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for Affiliates this month in Center research:

R·I·T Printing Industry Center

Emerging Global Print Markets: China

This month's eReview is based on *Emerging Global Print Markets: A Five-Country Comparative Study* (PICRM-2006-06), by RIT Professors Stan Widrick and Frank Cost. This monograph 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. For the month of December, the printing and publishing industry of China will be discussed.

Introduction

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.

Economic Overview

In 2005, the Chinese economy was the third highest in the world after the United States and the European Union. Table 1 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.

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 1. Macro-economic overview

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Center Spotlight

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January & February 2008

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- **February 19 - 21**
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- **February 25 - 29**
  Orientation to the Graphic Arts

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The ereview

The *eReview* is a monthly publication of the Printing Industry Center at RIT for registered Affiliate companies. Articles are also

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

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 2. Market intensity
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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%

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 3. Market receptivity
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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%	

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

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About the Center

Dedicated to the study of major business environment influences in the printing industry precipitated by new technologies and societal changes, the Printing Industry Center at RIT addresses the concerns of the printing industry through educational outreach and research initiatives.

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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 4. Commercial infrastructure
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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

Table 5 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 5. PC penetration and access to the Internet in China
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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

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:

- 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 6. Industrial segments sales in billions of RMB
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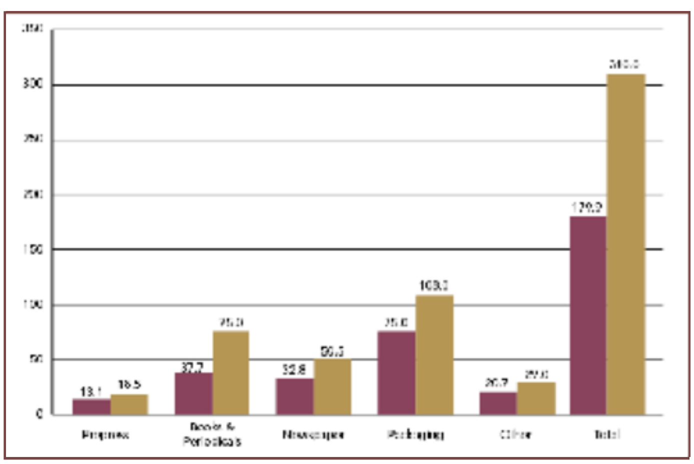
Segment	2001	2002	2003	2004	2005
Prepress	13.1	14.0	15.3	16.9	18.5
Book & Periodical Printing	37.7	42.4	63.3	70.7	75.0
Newspaper Printing	32.8	35.0	40.5	45.9	50.5
Package Printing	75.0	80.0	89.6	98.1	108.0
Foreign Trade				22.0	29.0
Other Printing	20.7	22.0	24.0	26.4	29.0
Total Printing Turnover	179.9	201.2	230.9	280.0	310.0

Figure 1. Chinese printing segment sales
click to view image full size



Industry Segmentation

Using the information in Table 6 and Figure 1, 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.

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.

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, 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.

Industry Trends

Increasing 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 7). 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 7. Newspaper and magazine consumption in China

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Measure	2000	2001	2002	2003	2004	2005
Population (millions)	1,259	1,268	1,276	1,283	1,293	1,304
Annual daily newspaper circulation (million copies)	77.1	80.6	87.1	93.0	98.2	106.2
Annual non-daily newspaper circulation (millions)	103.4	99.3	101.9	93.3	88.6	79.8
Newspaper annual copies per capita	26.6	28.1	29.1	30.2	31.7	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	3,063	3,294	3,486

Increasing 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 8). 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 8. Paper production in China, in thousands of tonnes
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Measure	2000	2001	2002	2003	2004	2005
Production of newsprint	1,529	2,039	2,286	2,390	2,936	3,465
Production of paper and paperboard	35,457	37,929	42,337	47,529	53,463	59,263
Production of printing and writing paper	7,710	8,310	9,302	10,486	11,531	13,170

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