds true for production printing equipment. The harmonized schedules for production printers used in this study fall under two section headings, and each has a separate rate. The first is the mechanically driven, traditional printing press technologies that include flexographic, letterpress, and gravure printers. These technologies use blocks and plate to mechanically transfer images from the drum to the media. All printers in this category are subject to a 15% tariff rate.

The second technology addressed is digital printing, which encompasses laser, wide format production inkjet, and LED printers used to create production level runs. The machines that fall into this category are diverse in terms of the segments they cover, as determined by print speeds. The harmonized schedule does allow for some segmentation, by dividing many of the engines in this category into over and under 20 pages per minute (ppm) ratings. This is presumably to differentiate between home and business printers. There is no tariff rate for goods in this information technology subheading.

India's average tariffs are high in comparison to other nations. The products that fall under harmonized schedule number 8471 and the mechanically driven printers under the 8443 code are subject to a 15% tariff rate (CBEC 2007).

In addition to tariffs for goods, additional fees are rolled into the price import of goods that fall under State and National duty rates. There is a one-percent customs handling fee and a two-percent "education fund-assessment" added to the base tariff, effectively increasing the overall tariff rate by 3%.

While the tariff information seems straightforward, there is a substantial lack of transparency when attempting to complete the paperwork to import products into the country. There is no single tariff document that catalogues and condenses tariff information for importers. Tariff and duty rates vary by product, distribution channel, and seller's origin. Goods are also not categorized consistently: the custom duty is assessed using the Harmonized Schedule number shared internationally, while the excise duty fees are assessed using a hybridized version of the harmonized schedule that shows variation in entry numbers from the original.

Licensing

Licensing is used as a barrier to trade less frequently in India than in other countries. In fact, the licensing requirement for used capital goods – which may include refurbished production printing equipment – has been lifted. There are more flexible requirements for second hand capital goods that use more liberal depreciation schedules.

Interstate Taxes

To complicate the administration of tariffs and increase opacity, Indian states assess taxes for goods shipped across state borders. The rates differ from state to state, and the classification of goods and their valuation by inspectors is not uniformly applied.

Customs and Valuation

U.S. exporters have reported that India's customs valuation methodologies do not necessarily reflect transaction values and effectively increase tariff rates. Reference pricing by customs officials continues to be a concern. In addition, the customs system lacks transparency, as India's custom system requires a large amount of complex documentation to bring goods into the country. This is a direct result of the complex tariff rates and non-Harmonized Schedule numbering procedures mentioned earlier.

Government Procurement

India does not participate in the WTO Agreement on Government Procurement, which calls for countries to select bidders for RFPs based on scores from evaluation criteria, without preference for domestic suppliers. Instead, India encourages just the opposite – most bids are selected based on the national origin of the bidders. There is a system in place to give foreign bidders more equity in the process. It states that government agencies bidding on projects can (and should) only choose domestic bidders if their cost falls within 10% of the lowest-priced bid.

Additional Non-Tariff Measures

Countertrade and inconsistent application of laws are the final barriers to trade for U.S. importers to India. Countertrade in India is an unwritten policy that favors requiring the buyer to purchase an equivalent amount of goods in order to maintain the trade balance. There are two national corporations that openly use this model, and private

companies are encouraged to do so as well. The inconsistent application of laws and regulations increases the amount of complexity U.S. importers face when doing business in the country, and contributes to the creation of a process that is exceptionally opaque. Some of these regulations are listed below:

Standards, Testing, Labeling, and Certification: The Indian government has identified 109 commodities that must be certified by its National Standards body, which is known as the Bureau of Indian Standards (BIS).

Anti-dumping and Countervailing Measures: Anti-dumping and countervailing measures are permitted by the WTO in specified situations to protect the domestic industry from serious injury arising from dumped or subsidized imports.

Export Subsidies and Domestic Support: Export earnings are exempt from taxes, and exporters also do not need to pay local manufacturing taxes.

Other Barriers: Equity restrictions and other trade-related investment measures are in place to give unfair advantages to domestic companies.

The following are designated authorities:

- **The Department of Electronics** - Import of computer and computer-based systems.
- **The Department of Industrial Policy and Promotion** - Organized sector firms, except for the import of computers and computer-based systems.
- **The Ministry of Defense** - Defense-related items.
- **The Director General of Foreign Trade** - Small-scale industries not previously covered.

Intellectual Property Rights

As of January 1, 2005, the Indian government has a new patent law in place that is expected to be in line with international norms (Ministry of Law and Justice, 2005). The enforcement of anti-copyright laws in India is weak, and individuals leverage source material for pirated copies liberally. The printing industry is likely less subject to intellectual property violations, as the cost and highly-specialized nature of production printing equipment software and firmware prohibits it from being particularly popular in the consumer marketplace.

Guidelines for FDI in Print Media

Foreign investment is restricted to 26% for news publications, with editorial and management control in the hands of resident Indians. A 74% cap is applied to non-news publications. FDI is permitted up to 100% in printing science and technology magazines

and journals, subject to prior government approval.

Direct Selling

Like China in the past, Indian law currently recognizes direct selling as a pyramid scheme, and it is viewed as illegal. This forces firms that primarily sell directly, such as production printer manufacturers, to adopt a different selling model. The most often used sales force in many non-U.S. markets is an agent or concessionaire who represents the selling companies, but is selling indirectly.

Corruption

Corruption remains a significant concern for both foreign investors and domestic businesses in India. Many U.S. firms regard corruption as a stumbling block to FDI, and Indian businessmen also agree that the amount of bureaucratic red tape and wide-ranging administrative discretion serve as a pretext for extortion. Many foreign investment representatives consider the following as the main factors behind India's corruption:

- Lack of transparency in the rules of governance.
- Extreme bureaucracy and cumbersome official procedures.
- Unregulated and excessive discretionary power in the hands of politicians and bureaucrats.
- The Indian government is introducing legislative changes to its anti-corruption laws that would give additional powers to vigilance departments in government bodies and make the Central Vigilance Commission (CVC) a statutory body.

The Indian Printing Industry

The printing industry in India is one of the biggest and fastest growing sectors. Recent survey data shows that printing industry revenue growth has consistently outpaced national GDP growth (ISI Emerging Markets, 2007). The country has over 13,000 established printing presses with a capital investment of over $1.82 billion (ISI Emerging Markets, 2007). According to one estimate, the printing industry in India provides direct employment to 700,000 people and indirect employment to over another 450,000. The U.S. (29.9%) and Europe (30.3%) will be the major players to provide impetus to the growing print industry in India in terms of content outsourcing (ISI Emerging Markets, 2007). An additional benefit to the industry is the belief that Indian publishers' quality of work is recognized internationally.

The Asia-Pacific region poses the largest demand for commercial printing. This demand is due to the large newspaper industries of China, India, and Japan. This region alone accounts for 33.5% of the global market, with a value of $121.1 billion in 2004, followed by Europe ($109.8 billion) and the United States at $108.3 billion. ISI Emerging Markets (2007) also suggests that the commercial global printing market grew an estimated 6% in 2005.

Foreign investors who already have or may set up export processing units in India are entitled to a variety of tax and other benefits under the export-import policy. Some of these benefits are (CountryWatch Inc., 2007):

- Duty free imports of all goods (including capital goods).
- 5- to 10-year income tax holiday.
- Exemption of excise tax on capital goods, components, and raw materials.
- Exemption of sales tax at the state level.

Publishing

In February of 2006, Frank Cost toured the newly constructed *Hindustan Times* plant in the suburbs of New Delhi and made the following observations:

> "The *Hindustan Times* (HT) is one of the leading national papers in India. It competes directly with the *Times of India* in several markets in the north and west of the country. It has 16 production plants. The plant we visited opened less than a year ago in the winter of 2005. The HT has dominated the Delhi market for many years. They have recently been challenged by the Mumbai-based Times of India in the Delhi market. In turn, the HT recently began printing in Mumbai, and in less than a year has expanded its circulation to 200,000 in that market. According to Sharad Saxena, VP of Supply Chain and Operations, the HT has been able to reduce the Times of India's readership from 74 to 54% in the Mumbai market in the past six months. The total circulation of the English language version of HT is 2.2 million. A Hindi language version of the paper is also produced in 14 of the 16 plants. It is the first full-color Hindi newspaper in India. Peak circulation is on Tuesday, when the paper runs its weekly "Power Jobs" classified ads.
>
> The company spent approximately $75 million to build the new plant. They have three new MAN Roland Colorman presses, each with three four-color towers capable of 8 full-color pages per tower, or 24 pages per press. The plant has its own power supply and water purification system. The power grid in India is acknowledged by almost everyone as extremely unreliable. Any business dependent on a continuous source of power must be able to generate its own. All materials used in the plant are imported. This includes paper, ink, and plates. The plant consumes 5,000 metric tons of paper per month, most of it imported from Canada and Russia. The plant uses ink imported exclusively from the U.S. Any new materials considered for use in the plant are put through a rigorous battery of formal tests. Supply chain management practices appear to be state-of-the-art.
>
> Mr. Dinesh Sharma, the plant manager, said that none of the employees were "workers." All are qualified "engineers." There is no union in the plant. Relocation of the plant allowed reorganization of the labor force. The last unions were phased out with the move to the new facility. All of the existing workers were given a chance to make the move, and most did choose to do so.

Complete color pages are transmitted to the plant from the central office in Delhi over a high-speed dedicated line. In this plant, they produce 4 versions of the paper for zoned advertising to the four quadrants of Delhi. Content can vary 100% from zone to zone. The pages are proofed on an Epson inkjet printer on the actual newsprint stock. These devices are color calibrated each day, and provide color-accurate proofs. Three fully-automated Agfa/Krause CTP devices produce approximately 1,500 silver-based plates per day. The plates emerge from the devices ready to go onto the press. The paper features full color on every page, and the design and print quality is world-class.

HT Media was able to get an exemption from the government for the import duty on press equipment that is presently about 35%. The exemption was written into the tax laws to cover web offset presses having the precise specifications of the Colorman press.

HT's circulation has grown at a rate of 25 to 30% from year to year over the past few years. This is attributed to the entry into new markets, such as Mumbai. Growth over the past five years has been in the double digits. Ad revenues have also been steadily increasing. HT is privately held, as are most newspapers in India, and the business is highly profitable.

The parent company of the paper, HT Media Ltd., has made a move into radio during the past year. This was made possible by the Indian government opening up 300 new FM channels in the country. HTM won bids on four of these new channels. During the past two years, the newspaper industry surpassed television for the first time in many years for revenue growth. This is expected to continue for the next few years at the very least. Radio has traditionally been tightly controlled by the government, with only a few dozen stations in the country. With the addition of 300 new channels, it is predicted that radio ad revenues will grow vigorously during the next few years. HSM is therefore well positioned to enjoy dramatic growth in the next decade. The company is looking at potential new markets, such as targeted direct mail, that has not yet begun to be used in India."

During the same trip, Cost also visited the new facilities of the *Deccan Chronicle* in Chennai during their construction, a major newspaper in the south of India. The recent history of growth in circulation and advertising revenues for this paper is very similar to that of the *Hindustan Times*. All of the equipment in this new plant is also imported, as are the materials used to produce the newspaper.

The top newspaper printing companies are listed below in alphabetical order (ISI Emerging Markets, 2007):

- Asian Age South Ltd.
- Bennett, Coleman & Co. Ltd.

- Commercial Broadcasts Ltd.
- Cyber Media India Ltd.
- DSJ Communications
- Deccan Chronicle Holdings
- Express Newspaper Ltd.
- Express Publications Madurai
- HT Media Ltd.
- Hindustan Times Ltd.
- Indian Express Newspaper Bombay Ltd.
- Kasturi & Sons Ltd.
- Malayala Manorama Ltd.
- Mathrubhumi Printing & Publishing Ltd.
- Mid-Day Multimedia Ltd.
- Rashtra Deepika Ltd.
- Sandesh Ltd.

Industry Characteristics and Performance

India's media industry is undergoing a major metamorphosis as the Internet base is expanding and cable television is becoming increasingly accessible. As a result of this, major newspapers and magazines are now available on-line, but there is no statistical data available to prove its impact on the print industry.

A Morgan Stanley study of the Indian print media industry suggests that growth is due to relaxed governmental policy, allowing the expansion of foreign ownership holdings from zero to 26%. This bold change not only attracted FDI in the print sector, but also saw launch of fresh newspaper editions in the country. Foreign media companies are investing in Indian publishing. The UK's *Financial Times* acquired a 13.8% stake in the *Business Standard*, and Henderson Global acquired a 20% stake in the *Hindustan Times* (ISI Emerging Markets, 2007).

The Indian government's decision to relax FDI investment limits on the Indian magazine sector also attracted key foreign players, such as the merger of BBC Worldwide with the Times of India group. BBC Worldwide currently publishes over 50 magazines, and, according to a Morgan Stanley report, the overall Indian magazine publishing market is worth $238 million.

The constant progress in newspaper circulation and readership trends has, to an extent,

been responsible for the increase of published newspaper titles, book titles, and periodical titles in India (Euromonitor International, 2006).

- Newspaper titles increased from 490 in 1999 to 530 in 2004.
- Periodical titles increased from 1,500 in 1999 to 1,860 in 2005.
- Book titles increased from 15,080 in 1999 to 18,460 in 2004.

The growth drivers behind the print media industry in India can be attributed to the following (ISI Emerging Markets, 2007):

- A booming Indian economy, a focus on increased job creation, and significant rises in disposable income.
- Increased income and spending power of households due to the service sector expansion.
- Increased telecommunications and IT network connectivity in rural areas due to technological advancements.
- Open government policies and initiatives leading to convergence in the information and broadcasting space.

Industry Segmentation

The media industry in India can be broadly segmented into the advertising, broadcast and cable television, publishing, and movies and entertainment sub-industries. A detailed discussion on the complete media industry is beyond the scope of this report. Therefore, we only examine the advertising and the publishing industries.

The advertising market is comprised of national and multi-national advertising agencies that develop advertising and print materials, including display-advertising services. The publishing market supplies books, newspapers, and magazines. India's rapidly growing economy is responsible for the enormous growth of the domestic media industry. The market share of the media industry increased by 1.1 percentage points and is positioned at 6.5% in 2005 (Datamonitor, 2005c).

The total revenue generated by the media industry of India totaled $12.2 billion in 2005. This corresponds to a compound annual growth rate (CAGR) of 9.5% from 2001 to 2005. An interesting fact observed from the report is that the leading source of revenue is the publishing sector, which was responsible for generating $6.2 billion in 2005. This represents 50.9% of the overall perceived industry value, as compared to $3.6 billion (29.5%) generated by the broadcast and cable television sector. However, industry forecasts reveal that demand for the entire media industry's products will slacken in the future, generating $17.8 billion in revenue over the five-year period from 2005 to 2010 - a predicted CAGR of 7.9%. The advertising sector's share of the Indian media industry is 5.2%, and the movies and entertainment sector accounts for the rest of the 14.4% (Datamonitor, 2005c).

Market Potential

According to a market study by Price Waterhouse Coopers, the Indian newspaper market will register a compound annual growth rate (CAGR) of 6.9% from 2004 through 2008. In dollar figures, this is an increase from $1.869 billion in 2004 to $2.404 billion in 2008. It also predicts positive advertising revenue growth, with a CAGR of 20% in India, China, and Indonesia. India has also attracted FDI through interesting new policies, and has witnessed major stake acquisitions by The Financial Times Ltd. (UK), Dow Jones, and Henderson Global in Indian publications. This is expected to fuel an annual circulation spending growth in India averaging 4.8% over the next five years (Indian Media Observer, 2004).

Factors that could potentially benefit foreign interests investing in the Indian media industry include (FIPP, 2007):

- Growth of the Indian economy by 7 to 8% in the next five years.
- A burgeoning and increasingly Westernized middle class with increased spending power that is more comfortable with a consumer lifestyle.
- Growing literacy rate and changing family dynamics.
- Relaxed legislation for FDI in media industry companies.
- Restructuring of Indian publishing organizations in order to attract foreign partners. Many Indian publishers already have established partnerships or are entering licensing agreements.
- Improved distribution systems, including the use of courier delivery.
- Largely untapped B2B and custom publishing markets.
- Expansion of shopping malls, allowing for the continued expansion of magazine distribution.
- Comparatively low operational costs.

Doing Business in Russia

Printing Industry Characteristics

The Russian printing industry provides products and services to newspaper, magazine, and graphic media printing:

Newspaper Printing and Magazine Printing

By January 2005, there were a reported 491 newspaper titles, more than 4,370 magazines titles, and about 3,400 almanacs, newsletters and bulletins in Russia. In all, there were 21,300 more than on January 1, 2000 (Euromonitor International, 2006). While the

number of registered publications in Russia is increasing, the total amount of Russians who read daily newspapers is decreasing. This decline is blamed on a poor press-distribution network that denies the public adequate access to daily publications.

Graphic Arts Industry

Russia's graphic arts industry is experiencing significant growth in diverse directions. Despite a significant number of large offset press installations, demand in the sheet-fed market is unmet, particularly in the provinces. Meanwhile, the demand for packaging and labels is rapidly growing. Although demand for flexographic technology dropped between 2000 and 2003, overall market potential for these machines remains stable. Digital printing, which up until a few years ago was still perceived as exotic within the Russian market, is also growing rapidly. Initially, demand for digital was not driven by customers realizing the advantages of the technology, but by printers that had bought equipment as part of a drive to become the leaders in a new field. Such an approach to buying new technology is a characteristic of Russian business, and is not industry-specific. The average age of most modern print houses is five to eight years. These started to appear during the post-Soviet period, and were fitted with the most up-to-date machines to satisfy their market leading ambitions.

External Factors That Impact Industry Conditions

Factors That Drive Up the Price of Imports into Russia

Russian legislation that may affect import duties and VAT rates for importation of printing equipment, paper and finished goods, financial crises (like the one in 1998), excessive certification procedures and requirements for packaging.

Legal Regulations

The packaging industry is experiencing a number of problems driven by the shortcomings of Russian law. To date, no state packaging law regulates the whole industry. There are, however, technical parameters being prescribed by GOSTs (State Standards of the Russian Federation) and OSTs (Regional Standards). These are national and sectional regulations that were developed in Soviet times and determine terminology and definitions, production processes, quality control methods, standard shapes and sizes, and the materials used for packaging. GOSTs have priority over OSTs.

Financing

A significant internal factor for robust industry development is financing. There are several leasing companies in the Russian Far East and a number of local and national banks offering trade and project financing. However, interest rates are often high. A lack of transparency in accounting and the inability to provide collateral often make bank loans inaccessible for small- and medium-size businesses. Regardless of these factors, there are still some solvent customers who can afford to buy the equipment under leasing agreements, through financed loans, or even on an advance payment basis.

Lack of Qualified Personnel in the Russian Far East

The concentration of skilled personnel in major cities has created a lack of skilled personnel in many outlying regions. The shortage of qualified personnel is the biggest problem for local printers. Most printing engineers graduated from the Moscow Printing Academy or Omsk Polytechnic Institute long ago. They are heavily influenced by EU printing equipment manufacturers who enjoy strong ties to the Russian printing industry. Most printing engineers and mechanics have a very limited knowledge of new technology and materials. State-owned printing houses are able to send their personnel to Moscow for study, while smaller printers cannot afford to lose their staff even for a short period of time.

Barriers to Entry

Major barriers to the Russian market include its distance from the U.S. and its turbulent migration from a socialist, centrally-planned economy to a more open, market-oriented one. European and Asian companies remain tough competitors for U.S. firms, due to their proximity to the Russian market and their long-standing relations with Russian organizations and companies.

Government bureaucracy, poorly established laws, and corruption negatively affect such areas as business establishment, tax collection, dispute settlement, property rights, and product certification and standardization, as well as customs clearance.

Similarly, finding qualified local partners and employees remains a difficult process. The pool of managers who understand Western accounting and business practices is limited, as is the pool of qualified, experienced Russians proficient in English.

The lack of adequate financial resources for Russian buyers still remains a problem, although it is less so than it has been historically. Today there are more foreign banks operating in Russia, and there is more cash circulating within the economy due to surges in Russian energy prices.

The Russian government continues to use its oil and gas resources to increase the State's ownership in certain strategic industries and companies. As a result, it is not completely clear to foreign companies which sectors are open to them for investment without Russian majority partners. The Russian Duma continues its work on defining what these strategic sectors are (U.S. Department of Commerce, 2007).

Most U.S. manufacturers have exclusive distributors for Russia, due to the seven-hour time difference between New York and Moscow and the physical distance of more than 5,000 miles. European and Moscow distributors of U.S. equipment who do not have Far East dealers have great difficulty providing service to Russian Far East customers. Consequently, potential Far East print customers are often underserved, as the availability of timely service is vitally important for commercial print operations (U.S.

Commercial Service Vladivostok, 2004). The market for printed products is highly concentrated in the following areas: Moscow, Saint Petersburg, Oblast of Samara, the Republic of Bashkortostan, and the Komi Republic.

It is also important to acknowledge that the market for print services is one of the "darkest" and most opaque from perspective of seeking information. Companies do not heavily advertise using either the Internet or print media. To illustrate, out of the 267 companies included into the printing industry portal www.ruprint.ru, only 18 companies provide their web site information. Instead, these companies depend on traditional sales channels, with an emphasis on an existing customer base, advertising through word of mouth, mail distribution, and street advertising.

Doing Business in Mexico

Mexico is among the world's most open economies, but it is dependent on trade with the U.S., which bought 86% of its exports in 2005 (U.S. Department of Commerce, 2007). Top U.S. exports to Mexico include electronic equipment, motor vehicle parts, and chemicals. Top Mexican exports to the U.S. include petroleum, cars, and electronic equipment. There is considerable intra-company trade.

Mexico is highly dependent on exports to the U.S., which account for almost a quarter of the country's GDP. Trade disputes between the U.S. and Mexico are generally settled through direct negotiations between the two countries or via WTO or North American Free Trade Agreement (NAFTA) panels.

Mexico's trade regime is among the most open in the world. The country has free trade agreements in place with the U.S., Canada, the EU, and many other countries. Since the 1994 devaluation of the peso, the Mexican government has worked to improve the country's macroeconomic basics. Inflation and public deficits are now under control.

Foreign Investment

Foreigners and foreign corporations may invest up to 100% of operating capital in a Mexican corporation, unless the Mexican corporation has an exclusion clause or is involved in a certain economic activity reserved for state ownership. These reserved activities are similar to those in many other countries, and include oil and petrochemical production, electrical and nuclear energy, seaport and airport operations, as well as industries associated with national defense. These activities are specifically regulated by the legislature, indicating maximum percentages of participation of foreign capital. Of particular interest to printers is the fact that newspapers publication for national circulation can have only 49% non-Mexican ownership.

International Trade

Much of the information reported in this section is sourced from BANCOMEXT's website on doing business in Mexico (BANCOMEXT, 2006). This site is recommended

for more detailed information on fiscal laws and employee requirements when doing business in Mexico.

Imports

The Mexican government continues its gradually elimination of restrictions on imports. All fiscal obligations must be accomplished and all proper documents must be presented when importing, including the importer's Federal Tax ID Number.

Import and Export Taxes

Preferential import tax rates apply when imports come from countries that have signed trade agreements with Mexico, such as countries within the Integrated Latin American Association (LAIA), North American Free Trade Agreement (NAFTA), and various other free trade agreements that include countries such as Colombia, Venezuela, Costa Rica, Bolivia, and Chile.

Border Regions

Customs law indicates the geographical limits of the border regions. The law divides the region into two large parts, the border line and the border region. The border line includes the areas within 20 parallel kilometers of the international border, while the border region is the geographical space that is determined by the federal executive branch.

NAFTA and the federal government have several measures for the specific treatment of foreign trade that is destined to, or originating from, the border regions. The following are border regions: Baja California, parts of Sonora, Baja California Sur, Quinta Roo, Salina Cruz in Oaxaca, and the southern border with Guatemala.

North American Free Trade Agreement (NAFTA)

The North American Free Trade Agreement (NAFTA) went into effect on January 1, 1994. The principal purpose of NAFTA is to reduce or gradually eliminate import duties between Mexico, Canada, and the U.S. The mission of NAFTA is to simplify processes and to develop faster procedures for solving controversies and disputes.

The principal goals of NAFTA are to:

- Gradually eliminate quantitative and qualitative barriers
- Avoid the practice of dumping
- Increase investment opportunities
- Protect intellectual rights
- Promote trilateral cooperation

Employee Rights

Minimum Wage

Minimum wage is the minimum amount that must be paid to employees for their daily services. Minimum wage in Mexico differs from minimum wage in the U.S. In the U.S., there is a federal government minimum wage established for the entire country, but individual states can establish a higher minimum wage. In Mexico, a federal government established commission determines the minimum salary that the employers in each area of a country must pay based on the economic conditions in that area.

Additionally, there are general and professional rates for minimum salaries in Mexico. The general salaries correspond to all employees of a geographical area of application. The professional rates depend on the economic activity performed. The Federal Labor Law recognizes 88 different minimum salary rates.

Christmas Bonuses

Employees in Mexico have the right to receive a Christmas bonus that is paid before the 20th of December of each year. This bonus is the equivalent of at least fifteen days of salary.

Maternity Benefits

According to Mexican Social Security Law Article 101, a woman has the right to maternity benefits which include a period of 42 days prior to delivery and 42 days after delivery at 100% of her daily salary.

Profit Sharing

Article 123 of the Mexican Constitution establishes that all corporations are obligated to share their yearly profits with their employees. The percentage of distribution is 10% of the yearly profits.

Major Tax Laws

Mexican tax legislation contains different laws related to income, capital earnings, certain transactions, and assets.

The fundamental legal structure for taxes is defined within the Mexican Constitution, and the Congress then enacts the federal laws. Most tax laws have a series of regulations or by-laws issued by fiscal authorities that provide for procedures and interpretations.

Federal Income Tax

For corporations residing in the country, the legal address will be considered as the premises in which the principal administration of the business is located. In the event the corporation resides abroad, the legal address will remain in the country where the

principal administration of the business is located. The legal address of the business firm is critical in that it determines which countries, counties, and/or municipal tax rates apply.

Value Added Tax (VAT)

VAT is collected on the value added to the goods or services in each stage of the production and distribution process. It is paid once by the final consumer of the value added at each level. The general rate of this tax is 15%.

Transfer of Goods and Assets

The term transfer of goods includes the transfer of property in any way, whether directly or by means of a conditioned transfer, through financial leasing, and by any other way described in the law.

There are some cases of important tax exemptions regarding the transfer of goods. The most relevant to the printing industry are: books, newspapers, and magazines.

Asset Tax

This tax is levied on the average of the value of the assets owned by corporations or individual taxpayers that perform entrepreneurial activities. This tax rate is established at 1.8% on the average book value of the assets.

Local Taxes

Payroll Tax

Similar taxes are applied in most states of the Mexican Republic. This tax is levied on all payments in cash or in-kind made by individuals and corporations, including any kind of remuneration for working for an employer. The established applicable rate is 2%, which is applied to all payments for services performed for employers.

Municipal Real Estate Tax

Municipalities have the right to collect real estate tax on all real estate transfers. For example, currently the municipal real estate tax is levied at the rate of 0.2% to 2.0% for transactions greater than $200,000.00 pesos in the Guadalajara metropolitan area.

Difference Among Mexican States

In Chapter 2, we compared the overall ease of doing business in all five countries surveyed in this study. Mexico rated well in terms of perceived ease of doing business. However, this rating does not take into consideration the differences among states within Mexico. The World Bank Group's (2007) publication titled "Doing Business in Mexico 2007: Comparing Regulations in the 31 States and Mexico City" analyzes each of the states. It is not surprising that some of the states are friendlier to business than are

others. As rated by this report, the top ten states for doing business (in terms of ease of doing business) are:

	State	City
1.	Aguascalientes	Aguascalientes
2.	Guanajuato	Celaya
3.	Nuevo Leon	Monterrey
4.	Sonora	Hermosillo
5.	Campeche	Campeche
6.	Zacatecas	Zacatecas
7.	Queretaro	Queretaro
8.	Michoacan	Morelia
9.	Sinaloa	Culiacan
10.	Distrito Federal	Mexico City

These states are fairly well distributed across Mexico, covering the northwest (Sonora and Sinaloa), north-central (Nuevo Leon), central (Zacatecas), south-central (Distrito Federal, Guanajuato, and Queretaro), and southeast (Campeche).

These ten states of Mexico compare favorably with some of the best business practices in the world. However, other states need significant reforms if they are to be attractive to businesses. An example is how long it takes to collect on a debt default. It can take nearly a year in Guanajuato, or a year and a half in Baja California Sur.

Mexico is reforming its business practices at a rate that compares favorably with other emerging markets of the world. For example, the corporate income tax rate was cut from 33% in 2004 to 30% in 2005, and then again to 29% in 2006.

Even though there is a federal commercial code that provides a legal framework for business, municipal and state requirements vary and affect the number of processes, amount of time, and ultimately the cost of doing business in one state versus another. This makes the debt default collection comparison of Guanajuato and Baja California Sur so interesting. Both states follow the same laws, but state courts are not equally efficient or do not enforce federal procedures in the same way.

The Mexican Printing Industry

The Mexican printing industry has experienced some of the same forces as in industrialized markets. These include consolidation of the industry, increasing competition, and erosion of profit margins. As of May 2006, the printing industry in Mexico is concen-

trated in Mexico City, Estado de Mexico, Jalisco, and Nuevo Leon, which captures more than 50% of the total market (U.S. Commercial Service, 2006).

The graphic arts industry in Mexico supports 140,000 direct employees through more than 17,000 firms. These numbers include all segments of the graphic arts industry, including newspaper, magazines, books, packaging, and advertising/commercial printing.

Table 3-1. Market structure (Martinez, 2006)

Size	Number of employees	Number of firms
Micro	1-20	14,075
Small	21-100	2,674
Medium	101-200	257
Large	More than 201	138
Total		17,144

It is estimated that 70% of these companies have equipment that is at least 15 years old. Even firms with modern equipment lack the training needed to exploit possible opportunities. The lack of trained personnel is pushing some universities to create new degree programs in Engineering in Graphic Arts.

Doing Business in Brazil

MERCOSUR and other Trade Partners

Brazil is strengthening its trade relationships with the countries of MERCOSUR, a customs union that includes Argentina, Brazil, Paraguay, and Uruguay. Chile and Bolivia are slated to join the union in the near future. MERCOSUR was established in 1991, with the goal of increasing regional economic cooperation among member countries (MERCOSUR, 2007). To increase exports, the government is seeking expanded trade relationships with countries such as China, Mexico, and Canada. Brazil has also become increasingly involved in international economic and trade policy discussions, as shown in its leading role in the World Trade Organization (WTO) Doha Round talks.

Tariffs and non-Tariff Measures

Tariffs

Tariff rates in Brazil are administered by the country as well as through MERCOSUR policy. In January of 1995, MERCOSUR enacted the Common External Tariff (CET) to unify the tariff rates for all member countries. As of 2004, the "CET covers 9,626 items with tariffs ranging between zero and 21.5%" (Office of the United States Trade

Representative, 2004). Information technology and telecommunications goods carry slightly higher tariff rates, ranging between 0 and 26% in 2004. The list for technology and telecommunications products covers 427 items. While the CET was intended to provide a common tariff schedule across member countries' borders to reduce complications for importers, individual countries have been allowed to adjust their schedules to suit their needs. In Brazil, the macro-industries hardest hit by the modified schedules are agricultural and technology sectors. Brazil's exception list carries over one hundred items, and the country has increased tariffs for products they prefer to source domestically.

Licensing and Product Valuation

One of the largest barriers importers to Brazil face is the strict licensing process required to bring goods into the country. Brazil uses a trade documentation solution called SECEX, through which all import transactions are entered to make evaluative decisions that determine tax rates and tariff fees. All importers are required to use this system, and it presents a significant barrier to entry in the Brazilian market. There are strict and detailed registration requirements, a registration fee for first-time use, and fees for each time an order is entered into the system.

The licensing process is similarly opaque: goods coming into the country could potentially bypass SECEX if they knew whether or not they needed a "non-automatic import license." An "automatic import license" covers most goods, while a "non-automatic import license" covers goods that have to be cleared through domestic ministries. Examples for "non-automatic" items include weapons and many agricultural commodities. The difficulty arises when importers need to assess whether or not their product needs a license, as the only way to check product license status is as a registered, paying user of SECEX.

In addition, the Office of the United States Trade Representative believes a "gray line" inspection process exists at many customs checkpoints, allowing for unbalanced treatment of product value and suitability for entrance into the country (Office of the United States Trade Representative, 2004). Reference pricing (also discussed in the section on China) is a concern, and the U.S. has discussed this issue with Brazil through WTO communication channels.

Government Procurement Practices

Transparency is a significant issue for importers wishing to bid on governmental RFPs, due to the preference of government agencies for domestic products. Brazil is not subject to the WTO's government procurement policies, which do not allow the awarding of a bid based on nation of origin. Although this results in domestic sourcing policies for most products, information technology and telecommunications procurement requires non-discriminatory practices. In practice, the process for selecting a winning bid is substantially subjective, as RFP issuers are allowed to use non-price factors in their selection criteria. Opacity is created through evaluation criteria that are

complex, nationally biased, and not open to the public (Office of the United States Trade Representative, 2004).

Intellectual Property Rights

As in China, intellectual property rights violations are a continuing cause of concern in Brazil. Within the country, however, piracy is almost entirely limited to consumer media, in particular CDs and DVDs. While this could be of concern to producers of production printing software, it is secondary to the larger issue of import processing.

Cost of Capital

The cost for a national citizen or business to use financing is greater in Brazil than in any other country surveyed in this study. As of 2005, lending rates to businesses in Brazil ranged between 25 to 50% per year. This adds substantial cost to the original purchase price, and many U.S. importers are finding it difficult to sell in the country for this reason.

Similar to the U.S. Federal Funds Rate, the Selic is Brazil's national government interest rate, which heavily influences commercial banking rates. As of March 2006, the Selic rate was lowered to 16.5% (Reuters, 2006). To compare, in the immediate period preceding that rate, the Selic rate was set at 17.25%, and in the fourth quarter of 2002 the rate was 22% (Latin Focus, 2002).

For a U.S. importer, the financing options with the least amount of risk are confirmed letters of credit or cash in advance. Unfortunately, many Brazilian businesses are not able to provide cash, especially for large purchases such as printing equipment. Letters of confirmed credit brokered via U.S. banks are often expensive. Choosing these methods of payment have resulted in the loss of U.S. sales to other nations that are more willing to employ other financing methods.

The other, higher-risk methods for financing include unsecured and insured open account terms. Unsecured open account terms have the most risk, as the importer ships the goods without securing payment. In this case, there is no guarantee that payments will be made. The second form, insured open account terms, offer insurance in the event that the buyer does not pay. This is a moderately risky financing option, but many importers may find they are not insurable. Because bank loans do not cover the entire scope of the financing process, insurance is brokered through third parties, representing an additional level of complexity to transactions.

Where is the Printing Industry Concentrated?

Sixty percent of the industry is concentrated in the southern and southeast regions of the country, in cities such as Rio de Janeiro, São Paulo, and Menaus. The northeast and northern regions are poorer than the rest of the country. These regions are experiencing faster economic growth than the south, but are starting from a smaller economic base.

Brazil is a large country lacking a sufficient transportation infrastructure. Therefore, as regions become wealthier, the local printing industries will grow to serve local and regional markets. This may be an opportunity for digital printing systems, as content could be generated in centers like São Paulo, then transmitted to remote regions for local production.

Appendix A: China—Printing & Publishing Market

Overall Chinese national economic strength has increased remarkably. The development of economy, culture, press and publication, and foreign trade paired with an improved national standard of living has created widespread and diversified market needs for all sectors of the printing industry. This includes publication printing, package printing, commercial printing, and all other types of printed deliverables.

China's current political leadership has made economic growth and poverty alleviation its top priorities. The government's macroeconomic policies have laid the foundation for economic growth, control of inflation, and a decline in poverty.

Macro-Economic Environment of China

Market Size

Table A-1 provides a five-year overview of some of the most important trends in China. The population of China in 2005 stands at about 1.3 billion, and is growing at about 0.70% per year. Just 42% of the population lived in urban areas in 2005. There are 372 million households, with an average of 3.5 persons per household. This is an important fact, as many books, magazines and newspapers are shared by the members of a household. In addition, the relative economic size of the market in China can be interpolated through energy consumption levels for the nation. China has had a strong growth relative to other countries in this area, increasing by nearly 46% in the four-year period from 2001 to 2004.

China's one-child policy has had a significant impact on the median age of the population, which is growing older relatively rapidly. In 2000, the median age of the population was 31.1, but by 2005 the median age had grown to 34.6. China's population is significantly older then most emerging markets. The single child policy of China resulted in a one-child, "six pockets" phenomenon, where each child has two parents and two sets of grandparents that will help support that child. This phenomenon increases the dollars available for books and other printed materials for each member of younger generations.

Table A-1. Market size measures (Euromonitor International, 2006; World Bank Group, 2006b; U.S. Energy Information Administration, 2004)

Measure	2001	2002	2003	2004	2005
Population (millions)	1,268.2	1,276.3	1,285.5	1,295.2	1,304.1
Population growth rate	0.77%	0.63%	0.72%	0.75%	0.68%
Urban population (millions)	477.6	498.9	519.1	537.6	556.3
Electricity consumption (billion kwh)	1,356	1,511	1,772	--	--
Total primary energy consumption (quadrillion Btu)	40.83	42.38	49.73	59.57	--
GDP (billions of U.S. dollars)	1,191.2	1,303.6	1,470.7	1,936.5	2,225.0

Market Growth Rate

The growth rate of market indicators is necessary to contextualize those demographic factors and the increasing demands on national infrastructure. The growth rate of primary energy use has exploded, trending from 4.99% in 2001 to 16.53% in 2004. The largest year over year increase occurred between 2002 and 2003. The growth trend for GDP was more modest over the same period, with a slight increase from 8.3% in 2001 to 10.1% in 2004. From 2004 to 2005, there was a slight decrease in GDP, which dropped to 9.9%.

Table A-2. Market growth indicators (World Bank Group, 2006b)

Measure	2001	2002	2003	2004	2005
Annual growth rate of primary energy use	4.99%	3.65%	14.77%	16.53%	
Real GDP growth rate	8.3%	9.1%	10%	10.1%	9.9%

Market Intensity

In 2005, the GDP per capita in China was $1,727 at purchasing power parity. While GDP has increased over the five-year period, private consumption as a percentage of GDP has steadily decreased, from 46.86% to 33.14%. This means that governmental consumption has increased substantially during this time period. As of 2005, the average annual income has increased at over 10% annually since China entered the WTO. The average gross annual income has been growing in a pattern that has substantially exceeded the Chinese inflation rate. As a result, consumer expenditure between 2001 and 2005 has increased from $558.1 to $737.4 billion. Another way to explore income levels in China is to look at the percentages of household with incomes in excess of $2,500. In 2005, 21.2% of households meet this level. It's important to note that while only 1.3% of households have incomes of over $10,000 per year, this represents about 17 million people that live in these households.

Table A-3. Market intensity measures (World Bank Group, 2006b)

Measure	2001	2002	2003	2004	2005
GNI per capita estimates using PPP (in U.S. dollars)	1,030.1	1,127.4	1,271.4	1,492.0	1,727.0
Consumer expenditures (billions of U.S. dollars)	558.1	583.5	633.7	685.1	737.4
Private consumption as a percentage of GDP	46.86%	44.76%	43.09%	35.38%	33.14%

Economic Overview

In 2005, the Chinese economy was the third highest in the world after the United States and the European Union. Table A-4 provides data on the overall economic health of China since 2000. The Chinese economy has grown steadily at 8 to 10% annually between 2000 and 2005. FDI also increased at a rate in excess of 10% for each year of the 21st century. Within China's controlled economy, inflation rates have been held to very modest levels, exceeding 2% only once, in 2004.

Growing Exports

With rates nearly doubling between 2001 and 2004, China's growing export activity suggests the demand expectations for print products. Beyond simply market-ready, stand-alone print work, most goods exported from the country across all industries are shipped in printed packaging, generating revenue for commercial printers and packaging firms.

Table A-4. Economic measures (Euromonitor International, 2006)

Measure	2001	2002	2003	2004	2005
Total GDP (billions of U.S. dollars)	1,325	1,454	1,641	1,932	2,225
Real GDP Growth	8.3%	9.1%	10.0%	10.1%	9.9%
GDP measured at PPP (billions of international dollars)	$5,375	$5,917	$6,574	$7,334	$8,092
Annual rates of inflation (% growth)	0.46%	-0.77%	1.16%	3.99%	1.82%
Foreign direct investment inflows (billions of U.S. dollars)	46.8	52.7	53.5	60.6	
Exports of goods and services (billions of U.S. dollars)	26.6	33.8	32.4	49.3	
Annual lending rates (% interest on loans)	5.85%	5.31%	5.31%	5.58%	
Tax Rates on Individuals	33%	33%	33%	33%	
Tax rates on businesses (% Ranges)	5-17%	5-17%	5-17%	5-17%	
Exchange rates against U.S. dollar (RMB per U.S. dollar)	8.28	8.28	8.28	8.28	8.28

Commercial Infrastructure

As an indicator of the potential of an economy to support growing business interests in the area, commercial infrastructure details the adoption of communication technologies by the population. Unlike many of the other countries in this study, the use of landline telephony has increased substantially between 2001 and 2004. The initial base of 13.74 mainlines per 100 inhabitants has nearly doubled to 26.63. This growth has not

had a negative impact on the growth in cellular subscription rates. The growth of wireless technology over the study period has nearly tripled, from 11.01 subscribers per 100 inhabitants to 29.90. This growth rate is faster than the global average, and it mirrors the worldwide trend towards increasing reliance on cell phone technologies over traditional landlines.

Finally, the number of television sets has steadily decreased over the study period, from 864.6 per 1,000 people to 836.0, reflecting the expansion to other media outlets for sources of entertainment and information. This pattern is not seen in the U.S., where TV set ownership has remained flat at about 999 per 1,000 people.

Table A-5. Commercial infrastructure (International Telecommunication Union, 2005; World Bank Group, 2006b)

Measure	2001	2002	2003	2004	2005
Telephone mainlines (per 100 inhabitants)	13.74	16.88	20.33	23.98	26.63
Cellular mobile subscribers (per 100 habitants)	11.03	16.04	20.89	25.76	29.90
Television sets (per 1,000 people)	864.6	852.4	844.6	841.8	836.0

PC Use and Internet Access

Table A-6 provides an overview of the penetration of PCs and the Internet in China. The number of personal computers in use has dramatically increased from 25.0 million in 2001 to 80.6 million in 2005, which represents an average annual increase in excess of 20%. By 2005, 75.8% of Chinese households with a PC were online. The number of Internet users continues to explode, and, as of 2005, included almost 237 million people as compared to only 34 million in 2001. This trend will increasingly affect the consumption of printed materials in future years.

Similarly, the IT infrastructure for Internet use has increased over the time period at a faster pace than that of other countries. China and India in particular have seen the strongest growth trends in IT technology acquisition, but their base levels are still far below other countries in the study. In 2001, there were less than 2 personal computers per every one hundred people in the population. Today, that figure stands at just over four per person. While this represents a 200% increase in PC adoption by consumers and businesses, this number lags behind other emerging countries such as Brazil, which had 10.52 PCs per 100 people at the end of 2005. Similarly, the number of Internet hosts per one million people has grown substantially from 68 to 125 during the period. Between 2001 and 2002 the number of hosts increased from 68 to 122, but this rapid growth leveled off between 2002 and 2005.

Table A-6. PC penetration and access to the Internet in China (Euromonitor International, 2006)

Measure	2001	2002	2003	2004	2005
Households (millions)	353.4	358.3	362.9	367.6	372.1
Personal computers (PCs) in use (millions)	25.0	35.5	47.3	62.2	80.6
PC households online (% of PC households)	40.7	53.0	63.8	70.9	75.8
Internet users (millions)	33.7	59.1	101.2	162.1	236.9
Number of PC's (per 100 habitants)	1.90	2.80	3.90	4.10	4.10
Internet hosts (per million people)	68	122	124	125	125

Freedoms

Table A-7 provides information on political and economic freedoms in China, as well as the direction of any changes. The Heritage Organization reports that the economic freedom has improved to a rating of 3.3 in 2006, based on a scale from 1 to 5 where 1 is the highest rating. As a point of comparison, U.S. economic freedom was rated at a 1.8 in 2006.Political freedom was the weakest of all the countries examined, and was rated at a 7 on a scale of 1 to 10 where 1 is the highest, U.S. political freedom was rated a 1. In terms of corruption, Transparency International's CPI for China dropped to a 3.2 in 2005 from a 3.4 in 2004, indicating that perceived corruption has increased. (The CPI is ranked from 1 to 10, with 10 being the highest ranking and indicating no perceived corruption.) As a comparison, the U.S. had a CPI of 7.6 in 2005.

Table A-7. Economic and political freedom (Freedom House, 2007; The Heritage Foundation, 2007; Transparency International, 2006)

Measure	2001	2002	2003	2004	2005	2006
Economic Freedom Index	3.6	3.6	3.5	3.6	3.5	3.3
Political Freedom Index	--	7.0	7.0	7.0	7.0	--
Corruption Perceptions Index	3.5	3.5	3.4	3.4	3.2	--

China's Trade Policies

To provide a reference for businesses considering the export of print products to China, the following section highlights the nation's trade policies. The key findings that follow speak to China's application of standardized trade laws and regulations following their accession into the WTO in December of 2001. In addition, issues of transparency regarding the import of U.S. goods into China are addressed. Specific critical issues include:

- Chinese barriers to some U.S. exports
- Large-scale intellectual property rights violations
- Poor compliance with international trade regulations

- Chinese government's preference for domestic suppliers
- A growing trade imbalance that reflects Chinese interest in export and resistance to U.S. imports.

Market Receptivity

China's trade activities represent one of the single most important trends in recent history. The country's movement from a closed-market economy to a trade-oriented national business model over the past two decades has had a significant impact on trade with the U.S. over the study period. From 2001 to 2005, Chinese export volume has increased from $19.18 to $41.83 billion, representing an increase of 218%. Similarly, the increase of per capita imports from the U.S. has increased from $15.12 to $32.08 dollars per person. Overall, China's trade as a percentage of its GDP has increased from 23 to 34% between 2001 and 2004.

Table A-8. Market receptivity (Euromonitor International, 2006)

Measure	2001	2002	2003	2004	2005
Imports from the U.S. (billions of U.S. dollars)	19.18	22.13	28.37	34.74	41.83
Per capita imports from the U.S. (U.S. Dollars)	15.12	17.34	22.07	26.82	32.08
Trade as a percentage of GDP (%)	23%	25%	30%	34%	

Micro-Environmental Factors Influencing Printing

Micro-environmental factors include information that is more directly related to the health of the industry. These factors include information about newspaper and magazine circulation, the production of paper, the number of students, Internet penetration, and other variables.

Newspaper and Magazine Consumption

Newspaper circulation in China has not followed the general trend. Most developed and developing nations in the world have seen declines in newspaper readership. In China, the annual daily newspaper circulation has increased from 77 million copies in 2000 to 106 million copies in 2005 (see Table A-9). This means that the average per capita consumption of newspapers is now 32.9 issues per year in 2005, as compared to 26.6 issues in 2000. Total Chinese consumer expenditures on newspapers, magazines, books, and stationery have increased from $2.659 billion in 2000 to $3.486 billion in 2005.

Table A-9. Newspaper and magazine consumption in China
(Euromonitor International, 2006)

Measure	2000	2001	2002	2003	2004	2005
Population (millions)	1,259	1,268	1,276	1,285	1,295	1,304
Annual daily newspaper circulation (million copies)	77.1	83.6	87.1	93.0	98.2	106.2
Annual non-daily newspaper circulation (millions)	103.4	99.3	101.8	93.3	88.6	79.8
Newspaper annual copies per capita	26.6	28.1	29.1	30.2	31.2	32.9
Circulation of periodicals (million copies)	--	--	--	--	2,835	--
Magazine annual copies per capita	--	--	--	--	2.19	--
Number of magazine titles published (thousands)	8.3	8.5	8.6	8.7	8.8	8.9
Consumer expenditure on newspapers, magazines, books and stationery (millions of U.S. dollars)	2,659	2,649	2,909	3,065	3,294	3,486

Paper Production

Another way to gain a perspective on the printing industry is to look at paper production, as usage levels for manufacturing resources suggest the level of demand for print products from external customers (see Table A-10). The annual production of paper and paperboard in 2000 amounted to 35.4 million metric tonnes, and increased to 59.3 million tonnes in 2005. (One metric tonne is equal to 1,000 kilograms, which is about 2,200 pounds.) An even more impressive increase was observed with the production of printing and writing paper, where production nearly doubled from 7.7 million tonnes in 2000 to 13.2 million tonnes in 2005. Consistent with the early discussion of increased newspaper readership, the production of newsprint increased from 1.53 million tonnes in 2000 to 3.45 million tonnes in 2005.

Table A-10. Paper production in China - shown as thousand tonnes
(Euromonitor International, 2006)

Measure	2000	2001	2002	2003	2004	2005
Production of newsprint	1,529	2,029	2,286	2590	2,936	3,465
Production of paper and paperboard	35,439	37,929	42,329	47,529	53,463	59,263
Production of printing and writing paper	7,710	8,310	9,307	10,486	11,831	13,170

Student Enrollment

Student enrollment is important to the printing industry in two ways. First, students are important consumers of textbooks and periodicals. Second, a more educated population is likely to be a heavier consumer of printed materials. As can be seen in Table A-11, the enrollment in primary school has decreased from 130 million in 2000 to 116 million in 2004. In contrast, the pattern in secondary school attendance was an increase from 85 million in 2000 to 107 million in 2004. Attendance at the university level showed an even greater increase, as attendance doubled from 5.6 million in 2000 to 11.1 million in 2003.

Table A-11. Student enrollment in millions (Euromonitor International, 2006)

Measure	2000	2001	2002	2003	2004
Primary school pupils	130.1	128.9	124.2	119.8	115.9
Secondary school pupils	85.2	89.0	94.9	101.0	107.3
Number of students in universities	5.6	7.2	9.0	11.1	--

The Chinese Printing Industry

Graphic communications represents about 1.7% of China's GDP. The Printing and Printing Equipment Industries Association of China (PEIAC) is the sole national printing industrial association in China, representing the industries of printing equipment manufacturing, print material production, and printing. PEIAC is a non-profit organization working as a "bridge" between the government and businesses. It has more than 1,200 company members from all over the country, as well as 31 fellowship members that are the local printing associations of 31 provinces, autonomous regions, and municipalities under the central government of China.

The Chinese printing industry has been experiencing some of the same forces that the industry is seeing in industrialized markets. These include consolidation, increasing competition, and the erosion of profit margins. As of 2005, the industry was reported to have the following characteristics (Zhou, Y., personal communication, July 7, 2006):

- 90,000 printing and printing-related establishments
- 3,400,000 employees
- $310 RMB billion ($38 billion) in revenues

The mix of establishment sizes, ownership profiles, and manufacturing abilities have a negative effect on the performance of the print industry as a whole. Since most print enterprises are state-owned, they cannot modify their marketing and operations to the same extent as private enterprises.

Table A-12. Industrial segments sales in billions of RMB (PEIAC, 2006)

Segment	2001	2002	2003	2004	2005
Prepress	13.1	14.0	15.3	16.9	18.5
Book & Periodical Printing	37.7	49.4	63.3	70.7	75.0
Newspaper Printing	32.8	35.0	40.5	45.9	50.5
Package Printing	75.0	80.0	89.6	98.1	108.0
Foreign Trade				22.0	29.0
Other Printing	20.7	22.0	24.0	26.4	29.0
Total Printing Turnover	**179.9**	**201.2**	**230.9**	**280.0**	**310.0**

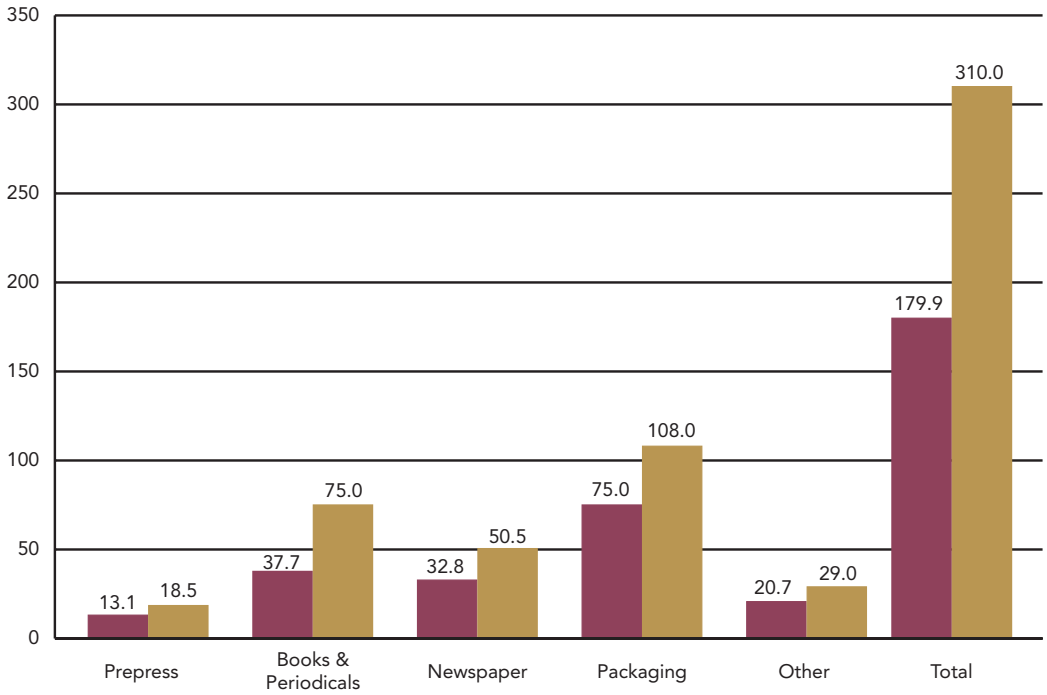

Figure A-1. Chinese printing segment sales (PEIAC, 2006)

Industry Segmentation

Using the information in Table A-12 and Figure A-13, total printing volume has increased by 74% between the years of 2001 and 2005. Books and Periodicals showed a 99% increase over these years. Newspaper printing increased by 54%. Packaging and prepress showed an increase of 44% and 41% respectively. The Other category increase included the foreign trade data for 2005, but foreign trade was not recorded as a separate category in 2001.

Packaging

Packaging is the largest segment of the Chinese printing industry, although government statistics potentially understate the true size of the segment. This is due to the fact that the majority of consumer products made in China for export are also packaged in China. Sony, for example, has many manufacturing facilities in China, and the packaging for these products is also manufactured in China before the finished, packaged products are exported. These numbers do not appear in Chinese government statistics on print production because they are counted as part of the electronics manufacturing industry. The value of the packaging around Sony DVD players, for example, is not distinguished from the products inside (Zhou, Y., personal communication, July 7, 2006).

Printers who do contract packaging and printing work for manufacturing companies like Sony may or may not report these revenues to the government. This creates a gray

area in the reported statistics, and this gray area is growing. Because package printing is not regulated by the government, it is difficult for the government to analyze the entire market. In addition, the majority of printers are located in special trade zones to take advantage of tax incentives.

Magazines and Books

By the end of 2004, there were 9,490 magazine titles in China, with a total circulation of 2.835 billion copies. The majority of magazines are non-profit or academic magazines, although there are 1,276 commercial magazines that account for 13.45% of all titles. Publication revenue is the main revenue for China's magazine industry. In 2003, China's magazine net publication revenue reached around RMB 6 billion ($ 725 million), accounting for 68% of the total revenue of the industry (China Knowledge Press, 2006).

It has been suggested that book printing for the domestic market is declining significantly. The volumes of books printed are decreasing, and production runs are getting shorter. Young people are reading fewer books and newspapers than their elders.

Periodicals and books can only be printed by firms with a government issued license and identification number. This number has to be printed on all materials produced so that they can be tracked to their point of origin. The reason for the required identification is political. Mass-distributed publications are a potential vehicle for the dissemination of propaganda, and the Chinese government holds the publishing house and the printer accountable for any infractions. Product packaging is free from licensing restrictions and identification requirements.

Newspaper Industry

China's newspaper industry is developing rapidly, fueled by the liberalization of the state controlled markets. This liberalization allowed newspapers to take advantage of burgeoning company advertising budgets during the country's current fast economic growth. The industry generated total revenues of $4.9 billion in 2004, representing a compound annual growth rate (CAGR) of 13.8% for the five-year period from 2000 to 2004. In 2003, the number of newspaper titles reached 2,119. They were owned by 1,200 publishers and press groups across the country. The number of titles is nearly 11 times more than it was in 1978 when China started on its liberalization policy.

Circulation figures and advertising revenues show that the newspaper business in China is poised to blossom into a mature and stable industry. According to statistics reported by the World Association of Newspapers (2004), China's total daily news circulation reached 85 million copies in 2003. This was 3 million copies more (3.66% more) than in 2002. China was also reported to be the country with the largest daily newspaper circulation. Nineteen dailies from China were among the top 100 daily newspapers globally in terms of circulation. In other words, China accounts for 19% of the 100 largest daily newspapers around the world.

Market Potential

China is a large country, with an underdeveloped road system in many regions. As these regions become wealthier, the local printing industries will grow to serve local and regional markets, bounded by transportation barriers to industrial centers. This may be an opportunity for digital printing, where content is generated in major urban centers and then transmitted to remote regions for production.

Trends for Digital Printing

There are four major trends for digital print in China: (Shen, 2005)

1. Franchising is becoming one of the most important business modes for Chinese digital print players.
2. Digital printers are generating new profits by providing value-added services to customers.
3. Quick response and network services based on digital, network, and database technologies are becoming some of the core competitive advantages for digital print enterprises.
4. Digital print has become increasingly integrated with traditional print, becoming an additional value-added service provided by printers. It is expected that the production value of digital printing will experience a yearly average growth rate of 30%.

It is imperative that consolidation occurs in the printing industry. Of the 90,000 printers, only 10 are large enterprises. Small to medium companies do not have the resources and expertise to meet the needs of China's national industrial growth. Most print company owners are self-taught business people, and may lack the scope of vision necessary to sustain long-term growth. Successful future mergers and acquisitions have the potential to generate a greater volume of print products for the industry, with increased revenue streams to support continued growth. Additionally, sustainability is a critical factor to the successful maturation of the printing industry as a whole.

Printing is still viewed by the government as a propaganda tool, which impedes the growth of the industry as compared to other manufacturing industries that are not subject to content approval. Industry development without government restriction could yield highly successful endeavors in print centers like Hong Kong and Taiwan.

When Hong Kong-based companies first established plants in China, they anticipated that wages and costs would remain lower than in Hong Kong for at least ten years. However, these factors have equalized faster than expected - within five or six years. Currently, to offset escalating operations costs, companies are exploring capital projects located farther inland to save money on labor costs using an underutilized workforce. This will bring new companies into competition with existing establishments in these regions, potentially accelerating consolidation efforts. Small and medium companies may find it harder to stay in business as a result.

To add to the complexity of doing business as a Chinese printing company, most businesses are looking for ways to diversify their portfolio of offerings. In particular, digital printing is a promising solution for many companies, but intense competition and the high costs of entry and operation are barriers to this kind of growth.

Large companies are establishing footholds in the country's interior, starting to compete for local domestic work while continuing to maintain large facilities serving export markets in coastal areas. Print companies will be better able to take advantage of their local connections in China's mainland as the new economic prosperity of the coastal region expands their geographic reach.

In general, production costs for printers are not more affordable in China than in other countries. Large companies use the same technology and materials as their international competitors. Although labor costs are lower, these costs represent a small percentage of the overall operation cost base.

Table A-13. Chinese GDP and printing sales (PEIAC, 2006)

Measure	2001	2002	2003	2004	2005
Total GDP (billions of RMB)	9,859	10,790	12,173	14,239	15,665
GDP growth	8.3%	9.1%	10.0%	10.1%	9.9%
Printing sales (billions of RMB)	179.9	201.2	230.9	280.0	310.0
Printing growth rate	--	11.8%	14.8%	21.3%	10.7%
Printing as a percentage of GDP	1.83%	1.86%	1.90%	1.97%	1.98%

As a prelude to forecasting printing sales in China, it is useful to review the last five years of data on its GDP and printing industry.

Table A-13 reviews GDP growth and printing industry sales (as reported by PEIAC). China's GDP has been growing at a rate of about 10% over the past few years. The printing industry has been growing at an even higher rate, reaching growth as high as 21.3% in 2004 but dropping to a rate of 10.7% in 2005. Perhaps a better measure of the printing industry's growth has been the percentage of GDP that comes from printing. China's GDP growth has been projected to slow modestly, with estimates between 8% and 9%. Using a conservative estimate of an 8.5% growth rate, and assuming that printing will remain at 1.98% of GDP, we estimate the following Chinese GDP and printing industry sales:

Table A-14. Estimated GDP and printing sales for 2006 – 2009

Year	GDP at PPP (trillions of U.S. dollars)	Printing sales at PPP (billions of U.S. dollars)
2006	9.73	195
2007	10.7	213
2008	11.8	234
2009	12.9	255

Appendix B: India—Printing & Publishing Market

India is the world's second most populous country, and its economy is the twelfth largest. The country has been moving forward with market-oriented economic reforms that began in the late 1980s. Recent reforms include the liberalization of foreign investment and exchange regimes, reductions in tariff and other trade barriers, modernization of the financial sector, and adjustments in government monetary and fiscal policies. In recent years, India has seen robust economic growth and a burgeoning urban middle class. India's large, skilled workforce makes it a popular choice for international companies seeking to outsource work. Their large well-educated English speaking population has made it prime source for service centers and information technology services. There also has been a manufacturing boom in recent years, which has been driven by the efficient use of technology as opposed to cheap labor.

Despite impressive achievements in recent years, India's economic growth remains constrained by an inadequate infrastructure, multiple levels of bureaucracy, labor market rigidities, and regulatory and foreign investment controls. The recent economic situation is presenting policy challenges, including rapidly rising domestic demand, a widening trade and current account deficit, and inflationary pressures. Moreover, its huge and growing population poses tremendous challenges for social, economic, and environmental development. Continued efforts are needed in addressing infrastructure bottlenecks, alleviating rural poverty, and deepening global integration.

Still, India has a diverse economy. The services sector is the most dynamic sector in recent years, accounting for over 50% of GDP, with telecommunications and information technology registering particularly rapid growth.. The CIA's World Factbook (CIA, 2007) identifies the major industries of India as including: textiles, chemicals, food processing, steel, transportation equipment, cement, mining, petroleum, machinery, and software.

India's economic performance has been impressive in recent years. Increased openness and rising consumer and investor confidence are helping sustain rapid growth.

Macro-Environment of India

Table B-1 provides a five-year picture of some of the most important trends in India. As of 2005, the population of India was approximately 1.089 billion, and was growing at a rate of about 1.5% per year. At this rate of growth, India could be larger than China by 2025. Approximately 30% of the population lived in urban areas in 2005. There are 206 million households, and the average household size is the highest figure of the five countries compared in this study at 5.3 persons per household. This is important since many books, magazines and newspapers are shared by the members of a household. As the overall population and the urban population have both increased over the study period,

there has been a parallel growth in energy consumption rates. Total primary energy consumption rates have increased by 10.38% since 2001. GDP has increased from $483 billion in 2001 to $800 billion in 2005.

Table B-1. Market size indicators (Euromonitor International, 2006; World Bank Group, 2006b; U.S. Energy Information Administration, 2004)

Measure	2001	2002	2003	2004	2005
Population (millions)	1,025.2	1,041.5	1,057.5	1,073.3	1,089.1
Population growth rate	1.65%	1.59%	1.54%	1.59%	1.47%
Urban population (millions)	285.0	291.9	298.4	305.3	312.5
Electricity consumption (billion kwh)	413.2	434.3	460.0	--	--
Total primary energy consumption (quadrillion btu)	13.97	13.96	14.44	15.42	--
Total GDP (billions of U.S. dollars)	483.4	504.0	592.5	688.8	800.3

Market Growth Rate

Market growth rate determinants illustrate a country's ability to support the increasing infrastructural demands of a growing economy. Table B-2 shows the movement in energy and GDP levels to support such strong growth. With the exception of 2002, the annual growth rate of primary energy use has increased, with a 3.36 percentage point increase from 2001 to 2004. Similarly, GDP has increased consistently, moving from 4.1% in 2001 to 8.3% in 2005.

Table B-2. Market growth rate determinants (World Bank Group, 2006b)

Measure	2001	2002	2003	2004	2005
Annual growth rate of primary energy use	3.00%	-0.06%	3.26%	6.36%	--
Real GDP growth rate	4.1%	4.2%	7.2%	8.1%	8.3%

Market Intensity

As of 2005, the average annual income stands at 20,338 Rupees ($461), with the gross national income per capita increasing from $460 in 2001 to $720 in 2005. The average gross annual income has been growing in a pattern that exceeds the inflation rate (see Table B-4) over the last five years. Income levels in India have increased over the last six years as the middle class has grown. In 2000, only 10% of households made more than $2,500. This percentage nearly doubled by 2005 to 19.3% of households. While private consumption as a percentage of GDP decreased from 2001 to 2005, the overall national consumer expenditure levels have increased from $301.5 billion to $423 billion, representing a substantial increase of slightly over 40%. Private consumption as a percentage of GDP dropped from 63% in 2001 to 53% in 2005.

Table B-3. Market intensity (World Bank Group, 2006b)

Measure	2001	2002	2003	2004	2005
GNI per capita estimates using PPP (U.S. dollars)	460.0	470	530	630	720
Consumer expenditures (billions of U.S. dollars)	301.5	315.3	349.1	384.9	423.0
Private consumption as a percentage of GDP	62.37%	62.56%	58.92%	55.88%	52.86%

Economic Overview

Inflation is under control and has hovered at about 4% for the last six years (see Table B-4). The general government deficit for fiscal year 2004 was reduced to 7.4% of GDP from 9.0% of GDP in 2003, due to higher revenues and expenditure compression. The reduction of the fiscal deficit helped stabilize public debt at about 86% of GDP.

As a result of the relative stability of governmental economic policy and inflation rates, there has been a sharp increase in external foreign direct investment flows. FDI increased from $104 billion in 2000 to $241 billion in 2004.

The Industrial Production Index has increased from 131.9 to 174.7 between 2000 and 2005. This increase in productivity, paired with a stable economic landscape, has resulted in an attractive environment for foreign investment.

Table B-4. Macroeconomic overview of India (Euromonitor International, 2006)

Measure	2000	2001	2002	2003	2004	2005
Total GDP (billions of R$)	20,895	22,720	24,633	27,600	31,055	33,420
Real GDP growth	5.3%	4.1%	4.2%	7.2%	8.1%	8.3%
GDP measured at PPP (billions)	$2,388	$2,594	$2,769	$3,023	$3,239	$3,603
Annual rates of inflation (% growth)	4.01%	3.68%	4.39%	3.81%	3.77%	4.25%
Purchasing Power Parity	8.47	8.57	8.63	8.8	8.99	9.25
Industrial Production Index (1995 = 100)	131.9	135.4	143.2	153.3	165.6	174.7
FDI inflows (billions of R$)	104.2	160.6	167.7	198.9	241.8	
Exports (billions of U.S. dollars)	42.4	43.4	49.3	57.1	71.8	76.2
Imports (billions of U.S. dollars)	66.2	65.9	78.2	95.2	104.1	113.1
Annual lending rates	12.29%	12.08%	11.92%	11.46%	10.92%	--
Gross domestic savings per capita	22%	22%	22%	22%	22%	--
Tax rates on individuals (% ranges)	30%	30%	--	30%	--	--
Tax rates on businesses (% ranges)	40%	--	36%	37%	36%	--
Exchange rates (R$ per U.S. dollar)	44.94	47.19	48.61	46.58	45.32	44.14

Commercial Infrastructure

As an indicator of the potential of an economy to support growing business interests in the area, commercial infrastructure details the adoption of communication technologies by the population. Like many of the other countries in this study, the number of landline telephones per capita has grown only modestly over the study period (see Table B-5). The overall growth rate from 2001 to 2005 has only been about 20%, moving from 3.75 to 4.51 landlines per 100 inhabitants. This rate is strongly contrasted against cell phone subscription rates, which have posted very strong growth rates over the period. In 2001, only 0.63 cellular subscriptions were active per 100 people, while subscription rates in 2005 stood at 8.16 per 100 people. This reflects the larger global trend towards migration to cellular telephony over traditional landlines. It is important to note that India's commercial infrastructure lags behind the other countries in the study. This can partially be explained by low per capita income levels and the relatively large rural population. Counter to the findings for other countries in the study, India has had steady growth in television sets per 1,000 people. In 2001, there were 673.6 sets per 1,000, and in 2005 the number of sets per 1,000 is reported at 772.2.

Table B-5. Commercial infrastructure (International Telecommunication Union, 2005; World Bank Group, 2006b)

Measure	2001	2002	2003	2004	2005
Telephone mainlines (per 100 habitants)	3.75	3.98	3.97	4.07	4.51
Cellular mobile subscribers (per 100 habitants	0.63	1.22	2.47	4.37	8.16
Television sets (per 1,000 people)	673.6	750.4	737.5	769.8	772.2

Personal Computers and Internet Access

Table B-6 provides an overview of the penetration of PCs and the Internet in India. The use of personal computers increased from 4.6 million in 2000 to 16.3 million in 2005, which represents an average annual increase in excess of 20%. By 2005, 62.7% of India's households with a PC were online. The number of Internet users continues to grow rapidly. In 2005, 93 million people were categorized as Internet users, up from 5.5 million in 2000. Likewise, support for Internet services is lower than that within other countries in the study, but the growth rates have been stable over the 2001 to 2005 timeframe. At the beginning of the study period, there were 0.6 PCs per 100 people with movements to 1.5 PCs per 100 people. As in China, the number of Internet hosts has been restricted, and therefore has only moved from 81 hosts per million people in 2001 to 133 hosts per million people in 2005.

Table B-6. PC penetration and access to the Internet in India (Euromonitor International, 2006)

Measure	2000	2001	2002	2003	2004	2005
Households (millions)	46.4	46.5	47.6	48.5	49.2	50.0
Personal computers (PCs) in use (millions)	4.6	6.0	7.5	9.8	12.6	16.3
PC households online (% of PC households)	24.8%	27.6%	38.2%	47.1%	53.2%	62.7%
Internet users (millions)	5.5	7.0	16.6	30.3	54.2	93.0
Number of PCs (per 100 habitants)	--	0.60	0.70	0.90	1.20	1.50
Internet hosts (per million people)	--	81	81	82	133	133

Freedoms

Table B-7 provides information on the political and economic freedoms in India and on the direction of any changes. The Heritage Organization reports that India's economic freedom has improved modestly from 3.9 in 2001 to a rating of 3.5 in 2006. This ranking is based on a scale from 1 to 5, where 1 is the most free economically. As a point of comparison, U.S. economic freedom was rated at 1.8 in 2006. The political freedom was a relatively strong two points. The U.S. political freedom index score was rated at one. Finally, Transparency International rated India as having high corruption, with a CPI of 2.9 in 2005. The U.S. had a CPI of 7.6 in 2005.

Table B-7. Economic and political freedom (Freedom House, 2007; The Heritage Foundation, 2007; Transparency International, 2006)

Measure	2001	2002	2003	2004	2005	2006
Economic Freedom Index	3.9	3.6	3.6	3.5	3.5	3.5
Political Freedom Index	--	2	2	2	2	--
Corruption Perceptions Index	2.7	2.7	2.8	2.8	2.9	--

Market Receptivity

A substantial proportion of exports are concentrated in agriculture (tea, coffee, fish), textile goods, gems and jewelry, engineering goods, chemicals, and leather manufactured products. Export partners in 2005 included the U.S. (18.1%), China (8.9%), United Arab Emirates (7.9%), United Kingdom (4.6%), and Hong Kong (4.2%). Many of these exports do not require substantial packaging or printing.

While export growth continued, a large increase in both oil and non-oil imports caused the trade deficit to widen. Table B-8 shows that imports from the U.S. were just under $8 billion in 2005, a substantial increase over 2001. This in turn has increased the per capita imports. This value has almost doubled, from $3.67 per capita in 2001 to $7.31 in 2005. In 2004, trade only comprised 19% of India's GDP.

Table B-8. Market receptivity (Euromonitor International, 2006)

Measure	2001	2002	2003	2004	2005
Imports from the U.S. (billions of U.S. dollars)	3.76	4.1	4.98	6.11	7.96
Per capita imports from the U.S. (U.S. dollars)	3.67	3.94	4.71	5.69	7.31
Trade as a percentage of GDP	13%	15%	15%	19%	

Micro-Environmental Factors Influencing Printing

Micro-environmental factors include information that is more directly related to the health of the printing industry. These factors include information about newspaper and magazine circulation, the production of paper, the number of students, Internet penetration, and other variables.

Newspaper and Magazine Consumption

Newspaper circulation rates in India have moved in the opposite direction of the general world trend. Of the five countries examined, India was the second country with an increase in annual daily newspaper circulation between 2000 and 2005, growing from 29.8 million daily copies in 2000 to 33.6 million copies daily in 2005 (see Table B-9). (The other country to experience such growth was China.) In 2000, the average per capita readership of newspapers was 11.2 copies per year. By 2005, this figure had increased to 11.7 copies per year. While the increase seems modest, it is significant when compared to the global trend in both developed and developing nations of reduced circulation rates. Additionally, newspapers are often read by multiple individuals within a household. Therefore, it is likely that the number of papers read by an average person per year is underestimated.

Periodical circulation is relatively low considering the population, but is increasing. In 2000, total periodical circulation was reported at 1.39 million, and has increased steadily to 2.13 million by 2005.

Table B-9. Newspaper and magazine consumption in India (Euromonitor International, 2006)

Measure	2000	2001	2002	2003	2004	2005
Population (millions)	1,009	1,025	1,042	1,058	1,073	1,089
Adult literacy rate (% of population aged 15+)	57.2%	58.0%	58.8%	59.6%	60.3%	61.1%
Annual daily newspaper circulation (million copies)	64.2	59.1	57.8	72.9	76.8	84.0
Annual non-daily newspaper circulation (millions)	62.7	58.7	57.4	69.1	71.8	77.0
Newspaper annual copies per capita	26.5	24.0	23.1	28.5	29.6	31.8
Circulation of periodicals (million copies)	1.394	1.610	1.810	1.976	2.164	2.324
Periodicals annual copies per 1,000 capita	1.39	1.57	1.74	1.87	2.01	2.13
Number of magazine titles published (thousands)	1.542	1.595	1.645	1.673	1.706	1.863
Consumer expenditure on newspapers, magazines, books and stationery (millions of U.S. dollars)	113.44	116.18	127.15	143.08	158.07	174.93

Paper Production

Another way to gain a perspective on the printing industry is to look at paper production (see Table B-10). The annual production of paper and paperboard in 2000 amounted to 3.79 million metric tonnes, which increased to 4.24 million tonnes in 2005. (One metric tonne is equal to 1,000 kilograms, which is about 2,200 pounds.) The production of printing and writing paper is estimated at 1.53 million metric tones in 2005. There was an increase in the production of newsprint from 400 thousand tonnes in 2000 to 831 thousand tonnes in 2005.

Table B-10. Paper production in India - shown in thousands of tonnes (Euromonitor International, 2006)

Measure	2000	2001	2002	2003	2004	2005
Production of newsprint	400	700	700	700	700	831
Production of paper and paperboard	3,794	4,094	4,105	4,144	4,144	4,239
Production of printing and writing paper	1,530	1,530	1,530	1,530	1,530	1,530

Student Enrollment

Education is an important concern in India. Schooling is free and compulsory up through the age of fourteen. Depending on the region, educational facilities are often substandard. About 20% of all school age children graduate from secondary school. In particular, female students show substantially lower retention rates. About 10% of children enter higher education.

Student enrollment is important to the printing industry in two ways. First, students are important consumers of textbooks and periodicals. Second, a more educated population is likely to be heavier consumers of printed materials as they age. As can be seen in Table B-11, the enrollment in primary school has remained flat between 2000 and 2005 at 112 million students. A similar pattern is seen in secondary school attendance, with a population of 73.9 million students in both 2000 and 2005.

Table B-11. Trends in student populations in India (Euromonitor International, 2006)

Measure	2000	2001	2002	2003	2004	2005
Adult literacy rate (% of population aged 15+)	57.2%	58.0%	58.8%	59.6%	60.3%	61.1%
Primary School Pupils (millions)	112.0	112.7	113.2	114.3	115.5	112.0
Secondary School Pupils (millions)	73.9	75.9	77.5	79.6	81.8	73.9
Number of students in universities (millions)	--	14.4	--	--	--	--

Appendix C: Russia—Printing & Publishing Market

Russia has struggled to establish a modern market economy and achieve sustainable economic growth following the fall of the Communist party. Russia's transition has been incredibly painful as its economic system was never based on capitalizism neither prior to the establishment of the USSR nor under the communist system of the USSR. This closed attitude resulted in a resistance to strategies for value-creation and open market competitiveness when interacting with Western trading partners. After the fall of the USSR, the real GDP actually contracted despite the country's wealth of natural resources (and most notably its oil resources), its relatively well-educated population base, and its diverse - although increasingly outdated - industrial base.

Russia is the largest country in the world, and holds diverse and valuable natural resources. These natural resources have provided the fuel that has driven Russia's economy. Resources include major deposits of oil, natural gas, coal, and many strategic minerals, as well as timber. Since the turn of the century, the economy has found some successes, the ruble has stabilized, inflation is being controlled and foreign direct investment is increasing.

Macro-Environment of Russia

Market Size

Table C-1 provides a five-year picture of some of the most important trends in Russia. The population stands at about 141.7 million as of 2005, and is decreasing at about a 0.5% each year. Just over 73% of the population lives in urban areas. There are 53 million households, and the average household size is reasonably stable at 2.7 persons per household. This is an important piece of information, as many books, magazines and newspapers are shared by the members of a household. Similarly, the consumption of energy resources indicates the size of the overall Russian market, and there has been a steady increase in usage rates over the study period. Electricity consumption increased by 2.73% between 2001 and 2003. Total primary energy consumption increased by 8.51% between 2001 and 2004. GDP has more than doubled, with an increase from $306.6 billion to $763.6 billion from 2001 to 2005.

Table C-1. Market size measures (Euromonitor International, 2006; World Bank Group, 2006b; U.S. Energy Information Administration, 2004)

Measure	2001	2002	2003	2004	2005
Population (millions)	144.4	144	142.8	142.1	141.7
Population growth rate	-0.55%	-0.28%	-0.83%	.0.49%	-0.28%
Urban population (millions)	105.6	105.6	105.1	104.7	104.3
Electricity consumption (billion kwh)	761.7	763.9	782.5		
Total primary energy consumption (quadrillion btu)	27.70	27.93	28.76	30.06	
Total GDP (billions of U.S. dollars)	306.6	345.5	431.5	588.8	763.6

Market Growth Rate

The growth rate of market indicators is necessary to contextualize those demographic factors with an ability to place increasing demands on national infrastructure. The energy use of the country has increased at an average of 2.83% annually from 2001 to 2004. Table C-2 reveals a healthy real GDP growth rate averaging 6.1% over the 2001 to 2005 time period.

Table C-2. Market growth indicators (World Bank Group, 2006b)

Measure	2001	2002	2003	2004	2005
Annual growth rate of primary energy use	--	0.80%	2.90%	4.32%	--
Real GDP growth rate	5.1%	4.7%	7.3%	7.2%	6.4%

Market Intensity

As of 2005, the average annual income stands at 89,851 Rubles ($2,702). As can be seen in Table C-3, the gross national income per capita (as measured in U.S. dollars at purchasing power parity) has increased from $1,780 to $4,460 from 2001 to 2005. Similarly, consumer expenditure has increased from $139.9 to $322.9 per capita over the same time period. The average gross annual income has been growing in a pattern somewhat faster than the inflation rate. The inflation rate in the Russian economy has generally been higher than the rate faced by the other emerging market countries studied, with inflation as high as 21% in 2001, although this has decreased to 12.8% in 2005.

Income levels in Russia have grown over the last six years, and the percentage of families with incomes above $10,000 US has reached 10.4% in 2005 compared to only 0.6% in 2000. A look at the percentage of households with an income over $5000 increased from only 6.5% in 2000 to 44.3% in 2005.

Table C-3. Market intensity indicators (World Bank Group, 2006b)

Measure	2001	2002	2003	2004	2005
GNI per capita estimates at PPP (U.S. dollars)	1,780	2,100	2,590	3,410	4,460
Consumer expenditures (billions of U.S. dollars)	139.9	163.9	220.8	270.8	322.9
Private consumption as a percentage of GDP	45.64%	47.45%	51.18%	45.99%	42.29%

Economic Overview

Table C-4 provides data on the overall economic health of Russia since 2000. While total GDP has more than doubled between 2000 and 2005 from $259 billion to $764 billion, the real growth rate has been substantially smaller because of the high rate of inflation. The real growth rate has been between 5 and 7% over the last few years.

The Industrial Production Index has been virtually flat between 2000 and 2004. Despite flat rates, FDI in Russia has increased from $2.7 billion in 2000 to $11.7 billion in 2004.

The balance of trade for Russia is favorable, as it has oil and natural gas that can be exported. The balance of trade increased from $52.0 billion in 2000 to $74.5 billion in 2004. A substantial proportion of exports are concentrated in petroleum and petroleum products, natural gas, wood and wood products, metals, chemicals, and a wide variety of civilian and military manufactured goods. Many of these exports do not require substantial packaging and printing.

Table C-4. Macroeconomic overview of Russia (Euromonitor International, 2006)

Measure	2000	2001	2002	2003	2004	2005
Total GDP (billions of U.S. dollars)	259.7	306.6	345.5	431.5	588.8	673.6
Real GDP growth	10.0%	5.1%	4.7%	7.3%	7.2%	6.4%
GDP at PPP (billions of international dollars)	1,057.3	1,134.4	1,207.1	1,319.5	1,449.2	1,585.5
Annual rates of inflation (% growth)	20.78%	21.46%	15.79%	13.66%	10.88%	12.8%
PPP (Rb per international dollar)	6.83	7.77	8.82	9.86	11.51	13.52
Manufacturing Production Index (1995 = 100)	108.1	109	105	103.7	107.0	
FDI inflows (billions of U.S. dollars)	2.714	2.748	3.461	7.958	11.672	
Exports (billions of U.S. dollars)	114.4	113.1	121.7	151.7	203.2	
Imports (billions of U.S. dollars)	62.4	74.3	84.4	102.8	129.7	
Annual lending rates	24.43%	17.91%	15.71%	12.98%	11.4%	
Gross domestic savings per capita			772			
Tax rates on individuals (% ranges)		13%	13%	13%	13%	
Exchange rates against U.S. dollar	28.13	29.17	31.35	30.69	28.81	28.28

Commercial Infrastructure

As an indicator of the potential of an economy to support growing business interests in the area, commercial infrastructure details the adoption of communication technologies by the population. Table C-5 details the telecommunication infrastructure dynamic of the country over the five-year study period. Like many other countries, Russia's reliance on landline telephony has remained steady between 2001 and 2005, but this technology has not grown nearly as fast as cellular technologies. In 2005, there were 83.62 cellular telephone subscriptions per 100 people in Russia, contrasting sharply to the

5.31 subscription rate from five years earlier. This represents a 1,574% growth rate, far outpacing the average of other countries in this study. While there is a global interest in cellular telephony as a replacement to landline technology, Europe has made the conversion faster than other areas. It is likely that Russia, as a close neighbor, has followed by example. Finally, Russia's television ownership rate is exceptionally high compared to the other countries, although this figure has decreased between 2001 and 2005 from 1,002.5 sets per 1,000 people to 924.8.

Table C-5. Commercial infrastructure (International Telecommunication Union, 2005; World Bank Group, 2006b)

Measure	2001	2002	2003	2004	2005
Telephone mainlines (per 100 habitants)	22.80	24.43	24.96	26.75	27.94
Cellular mobile subscribers (per 100 habitants	5.31	12.12	24.99	51.23	83.62
Television sets (per 1,000 people)	1,002.5	968.0	950.0	935.1	924.8

Personal Computers and Internet Access

Table C-6 provides an overview of the penetration of PCs and the Internet in Russia. The use of personal computers has increased from 11.2 million in 2001 to 22.0 million in 2005, which represents an average annual increase in excess of 20%. By 2005, 81.2% of Russian households with a PC were online. The number of Internet users continues to explode, and in 2005 included almost 17.2 million people out of a population of 142 million. The support for Internet use has been less robust, with an increase of PCs per one hundred people from 7.5 to 12.13 between 2001 and 2005. The relatively low number of PCs per 100 people suggests that the Russian population is less market ready for the Internet as a supplemental information, entertainment, and commercial source than the other countries. However, the number of Internet hosts per one million people has more than doubled from 2,427 to 5,937 over the study period.

Table C-6. PC penetration and access to the Internet in Russia (Euromonitor International, 2006)

Measure	2001	2002	2003	2004	2005
Households (millions)	52.3	52.7	52.7	52.9	53.0
Personal computers (PCs) in use (millions)	11.0	13.0	16.0	18.9	22.0
PC households online (% of PC households)	44.0%	56.0%	71.0%	75.6%	81.2%
Internet users (millions)	4.3	6.0	10.0	17.6	17.2
Number of PC's (per 100 habitants)	7.50	8.95	8.99	10.42	12.13
Internet hosts (per million people)	2,427	2,816	4,271	5,037	5,937

Freedoms

Table C-7 provides information on political and economic freedoms and the direction of any changes. The Heritage Organization reports that Russia's economic freedom has improved modestly to a rating of 3.5 in 2006. This ranking is based on a scale from

1 to 5, where 1.0 is the most free. As a point of comparison, U.S. economic freedom was rated at a 1.8 in 2006. Russia's political freedom was ranked at a weak 6, and actually lost ground from 2005. U.S. political freedom was rated a 1. Finally, Transparency International rates Russia's Corruption Perceptions Index as very high, with a rating of 2.4 in 2005. The U.S. had a corruption index of 7.6 in 2005. (The CPI is based on a scale of 1 to 10, with 10 representing no corruption.)

Table C-7. Economic and political freedom (Freedom House, 2007; The Heritage Foundation, 2007; Transparency International, 2006)

Measure	2001	2002	2003	2004	2005	2006
Economic Freedom Index	3.8	3.7	3.5	3.5	3.6	3.5
Political Freedom Index	--	5	5	5	6	--
Corruption Perceptions Index	2.3	2.7	2.7	2.8	2.4	--

Historically, Russia has been resistant to trade with the U.S., and the data used in this study reinforces this relative hesitance to engage in legitimate business transactions for imported goods. As seen in Table C-8, there has been a modest increase in the levels of trade with the U.S., although it is still exceptionally low compared to the other countries examined in this study. At the national level, trade increased from $2.72 to $3.94 billion between 2001 and 2005. The comparative trade dollar per capita, in terms of imports to the U.S., totaled $27.81 in 2005.

Table C-8: Market Receptivity (Euromonitor International, 2006)

Measure	2001	2002	2003	2004	2005
Imports from the U.S. (billions of U.S. dollars)	2.72	2.4	2.45	2.96	3.94
Per capita imports from the U.S. (U.S. dollars)	18.84	16.67	17.16	20.83	27.81
Trade as a percentage of GDP)	37%	35%	35%	34%	35%

Micro-Environmental Factors Influencing Printing

Micro-environmental factors include information that is more directly related to the health of the industry. These factors include information about newspaper and magazine circulation, the production of paper, the number of students, Internet penetration, and other variables.

Newspaper and Magazine Consumption

In Table C-9, we see that the number of magazine titles have increased from 3775 in 2001 to 4,372 in 2005. We also see an increase in the circulation of periodicals reaching 648.2 million in 2005.

Table C-9. Newspaper and magazine consumption in Russia
(Euromonitor International, 2006)

Measure	2001	2002	2003	2004	2005
Population (millions)	144.4	144	142.8	142.1	141.7
Adult literacy rate (% of population aged 15+)	99.6%	99.6%	99.6%	99.6%	99.6%
Annual non-daily newspaper circulation (millions)	8.3	8.6	8.7	8.9	9.2
Circulation of periodicals (million copies)	612.1	618.7	624.2	634.3	648.2
Number of magazine titles published (thousands)	3.775	4.034	4.162	4.233	4.372
Consumer expenditure on newspapers, magazines, books and stationery (billions of U.S. dollars)	745.2	780.4	1,10.3	1,336.7	1,582.3

Paper Production

Another way to gain a perspective on the printing industry is to look at paper production (see Table C-10). The annual production of paper and paperboard in 2001 amounted to 5.62 million metric tonnes, and increased to 7.22 million tonnes in 2005. (One metric tonne is equivalent to 1,000 kilograms, which is about 2,200 pounds.) The production of printing and writing paper remained rather stable, with 639,000 tonnes produced in 2001 and 614,000 tonnes produced in 2005. The production of newsprint increased from 1.73 million tonnes in 2001 to 2.06 million tonnes in 2005.

Table C-10. Paper production in Russia in thousands of tonnes
(Euromonitor International, 2006)

Measure	2001	2002	2003	2004	2005
Production of newsprint	1,731.8	1,714.0	1,814.0	1,979.0	2,058.8
Production of paper and paperboard	5,624.8	5,978.0	6,377.0	6,789.0	7,219.1
Production of printing and writing paper	639.0	507.0	589.0	601.0	614.0

Student Enrollment

Student enrollment is important to the printing industry in two ways. First, students are important consumers of textbooks and periodicals. Second, a more educated population is likely to be heavier consumers of printed materials in the future. As can be seen in Table C-11, the enrollment in primary school has decreased modestly from 1.703 million in 2000 to 1.686 million in 2004. A similar pattern is seen in secondary school attendance, where 19.07 million enrolled in 2000 declined to 18.93 million in 2004. Attendance at the university level was reported at 0.875 million in 2000, and rose to 1.055 million in 2004. These trends are likely a result of the negative growth rate of Russia's population.

Table C-11. Trends in student populations in Russia
(Euromonitor International, 2006)

Measure	2000	2001	2002	2003	2004	2005
Primary school pupils (millions)	1.703	1.719	1.699	1.690	1.686	--
Secondary school pupils (millions)	19.07	19.03	18.95	18.93	18.93	--
Number of students in universities (millions)	0.875	0.919	0.961	1.004	1.055	--

Appendix D: Mexico—Printing & Publishing Market

Mexico has a free market economy that recently reached a value of one trillion dollars. The country contains a mixture of modern and established industrial firms as well as agriculture interests, which are increasingly dominated by the private sector. Over the last twenty years, Mexico has expanded its infrastructure in seaports, railroads, telecommunications, electricity generation, natural gas distribution, and airports. Per capita income is one-fourth that of the U.S., with an income distribution that remains highly unequal. With its advantage in cost of labor, trade with the U.S. and Canada has tripled since the implementation of NAFTA (North American Free Trade Agreement) in 1994. Former President Vincente Fox's administration was aware of the need to upgrade infrastructure, modernize the tax system and labor laws, and allow private investment in the energy sector, but was unable to win the full support of the opposition-led Congress.

The inauguration of Felipe Calderón as Mexico's new president on December 1, 2006, was preceded by heavy discontent among both the citizens and legislators of Mexico. Calderón takes over a stable and growing economy, but a political system ripe with conflict. He has been silent on the issue of competition policy and the power of large private enterprises.

According to the CIA's World Factbook (CIA, 2007) Mexico's major industries include food and beverages, tobacco, chemicals, iron and steel, petroleum, mining, textiles, clothing, motor vehicles, consumer durables,

Macro-Environment of Mexico

Market Size

Table D-1 provides a five-year picture of some of the most important trends in Mexico. The population of Mexico in 2005 stands at about 106 million, and is growing at a rate of about 1.5% per year. This is the highest growth rate of the countries in this study, with the exception of India which has the same rate of population growth.

Slightly more than 75% of the population lived in urban areas in 2005. There are 24.6 million households, and the average household size is about 4.3 persons per household. This is important because many books, magazines, and newspapers are shared by the members of a household. Similarly, the consumption of energy resources indicates the size of the overall Mexican market, and there has been a modest increase in usage rates over the study period. Total primary energy consumption increased by 5.6% between 2001 and 2004. GDP reached $768 billion n 2005, with a particularly large jump between 2004 and 2005.

Table D-1. Market size (Euromonitor International, 2006; World Bank Group, 2006b; U.S. Energy Information Administration, 2004)

Measure	2001	2002	2003	2004	2005
Population (millions)	99.4	100.8	102.3	103.8	105.7
Population growth rate	1.53%	1.41%	1.49%	1.47%	1.83%
Urban population (millions)	74.7	76	77.3	78.7	80
Electricity consumption (billion kwh)	180.0	185.5	186.6	--	--
Total primary energy consumption (quadrillion btu)	6.26	6.33	6.51	6.61	--
Total GDP (billions of U.S. dollars)	621.9	648.6	638.7	683.5	768.4

Market Growth Rate

The growth rate of primary energy use and GDP aids in the identification of a country's ability to manage the influx of commercial activity as it places increasing demands on the national infrastructure. The rates for both indicators, shown in Table D-2, indicate moderate growth rates that could support normal business growth over the study period. This moderate growth is partly explained by the close relationship of the Mexican economy to the U.S. economy.

Table D-2. Market growth indicators (World Bank Group, 2006b)

Measure	2001	2002	2003	2004	2005
Annual growth rate of primary energy use (%)	--	1.18	2.78	1.44	--
Real GDP growth rate (%)	0.0	0.8	1.4	4.2	3.0

Market Intensity

As of 2005, the average annual income stands at $4,542. The average gross annual income has been losing ground against inflation. This loss of purchasing power against inflation was one important factor in the 2006 Mexican elections. Mexico's income levels in U.S. dollars have been flat over the last six years, as is seen when comparing the percentage of families with incomes above $15,000. In 2000, 37.0% of the population made more than $15,000, while in 2005 this percentage was 36.8%. As can be seen from Table D-3, the gross national income per capita, measured in U.S. dollars at purchasing power parity, increased from $5,580 to $7,310. In addition, consumer expenditure per capita has increased over the study period by over $30 billion. Like the other macroeconomic factors explored for Mexico, the market intensity determinants have increased modestly relative to the other countries in the study.

Table D-3. Market intensity indicators (World Bank Group, 2006b)

Measure	2001	2002	2003	2004	2005
GNI per capita estimates using PPP (U.S. dollars)	5,580	6,010	6,370	6,930	7,310
Consumer expenditure (billions of U.S. dollars)	437.4	448.0	412.4	422.2	467.1
Private consumption as a percentage of GDP	70.34%	69.07%	64.57%	61.76%	60.78%

Economic Overview

Table D-4 provides data on the overall economic health of Mexico since 2000. The Mexican economy has shown reasonably steady growth between 2000 and 2005, reaching the trillion dollar mark at PPP in 2004.

The balance of trade for Mexico has remained steady between 2000 and 2004. In 2004, exports reached $203.4 billion, while imports were $216.1 billion, creating a trade deficit of $12.7 billion. Over the last few years, Mexico has run a steady deficit between $11 and $13 billion. The major exports of Mexico include manufactured goods, oil and oil products, silver, fruits, vegetables, coffee, and cotton.

Table D-4. Macro-economic overview of Mexico (Euromonitor International, 2006)

Measure	2000	2001	2002	2003	2004	2005
Total GDP (billions of U.S. dollars)	580.8	621.9	648.6	638.7	683.5	678.4
Real GDP growth	6.6%	0.0%	0.8%	1.4%	4.2%	3.0%
GDP at PPP (billions of international dollars)	874.0	893.5	916.6	948.4	1,015.8	1,072.6
Annual rates of inflation (% growth)	9.50%	6.36%	5.03%	4.55%	4.69%	4.30%
PPP (Mx per international dollar)	6.20	6.41	6.74	7.17	7.49	7.68
FDI inflows (billions of U.S. dollars)	16.8	27.6	15.1	11.4	16.6	--
Exports (billions of U.S. dollars)	180.2	171.1	173.8	177.9	203.4	--
Imports (billions of U.S. dollars)	191.4	185.2	185.9	188.3	216.1	--
Annual lending rates	16.9%	12.8%	8.2%	6.9%	7.2%	--
Tax rates on individuals (% ranges)	40%	--	40%	35%	33%	--
Tax rates on businesses (% ranges)	35%	--	35%	34%	33%	--
Exchange rates against U.S. dollar	9.46	9.34	9.66	10.79	11.29	10.9

Commercial Infrastructure

Table D-5 details the telecommunications indicators most relevant to the exploration of Mexico's ability to support a growing and increasingly technology-focused commercial infrastructure. While landline telephony has become gradually less important to the telecommunication development of much of the rest of the world, Mexico has shown a steady increase in use of this technology, growing from 13.89 to 18.23 mainlines per 100 inhabitants from 2000 to 2005. While cellular technology adoption rates have been somewhat slower than in other developing nations, cellular subscription rates have more than doubled, moving from 21.94 per 100 people in 2001 to 44.34 per 100 people in 2005. The growth in television sets per 1,000 people has been relatively slow in comparison over the study period, but it has been growing in contrast to many of the other countries examined for this study. This trend could be partially explained by the proliferation of Spanish language creative content from U.S. media outlets and increasing courtship of the Latin American market in the U.S. and elsewhere.

Table D-5. Commercial infrastructure (International Telecommunication Union, 2005; World Bank Group, 2006b)

Measure	2001	2002	2003	2004	2005
Telephone mainlines (per 100 habitants)	13.89	13.74	15.99	17.22	18.23
Cellular mobile subscribers (per 100 habitants)	21.94	25.76	29.47	36.64	44.34
Television sets (per 1,000 people)	893.7	897.1	900.5	904.9	909.3

Personal Computers and Internet Access

Table D-6 provides an overview of the penetration of personal computers and the Internet in Mexico. The use of personal computers has increased from 6.9 million in 2001 to 14.4 million in 2005. By 2005, 87.3% of Mexican households with a PC were online. The number of Internet users continues to explode, and as of 2005 included almost 25 million people, which represents 23.6% of the population. The number of PCs per 100 people nearly doubled from 6.96 to 13.08, while the number of Internet hosts per million people showed an increase of 5,258 hosts to a total of 14,517 hosts per million in 2005.

Table D-6. PC penetration and access to the Internet in Mexico (Euromonitor International, 2006)

Measure	2001	2002	2003	2004	2005
Households (millions)	22.7	23.2	23.7	24.2	24.6
Personal computers (PCs) in use (millions)	6.9	8.4	10.1	12.1	14.4
PC households online (% of PC households)	49.8	66.6	78.3	82.9	87.3
Internet users (millions)	7.4	10.0	14.6	19.8	24.9
Number of PCs (per 100 habitants)	6.96	8.30	9.79	10.68	13.08
Internet hosts (per million people)	9,259	11,005	13,057	14,517	14,517

Freedoms

Table D-7 provides information on political and economic freedoms and the direction of any changes. The Heritage Organization reports that Mexico's economic freedom has improved modestly to a rating of 2.8 in 2006. This ranking is based on a scale from 1 to 5, where 1.0 is the most free. As a point of comparison, U.S. economic freedom was rated at a 1.8 in 2006. Political freedom was ranked at a relatively strong 2.0, as compared to the U.S. ranking of 1.0. Finally, Transparency International rates the Corruption Perceptions Index of Mexico as moderately high, with a rating of 3.5 in 2005. The U.S. had a CPI of 7.6 in 2005. (The CPI is based on a scale of 1 to 10, with 10 representing no corruption.)

Table D-7. Economic and political freedom (Freedom House, 2007; The Heritage Foundation, 2007; Transparency International, 2006)

Measure	2001	2002	2003	2004	2005	2006
Economic Freedom Index	3.1	3.0	2.8	2.9	2.8	2.8
Political Freedom Index	--	2	2	2	2	--
Corruption Perceptions Index	3.7	3.6	3.6	3.4	3.5	--

Market Receptivity

NAFTA has had an enormous impact on the volume and nature of trade activities for Mexico's economy in the thirteen years since its inception. Table D-8 outlines the import activity of Mexico in the five years since 2001 to illustrate the market's openness to trade. In particular, trade relationships with the U.S. have been generally favorable, and the import volume of U.S. goods to Mexico from 2001 to 2005 increased from $101.2 to $120.05 billion. In addition, per capita imports of U.S. goods and services increased by $116.65, reflecting the importance of trade as a contributor to GDP. Over the 2001 to 2005 time period, the percentage increase for this indicator was a relatively modest 2%.

Table D-8. Market receptivity (Euromonitor International, 2006)

Measure	2001	2002	2003	2004	2005
Imports from the U.S. (billions of U.S. dollars)	101.3	97.47	97.41	110.83	120.05
Per capita imports from the U.S. (U.S. dollars)	1,019.11	966.96	952.20	1,067.73	1,135.76
Trade as a percentage of GDP	28%	27%	28%	30%	30%

Micro-Environmental Factors Influencing Printing

Micro-environmental factors include information that is more directly related to the health of the industry. These factors include information about newspaper and magazine circulation, the production of paper, the number of students, Internet penetration and other variables.

Newspaper and Magazine Consumption

As seen in Table D-9, newspaper titles in Mexico have followed the general international general trend, falling from 356 newspaper titles in 2001 to 248 titles in 2005. The number of people employed in magazine and newspaper production has also fallen slightly between 2000 and 2004 from 22,181 to 21,548 employees. In contrast, the value of magazine and newspaper production has increased from $1,028 million in 2000 to $1,221 million in 2004. The number of people employed in book and book-related production fell slightly between 2000 and 2004 from 4,999 to 4,897 employees. The production value of books has remained stable at $406 million in both 2000 and 2004. The number of people employed in other printing and binding production has fallen slightly between 2000 and 2004 from 14,933 to 12,382 employees. The value of

the production of other printing and binding has decreased from $610 million in 2000 to $586 million in 2004. In total, the total number of people employed in magazine, newspaper, books, other printing and binding production has fallen between 2000 and 2004 from 41,198 to 38,827 employees. In contrast, the value of total production has increased from $2,044 million in 2000 to $2,213 million in 2004.

Measuring consumer expenditure on newspapers, magazines, books, and stationery reveal expenditures of $3,952 million in 2000, with an increase to $4,569 million in 2005.

Table D-9. Newspaper and magazine consumption in Mexico
(Euromonitor International, 2006)

Measure	2000	2001	2002	2003	2004	2005
Population (millions)	97.9	99.4	100.8	102.3	103.8	105.7
Adult literacy rate (% of population aged 15+)	91.4%	91.7%	91.9%	92.2%	92.5%	91.4%
Annual daily newspaper circulation (million copies)	--	--	8.734	--	--	--
Newspaper titles	--	356	310	300	276	248
Book titles published	7,095	7,179	7,306	7,424	7,539	7,586
Magazine & newspaper, production value (millions of U.S. dollars)	1,028	1,082	1,107	1,134	1,221	--
Books and similar, production value (millions of U.S. dollars)	406	430	413	400	406	--
Printing & binding, production value (millions of U.S. dollars)	610	597	578	580	586	--
Total market value of production (millions of U.S. dollars)	2,044	2,109	2,098	2,114	2,213	--
Magazine & newspaper, people employed	22,181	22,607	22,402	21,774	21,548	--
Books and similar, people employed	4,999	4,995	4,862	4,844	4,897	--
Printing & binding, people employed	14,933	14,423	13,530	13,090	12,382	--
Total printing, people employed	41,198	42,025	40,794	39,708	38,827	--
Consumer expenditure on newspapers, magazines, books and stationery (billions of U.S. dollars)	3.952	4.280	4.324	4.010	4.093	4.569

Paper Production

Another way to gain a perspective on the Mexican printing industry is to look at paper production (see Table D-10). The annual production of paper and paperboard in 2000 amounted to 3.87 million metric tonnes, which increased to 4.54 million tonnes in 2005. (One metric tonne is equivalent to 1,000 kilograms, which is about 2,200 pounds.) A similar pattern was observed with the production of printing and writing paper, where production increased from 0.575 millions tonnes in 2000 to 0.614 millions tonnes in 2005. Newsprint production also increased from 246 thousand tonnes in 2000 to 258 thousand tonnes in 2005.

Table D-10. Paper production in Mexico in thousands of tonnes
(Euromonitor International, 2006)

Measure	2000	2001	2002	2003	2004	2005
Production of newsprint	246	239	186	193	252	257
Production of paper and paperboard	3,865	4,056	3,987	4,149	4,391	4,535
Production of printing and writing paper	575	639	507	589	601	614

Student Enrollment

Student enrollment is important to the printing industry in two ways. First, students are important consumers of textbooks and periodicals. Second, a more educated population is likely to be heavier consumers of printed materials in the future. As can be seen in Table D-11, the enrollment in primary school has increased modestly from 14.8 million in 2000 to 15.0 million in 2004. In contrast, a downward pattern is seen in secondary school attendance, where 7.9 million enrolled in 2000 fell to 6.5 million in 2004. Attendance at the university level is flat, with 1.8 million enrolled in both 2000 and 2004.

Table D-11. Trends in student populations in Mexico
(Euromonitor International, 2006)

Measure	2000	2001	2002	2003	2004	2005
Primary school pupils (millions)	14.792	14.816	14.864	14.945	14.955	--
Secondary school pupils (millions)	7.944	7.736	7.267	6.872	6.533	--
Number of students in universities (millions)	1.8	1.7	1.8	1.8	1.8	--

Appendix E: Brazil – Printing and Publishing Market

Brazil is the largest and most populous country in South America. Its natural resources have provided the fuel that has driven Brazil's economy. These resources include large and well-developed agricultural industries, which have made success possible in the manufacturing and services sectors. The CIA's World Factbook (CIA, 2007) reports that Brazil's largest industries include textiles, shoes, chemicals, cement, lumber, iron ore, tin, steel, aircraft, motor vehicles and parts, other machinery and equipment..

Similar to the government of China, Brazil's current political leadership has made economic growth and poverty alleviation top priorities. The government's macroeconomic policies have laid the foundation for a sustained recovery in growth, a control of inflation, and a decline in poverty.

Macro-Environment of Brazil

Market Size

Table E-1 provides a five-year picture of some of the most important demographic trends in Brazil. The population of Brazil stands at about 181 million as of 2005, and is growing at a modestly decreasing rate, down from 1.32% growth in 2001 to 1.22% growth in 2005. Just over 80% of the population lived in urban areas in 2005. Similarly, the consumption of electricity and total primary energy growth provide insight into market size. Brazil's 6.8% growth of total primary energy consumption between 2001 and 2004 is about equal to the population growth rate.

Table E-1. Market size (Euromonitor International, 2006; World Bank Group, 2006b; U.S. Energy Information Administration, 2004)

Measure	2001	2002	2003	2004	2005
Population (millions)	172.4	174.6	176.9	179.1	181.3
Population growth rate	1.32%	1.30%	1.28%	1.26%	1.22%
Urban population (millions)	139.5	142.2	145.0	147.8	150.6
Electricity consumption (billion kwh)	302.2	316.6	333.1	--	--
Total primary energy consumption (quadrillion btu)	8.50	8.60	8.71	9.08	--
Total GDP (billions of U.S. dollars)	508.4	460.8	505.7	603.9	795.9

Market Growth Rate

The growth rate of market indicators is necessary to contextualize those demographic trends and their ability to place increasing demands on national infrastructure. Brazil's real GDP has expanded at a gradual and fluctuating rate between 2001 and 2005. Correspondingly, the primary energy use has increased by an average of 2.3% per year between 2001 and 2004. Table E-2 explores the relevant growth trends in Brazil over the survey period.

Table E-2. Market growth indicators (World Bank Group, 2006b)

Measure	2001	2002	2003	2004	2005
Annual growth rate of primary energy use	0.95%	1.16%	1.24%	4.06%	--
Real GDP growth rate	1.3%	1.9%	0.5%	4.9%	2.3%

Market Intensity

Table E-3 shows that the 2005 gross national income per capita in Brazil was $3,460, adjusted to purchasing power parity. While the gross national income per capita has increased over the five-year period, private consumption as a percentage of GDP has decreased over the same period. This fact is obscured by the increase in consumer expenditure from $341.1 to $493.8 billion between 2001 and 2005.

Table E-3. Market intensity (World Bank Group, 2006b)

Measure	2001	2002	2003	2004	2005
GNI per capita estimates using PPP (U.S. dollars)	3,040	2,790	2,680	3,000	3,460
Consumer expenditure (billions of U.S. dollars)	341.1	301.8	332.3	375.9	493.8
Private consumption as a percentage of GDP	67.1%	65.5%	65.7%	62.3%	62.1%

Economic Overview

Table E-4 provides data on the overall economic health of Brazil since 2000. The economy came under considerable stress in 2002 and 2003. A volatile external environment and concerns about the continuity of macroeconomic policies following the change in government led to a sharp decline in \ foreign direct investment (FDI), with inflows dropping to $31.2 billion in 2003. In that year, real GDP growth declined sharply to 0.5%, and inflation rose to 14.8% as a result of the continued depreciation of the Brazilian real.

Inflation control became a problem during 2002 and 2003, with the inflation rate hitting nearly 15%. Even though spread of inflation has been checked by the current government, overall inflation during the last few years has been much higher than that in developed economies.

The Industrial Production Index has increased only modestly, with a 4.8% cumulative growth between 2000 and 2004. The economic challenges that faced Brazil in the years following 2000 have resulted in continued low levels of FDI in Brazil. Foreign firms have gravitated toward more lucrative countries with lower investment risks.

The balance of trade for Brazil has steadily improved between 2000 and 2004. In 2004, exports reached $108.85 billion, while imports were $80.65 billion. A substantial proportion of exports are concentrated in transport equipment, iron ore, soybeans, footwear, coffee, and automobiles. Many (perhaps most) of these exports do not include substantial packaging and printing. Data from the International Monetary Fund reveals that Brazil accounts for slightly greater than one-third of the GDP of Latin America (including Mexico and the Caribbean).

On a favorable note, macroeconomic stability appears to have been restored in 2004 and has been maintained through strong macroeconomic policies and the pursuit of tax and pension reforms, along with bankruptcy legislation. Consumer confidence increased and the business climate improved. Real GDP grew by 4.9 percent in 2004, but had fallen back to 2.3 percent in 2005.

Table E-4. Macro-economic overview of Brazil (Euromonitor International, 2006)

Measure	2000	2001	2002	2003	2004	2005
Total GDP (billions of U.S. dollars)	602	508	461	506	604	796
Real GDP growth	4.40%	1.30%	1.90%	0.50%	4.90%	2.30%
GDP at PPP (billions of international dollars)	1,253	1,300	1,348	1,383	1,489	1,577
Annual rates of inflation	7.0%	6.8%	8.5%	14.7%	6.6%	6.8%
PPP (R$ per international $)	0.87	0.91	0.99	1.11	1.17	1.2
Industrial Production Index (1995 = 100)	109.7	111.5	114.1	114.7	116	--
FDI inflows (billions of U.S. dollars)	32.8	22.5	16.6	10.1	18.1	--
Exports (billions of U.S. dollars)	55.1	58.2	60.4	73.1	96.4	118.3
Imports (billions of U.S. dollars)	58.6	58.4	49.7	50.9	66.4	77.6
Annual lending rates	56.8%	57.6%	62.9%	67.1%	54.9%	55.4%
Tax rates on businesses	--	--	--	--	15%	--
Exchange rates (R$ against U.S. dollar)	1.83	2.36	2.92	3.08	2.93	2.44

Commercial Infrastructure

As an indicator of the potential of an economy to support growing business interests in the area, commercial infrastructure details the adoption of communication technologies by the population. While there has been a very small growth in telephone landlines from 21.22 to 23.04 lines per 100 habitants, there has been an explosion in cell phone subscription rates over the study period. Cell phone subscriptions have increased from 16.30 to 60.80 per 100 habitants, which represents a substantial 373% growth rate that reflects the global migration to cellular telephony. The number of television sets per 1000 people has steadily decreased over the study period, from 957.1 to 950.6. This is a slight downward trend, but should be monitored by companies that leverage television services and advertisements as part of their business model.

Table E-5. Commercial infrastructure (International Telecommunication Union, 2005; World Bank Group, 2006b)

Measure	2001	2002	2003	2004	2005
Telephone mainlines (per 100 habitants)	21.22	21.69	21.61	23.04	23.04
Cellular mobile subscribers (per 100 habitants)	16.30	19.50	25.56	35.67	60.80
Television sets (per 1,000 people)	957.1	955.0	954.3	952.7	950.6

Personal Computers and Internet Access

Table E-6 provides an overview of the penetration of personal computers and the Internet in Brazil. The use of personal computers has increased from 8.5 million in 2000 to 22.2 million in 2005, which is an average annual increase in excess of 20%. By 2005, 78.2% of Brazilian households with a PC were online. The number of Internet users continues to explode, and as of 2005 included almost 40 million people – approximately

22% of the total population. This may account for some of the decline in newspaper and magazine readership.

The IT infrastructure for Internet use has increased over this time period. The number of Internet hosts has roughly doubled, from 9,324 to 18,953 per million people. The number of Internet users in the country is growing rapidly, and the demand may outpace the bandwidth necessary for a growing user base. The number of PCs grew from 6.12% of the population in 2001 to 10.52% of the population in 2005.

Table E-6. PC penetration and access to the Internet in Brazil (Euromonitor International, 2006)

Measure	2001	2002	2003	2004	2005
Households (millions)	46.5	47.6	48.5	49.2	50.0
Personal computers (PCs) in use (millions)	10.8	13.0	15.8	18.9	22.2
PC households online (% of PC households)	42.3	53.6	63.6	79	78.2
Internet users (millions)	8.0	14.3	21.4	30.2	39.7
Number of PCs (per 100 habitants)	6.12	7.27	8.63	10.52	10.52
Internet hosts (per million people)	9,324	12,507	17,438	18,953	18,953

Freedoms

Table E-7 provides information on political and economic freedoms and the direction of any changes. In 2006, the Heritage Organization reported that economic freedom improved to a rating of 3.2, on a scale from 1 to 5 where 1.0 is the most free. As a point of comparison, U.S. economic freedom was rated at a 1.8 in the same year. Brazil's political freedom was rated at a relatively strong 2.0, while the U.S. was rated a 1.0. Transparency International reports the Corruption Perceptions Index (CPI) of Brazil as worsening, falling to 3.7 in 2005. The U.S. had a CPI of 7.6 in 2005. (The CPI is based on a scale of 1 to 10, with 10 representing no corruption.)

Table E-7. Economic and political freedom (Freedom House, 2007; The Heritage Foundation, 2007; Transparency International, 2006)

Measure	2001	2002	2003	2004	2005	2006
Economic Freedom Index	3.3	3.1	3.1	3.1	3.2	3.2
Political Freedom Index	--	3	2	2	2	--
Corruption Perceptions Index	4.0	4.0	3.9	3.9	3.7	--

Market Receptivity

During the 1990s, Brazil's export performance was disappointing, particularly in the middle of the decade when the currency was at its strongest. Due to the depreciation of the real, the merchandise trade balance moved to a surplus in 2002 for the first time since 1993. This trend has continued since 2002, with the merchandise trade surplus estimated to have reached about $37 billion in 2005. From 2001 to 2005, imports have averaged about $15 billion, with decreases from 2001 through 2003. Similarly, per capita

imports from the U.S. have decreased from $92.12 in 2001 to $84.67 over the study period. Overall, Brazil's reliance on trade as a percentage of GDP has shown an increase from 13% to 23% from 2001 to 2005.

Table E-8. Market receptivity (Euromonitor International, 2006)

Measure	2001	2002	2003	2004	2005
Imports from the U.S. (billions of U.S. dollars)	15.88	12.38	11.21	13.9	15.35
Per capita imports from U.S. (U.S. dollars)	92.12	70.89	63.38	77.60	84.67
Trade as a percentage of GDP	13%	15%	16%	18%	23%

Micro-Environmental Factors Influencing Printing

Micro-environmental factors include information that is more directly related to the health of the industry. These factors include information about newspaper and magazine circulation, the production of paper, the number of students, Internet penetration, and other variables.

Newspaper and Magazine Consumption

Newspaper circulation in Brazil has followed the general trend of most of the rest of the world, dropping from 7.88 million daily newspapers in 2000 to 7.12 million in 2005. This means that the average person of any age (including children) read just 14.3 issues per year in 2005, as compared to 16.9 issues in 2000. However, since newspapers are read by multiple persons within a household, the number of papers read by an average person per year cannot be calculated in this way. Magazine readership appears to have followed a similar pattern, with a decrease to 406 million issues printed in 2004 from 446 million issues in 2000. On a per capita basis, this is equivalent to a decrease to 2.27 issues read per year in 2004, down from 2.62 magazine issues read per year in 2000. It was estimated that Brazilians read an average of 1.8 books per year in 2002. As books are also read by multiple persons, it is unclear how much this may have changed in the last three years. Regardless of these trends, consumers are spending more on newspapers, magazines, books, and stationery due to inflation. In 2000, expenditures were about $2.81 billion , while in 2005 spending increased to $4.97 billion.

Table E-9. Newspaper and magazine consumption in Brazil (Euromonitor International, 2006)

Measure	2000	2001	2002	2003	2004	2005
Population (millions)	170.1	172.4	174.6	176.9	179.1	181.3
Adult literacy rate (% of population aged 15+)	85.2%	85.6%	86.0%	86.4%	86.7%	--
Annual daily newspaper circulation (millions)	7.88	7.67	6.97	7.18	7.10	7.12
Annual newspapers per capita	16.9	16.2	14.6	14.8	14.5	14.3
Magazine circulation (millions)	446	454	436	413	406	--
Annual magazines per capita	2.62	2.63	2.50	2.33	2.27	--
Consumer expenditure on newspapers, magazines, books and stationery (billions of U.S. dollars)	2.811	3.136	3.512	3.968	4.421	4.968

Paper Production

Paper production provides another perspective on printing industry growth rates, through increases in supply chain activity (see Table E-10). The annual production of paper and paperboard in 2000 amounted to 6.47 million metric tonnes, and increased to 8.74 million tonnes in 2005. (One metric tonne is equivalent to 1,000 kilograms, which is about 2,200 pounds). A similar pattern was observed with the production of printing and writing paper: 2.10 millions tonnes were produced in 2000, while 2.44 millions tonnes were produced in 2005. Given the previously discussed decrease in newspaper readership, it's not surprising that the production of newsprint declined from 266 thousand tonnes in 2000 to 113 thousand tonnes in 2005.

Table E-10. Paper production in Brazil in thousands of tonnes
(Euromonitor International, 2006)

Measure	2000	2001	2002	2003	2004	2005
Production of newsprint	266	230	230	163	133	113
Production of paper and paperboard	6,473	7,354	7,354	7,811	8,221	8,736
Production of printing and writing paper	2,100	2,150	2,150	2,272	2,369	2,442

Student Enrollment

Student enrollment is important to the printing industry in two ways. First, students are important consumers of textbooks and periodicals. Second, a more educated population is likely to be heavier consumers of printed materials in the future. As can be seen in Table E-11, the enrollment in primary school has increased modestly from 35.9 million in 2000 to 36.3 million in 2004. A similar pattern is seen in secondary school, where and enrollment of 7.4 million in 2000 rose to 8.0 million in 2004. Attendance at the university level was reported at 2.7 million in 2000 and rose to 3.5 million in 2002.

Table E-11: Trends in student populations in Brazil
(Euromonitor International, 2006)

Measure	2000	2001	2002	2003	2004	2005
Primary school pupils (millions)	35.9	36.0	36.0	36.2	36.3	--
Secondary school pupils (millions)	7.39	7.43	7.65	7.84	8.02	--
Number of students in universities (millions)	2.7	3.0	3.5	--	--	--

The Brazilian Printing Industry

The Brazilian printing industry has been affected by some of the forces of change common to other industrialized markets in the country. These include consolidation of the industry, increasing competition, and erosion of profit margins. As of 2005, the industry was reported to have the following characteristics (U.S. Commercial Service, 2005):

- 15,000 printing and printing-related establishments
- 200,000 employees
- $6.0 billion in revenues as of 2005
- Graphic communications represents ~1% of Brazil's gross domestic product*

*Two printing experts in Brazil suggest that that printing growth is believed to be directly relational to the growth in GDP. GDP for Brazil has slowly increased over the last six years.

Table E-12. Printing sales by segment in billions of U.S. dollars (U.S. Commercial Service, 2005)

Industrial Segment	2003	% Share	2004	% Share
Publishing	1.14	25.2%	1.35	24.5%
Packaging	0.92	20.3%	1.15	20.9%
Business Forms	0.75	16.6%	0.92	16.7%
Office & School Supplies	0.46	10.2%	0.60	10.9%
Advertising Printing	0.49	10.8%	0.58	10.5%
Calendars & Letterhead	0.25	5.5%	0.30	5.5%
Prepress	0.14	3.1%	0.15	2.7%
Misc. Other	0.38	8.4%	0.45	8.2%
TOTAL	4.53	100.0%	5.50	100.0%

Industry Segments

Advertising

Advertising is the leading sector in the publishing industry, generating 32.8% of global printing revenues (see Table E-13). Newspaper, magazine, and book sales account for the remaining 67.2% of global publishing industry revenues.

Table E-13. Global publishing industry segmentation - % share, by value, 2004 (Datamonitor, 2005b)

Segment	% Share
Advertising	32.8%
Newspaper Sales	28.2%
Book Sales	23.1%
Magazine Sales	15.9%
Total	100.0%

Books

Hamilton Terni Costa (personal communication, June 9, 2006) provides us with the following insight: "1998 was the peak year for book production in Brazil. Brazil produced about 390 million books in 1998. We were anticipating an increase through 2000-2002 as the number of students in school reached an all-time high. If we projected the number of books that would be produced to keep up with the rate of growth of students, we would have predicted almost 1.5 to 2 times the number produced in 1998. But we never reached the 1997-98 numbers again."

Printing Sales and Their Relationship to GDP

Table E-14 provides data on both Brazil's GDP and an estimate of the printing industry's total sales. As can be seen, the ratio of printing to GDP has decreased between 2000 through 2004. It should be noted that in 2004 there was a modest up-tick in this ratio.

Table E-14. Printing sales compared to GDP in Brazil (U.S. Commercial Service, 2005)

Measure	2000	2001	2002	2003	2004
Printing sales (billions of U.S. dollars)	6.72	5.28	4.42	4.53	5.50
YOY Printing sales change (%)	--	-21.4	-16.3	2.5	21.4
GDP (billions of U.S. dollars)	602	510	459	507	599
YOY GDP change (%)	--	-15.3	-10.0	10.5	18.1
Ratio of printing sales to GDP (%)	1.11	1.04	.96	.89	.92

Appendix F: People Interviewed For This Study

China

- Charles C. H. Lo – *CEO, C&C Joint Printing Company Ltd., Hong Kong*
- M. Abhyankar – *VP/General Manager Marketing, Production Services Business Group, Fuji Xerox, Shanghai*
- Xiaoxia Wan – *Dean, School of Printing and Packaging Science, Wuhan University*
- Ya-Ping Zhou – *Managing Director, NPES China Printing, Publishing and Converting Technologies Training Center*
- Timothy Mercy – *General Manager/VP Sales Asia Pacific, Goss International* (also interviewed for India)
- Michael Martino – *Eastman Kodak*
- Frank Steenburgh – *Xerox (retired)*
- Brad Cates – *Standard Register*

India

- Viren Chhabra – *NPES India*
- Som Sapru – *CEO, Indian Printing Packaging and Allied Machinery Manufacturers Association*
- Prem B. Gupta –*Indian Printing Packaging and Allied Machinery Manufacturers Association*
- Dawn Kawasaki – *International Trade Specialist, US Department of Commerce*
- Michael Hurley – *Director of International Business – NPES*
- Jitendra Doshi – *Director, S.S. Doshi Engineers Ltd.*
- Pranav Parikh – *Chairman and Managing Director, TechNova Imaging Systems*
- Rajendrakumar Anayeth – *Professor and Department Head, Department of Printing Technology, Manipal Institute of Technology*
- S.K. Khurana – *Editor, Print & Publishing Magazine, New Delhi*
- Preetha Nair – *Commercial Specialist, US Commercial Service, New Delhi*
- Mark Russell – *Commercial Consul, US Consulate, New Delhi*
- Sharad Saxena – *VP Supply Chain and Operations, HT Media Limited*

India (con't.)

- Lalitha Jayaraman – *Professor and Department Head, Department of Printing Technology, Anna University, Chennai*
- Sankarshanan Anantham – *Nexpress Solutions*
- M.S. Nagarajan – *Owner, Nagaraj & Company Pvt. Ltd., Chennai*
- Tariq Husin – *Owner, Express Color Scan Ltd., New Delhi*
- S.D. Sharma – *Owner, ESS DEE Nutek Ltd.*
- H.S. Sidhu – *CTO, Thomson Press, New Delhi*

Brazil

- Hamilton Tierni Costa – *Chairman, Brazilian Printing Technology Association*
- Manoel Mantegas – *Director, SENAI School, São Paulo*
- Randall Swope – *Business Manager Production Solutions Group and Graphic Arts Developing Markets Organization, Xerox*
- Fabio Arruda Mortara – *Paper Express, São Paulo*
- Nilton Paulo Raimundo – *Executive Director, Brazilian Association of Graphic Technology (ABTG)*

Russia

- Alexander M. Tsyganenko – *Rector, Moscow State University for Printing Arts*
- Leonid Shakmundes – *Director, American Technology Center, Moscow*

Mexico

- Joseph Staszak – *Idealliance*
- Myrna Salgado – *Director General, ANDIGRAF, Mexico*

Appendix G: Interview Guide

Interview Questions for Country Experts

We are trying to gain an improved understanding of the printing industry in your country. Your help and insights would be appreciated.

1. Could you begin by providing a high level summary of the health and circumstances of printing in this region of the world?
2. Over the last three years, has the printing volume in ____ increased, decreased, or remained flat? How believable is the data available on this?
3. What trends do you foresee for the next three years?
4. What are the factors that are driving this trend in the printing industry in your country? Macro factors? Industry specific factors?
5. Where is the growth coming from? What markets? What technologies?
6. How is the industry structured? Big firms vs. Small firms? Consolidation trends? What types of firms are most profitable?
7. Who are the major players? Names of top five, top 10? Is a list available? Who are the major western players? How are they doing?
8. How is the environment for investment? For western firms? For locals? Major Challenges for each?
9. Help me understand the dealer channels that are reaching printers and publishers. Names and locations of the top players. List?
10. Details on what is happening in the following printing segments?
    a. Publishing (books, magazines, but not newspapers)
    b. Newspaper
    c. Packaging (cardboard packaging, labels, wrappers, etc)
    d. Advertising printing
    e. Office & school supplies
    f. Other
11. What country level organizations have the best insights on the state of the printing industry in this region?
12. What is the state of the economy in ___? What are the drivers of the economy at the national level?
13. Where are the major centers (locations) of printing in your country? What regions offers the best opportunity for growth?

14. Can you recommend other experts in ___ that could further our understanding of the local conditions of the industry?
15. How rapidly is digital becoming a factor?
16. What are the challenges of doing business in ____?
17. What are the social/personal standards that facilitate getting business done?
18. Are there research reports that you know of that we could get a copy of?
19. Are there websites that are particularly useful?
20. You have been a major player in the international printing business for several years. What is your high level insight into each of the following areas:
    a. Brazil
    b. Mexico
    c. Russia
    d. India
    e. China
21. Other individuals that you feel we should contact?

References

Anantham, S. (2006, June 9). *Interview with Sankarshanan Anantham, Product Manager, NexPress India*. [Frank Cost, Interviewer].

BANCOMEXT (Trade Commission of Mexico in Los Angeles). (2006). *Doing business in Mexico*. Retrieved from http://www.mexico-trade.com/DOINGMX.htm

Central Board of Excise and Customs (CBEC). (2007). *Section XVI: Machinery and mechanical appliances; electrical equipment; parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles*. Retrieved from http://cbec.gov.in/customs/cst-0708/chap-84.pdf

China Knowledge Press. (2006, February). China magazine industry. *Research and Markets*. Retrieved from http://www.researchandmarkets.com/reports/317889/

CIA. (2007). *CIA – The world factbook*. Retrieved from https://www.cia.gov/library/publications/the-world-factbook/

Costa, H. T. (2006, June 9). *Interview with Hamilton Tierni Costa*. [Frank Cost, Interviewer].

CountryWatch, Inc. (2007). *India*. Available from CountryWatch Database, http://library.rit.edu/electronic/countrywatch/countrywatch.html

Datamonitor. (2004). *Global – Commercial Printing (Industry overview)*. Available from Business & Company Resource Center, http://library.rit.edu/electronic/galebrc/galebrc.html

Datamonitor. (2005a). *Global – Commercial Printing (Industry overview)*. Available from Business & Company Resource Center, http://library.rit.edu/electronic/galebrc/galebrc.html

Datamonitor. (2005b). *Global – Publishing (Industry overview)*. Available from Business & Company Resource Center, http://library.rit.edu/electronic/galebrc/galebrc.html

Datamonitor. (2005c). *India – Media (Industry overview)*. Available from Business & Company Resource Center, http://library.rit.edu/electronic/galebrc/galebrc.html

Economist, The. (2006). *Country briefings*. Retrieved from http://www.economist.com/countries/

Euromonitor International (2006). *Country data* [Data file]. Available from Global Market Information Database, http://library.rit.edu/electronic/gmid/gmid.html

FIPP (International Federation of the Periodical Press). (2007). *FIPP world magazine trends 2006/2007*. Retrieved from http://www.fipp.com/Default.aspx?PageIndex=3310

Freedom House. (2007). *Freedom in the world*. Retrieved from http://www.freedomhouse.org/template.cfm?page=15

Hong Kong Trade Development Council. (2007). *Profiles of Hong Kong major manufacturing industries*. Retrieved from http://www.tdctrade.com/main/industries/t2_2_30.htm

Indian Media Observer. (2004). *Indian newspaper market to grow at 6.9 %: PWC*. Retrieved from http://www.chronosphere.biz/IMO/5/imo.html

International Telecommunications Union. (2005). *World telecommunication indicators 2004/2005*. Retrieved from http://www.itu.int/ITU-D/ict/publications/wti2004-05/index.html

ISI Emerging Markets. (2007). *ISI emerging markets India - Industry profile - Printing and related support activities*. Retrieved from http://site.securities.com/ci/ip.html?pc=IN&indu=323&view=companies

Kurtzman Group. (2004). *The opacity index*. Retrieved from http://opacityindex.com/opacity_index.pdf

Latin Focus. (2002). Brazil: Interest rates – November 2002. *Latin-Focus.com*. Retrieved from http://www.latin-focus.com/latinfocus/indicators/brazil/0211_bra_inter.htm

Martinez, M. (2006, March). Overview of competitors in the printing and graphic arts sector. *U.S. Commercial Service*. Retrieved from http://www.stat-usa.gov/stemplate.nsf/Validate?OpenAgent&dbID=mrd.nsf&vwID=vwISA_CountryAll&filekey=X_5448299.DOC

MERCOSUR. (2007). *Quienes somos*. Retrieved from http://www.mercosur.int/msweb/portal%20intermediario/es/index.htm

Michigan State University (MSU). (2006, December). *Market potential indicators for emerging markets – 2007*. Retrieved from http://globaledge.msu.edu/resourceDesk/mpi.asp

Ministry of Law and Justice. (2005). *The Patents (Amendment) Act, 2005*. Retrieved from http://www.patentoffice.nic.in/ipr/patent/patent_2005.pdf

Office of the United States Trade Representative. (2004). *Brazil: National trade estimate 2004*. Retrieved from http://www.ustr.gov/assets/Document_Library/Reports_Publications/2004/2004_National_Trade_Estimate/2004_NTE_Report/asset_upload_file881_4738.pdf

Office of the United States Trade Representative. (2005, December). *2005 report to Congress on China's WTO compliance*. Retrieved from http://www.ustr.gov/assets/Document_Library/Reports_Publications/2005/asset_upload_file293_8580.pdf

Office of the United States Trade Representative. (2006, February). *US-China trade relations: Entering a new phase of greater accountability and enforcement*. Retrieved from http://www.ustr.gov/assets/Document_Library/Reports_Publications/2006/asset_upload_file921_8938.pdf

PEIAC (Printing and Printing Equipment Industries Association of China). (2006, August 11). *The development of the printing industry in China*. Retrieved from http://www.printchina.com/html/industrynews/database.asp

Reuters. (2006). Brazil central bank eases Selic rate to 16.50 pct. *Reuters.com*. Retrieved from http://today.reuters.com/news/articlebusiness.aspx?type=tnBusinessNews&storyID=nN08509395&imageid=&cap=&from=business

Sharma, D. (2006, February 7). *Interview with Dinesh Sharma, Plant Manager, Hindustan Times*. [Frank Cost, Interviewer].

Shen, H. (2005). Current China printing market and technologies. *NPES-sponsored presentation at PRINT '05*, Chicago, IL. Retrieved from http://www.npes.org/itrade/PRINT05China.ppt

Swope, R. (2006, May 16). *Interview with Randall Swope, Xerox Corporation*. [Frank Cost, Interviewer].

The Heritage Foundation. (2007). *Heritage economic freedom progress reports*. Retrieved from http://www.heritage.org/Research/index_efpr.cfm

Transparency International. (2006). *TI Corruption Perceptions Index*. Retrieved from http://www.transparency.org/policy_research/surveys_indices/cpi

U.S. Census Bureau Foreign Trade Division. (2005). *U.S. trade balance with all the countries of the world*. Retrieved from http://www.census.gov/foreign-trade/balance/index.html

U.S. Commercial Service. (2005). *Overview of the Brazilian printing and graphic arts equipment sector*. Retrieved from http://www.quiminet.com.mx/estm/files/artes_graficas_brasil.pdf

U.S. Commercial Service. (2006). *Mexico: Overview of competitors in the printing and graphic arts sector*. Retrieved from http://commercecan.ic.gc.ca/scdt/bizmap/interface2.nsf/vDownload/ISA_5197/$file/X_5448299.DOC

U.S. Commercial Service Vladivostok. (2004). *Printing equipment demand in the Russian Far East*. Retrieved from http://www.bisnis.doc.gov/bisnis/bisdoc/040910printrfe.htm

U.S. Department of Commerce. (2007). *STAT-USA/Internet*. Available from http://library.rit.edu/electronic/statusa/statusa.html

U.S. Energy Information Administration. (2004). *International energy annual*. Retrieved from http://www.eia.doe.gov/pub/international/iea2004/iea_2004.zip

Woodall, P. (2006, September 14). Survey of world economy: The new titans. *The Economist*, 12.

World Association of Newspapers (WAN). (2004). *57th World Newspaper Congress: Istanbul 2004*. Retrieved from http://www.wan-press.org/presentations/2004/istanbul/

World Association of Newspapers (WAN). (2007). *World press trends: Global newspaper circulation, advertising on the upswing*. Retrieved from http://www.wan-press.org/article14362.html

World Bank Group. (2006a). *Doing business*. Retrieved from http://www.doingbusiness.org/

World Bank Group. (2006b). *World development indicators*. Retrieved from http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20899413~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html

World Bank Group. (2007). *Doing business in Mexico 2007*. Retrieved from http://www.doingbusiness.org/Documents/Reports_07/DB2007_Mexico_English.pdf

Zhou, Y. (2006, July 7). *Interview with Ya-Ping Zhou*. [Frank Cost, Interviewer].

Rochester Institute of Technology
College of Imaging Arts and Sciences
55 Lomb Memorial Drive
Rochester, NY 14623
Phone: (585) 475-2733
http://print.rit.edu