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Understanding China's High Investment Rate and FDI Levels: A Comparative Analysis of the Return to Capital in China, the United States, and Japan

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Abstract:

This paper analyzes aggregate return to capital statistics for China, the United States, and Japan in order to investigate the causes of an unusually high investment rate and increasing foreign direct investment (FDI) inflows to China. We also analyze labor's share of

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output and capital-output ratio statistics to predict future trends in the return to capital in China. Our findings allow us to come to four conclusions: (1) China's high investment rate corresponds to a high return to capital in the country, just as high investment rates in the United States and Japan historically correspond to a high return to capital. (2) A comparatively higher return to capital attracted FDI to China. (3) Investment rates among these three countries show no signs of convergence so far. These differences will likely persist, encouraging FDI to continue to flow into China in near future. (4) The return to capital in China will likely decrease in the long run, as the experiences of Japan and the United States indicate, but will only decrease and become stable after a certain level of capital stock and development is reached.

Keywords: return to capital; investment rate; FDI

Introduction

Over the last decade and a half, China maintained an investment rate higher than that of more advanced economies, including both Japan and the United States. Over the same period, foreign direct investment (FDI) inflows to the Chinese economy grew at an average rate of 19.97 percent per year, increasing from $3.5 billion in 1990 to $92.4 billion in 2008.

What made China so attractive to investors? In the past few years, this question has been heavily debated. China's National Development and Reform Commission (2005) concluded that rapid industrialization, a high savings rate, a low consumption rate, and a low efficiency of investment led to the high investment rate. Subsequent studies by Li (2007), Hu (2007), Yu (2008) and many others have further explored the high investment rate and the low consumption rate in China. Fan (2009) discussed the same topic, comparing the political systems of China and the United States, and concluded that China's local governments always paid more attention to the interests of capital and less to those of labor, resulting in a high investment rate and a low consumption rate. Concerning factors that attract FDI flows into China, Shen et al. (2002) found that the human capital stock significantly affected the location choice and investment scale of FDI. Xu et al. (2002) concluded that FDI was mainly affected by market demand, the capital stock, and the exchange rate. Fan and Xu (2009) also discussed the exchange rate's role in attracting FDI. Li (2004) argued that there was a positive correlation between foreign trade and FDI. Huang et al. (2006) pointed out that the transaction costs of foreign trade, technology spillovers, and market demand significantly affected the choice of location for FDI. Luo (2009) studied the source countries for FDI and concluded that the source country's market size and bilateral trade influenced FDI inflow.

In this paper, we expand on these findings and seek to understand the effect of the return to capital and international differences in the return to capital on the investment rate and level of FDI in China. Our main question is whether the high investment rate and FDI in China are sustainable. To answer this question, the most intuitive approach is to estimate the return to capital in China and compare it with that in other major countries, such as the United States and Japan. If the return to capital in China is consistently high, we may conclude that the high investment rate in the country is likely to last for a number of years. And if the return to capital in China is significantly higher than that for other major countries, we can conclude that foreign capital will continue to flow into China. This paper therefore estimates the return to capital in China, the United States, and Japan; studies key factors that affect the return to capital; and investigates changes in these factors in order to reveal the trends in China's return to capital and the future investment climate.

Methodology

In this paper we consider a transaction by a firm, a price taker, to purchase a unit of capital at the margin.[2] The real return from this transaction is:

[2] This methodology has its origins in the Hall-Jorgenson rental price equation and has been used in Bai, Hsieh, and Qian (2006). Details on this methodology are given in the appendix.

$$r(t) = \frac{P_Y(t) MPK_j(t)}{P_{K_j}(t)} - \delta_j - \hat{P}_Y(t) + P_{K_j}(t) \;\;\ldots\ldots\; \textbf{(1)}$$

Where,

$r(t)$: The real rate of return to capital;

$P_Y(t)$: The price of the output;

$P_{K_j}(t)$: The price of capital *j;*

$MPK_j(t)$: The marginal physical product of capital *j*;

δ_j : The depreciation rate of capital *j*;

$\hat{P}_Y(t)$: The growth rate of $P_Y(t)$;

$\hat{P}_{K_j}(t)$: The growth rate of $P_{K_j}(t)$

This methodology is simple and straightforward: it relies only on the assumption that firms take output prices as given. More importantly, this methodology is not dependant on economic structure and thus can be used to estimate the return to capital both in China, an emerging market economy, and in Japan and the United States, which are advanced economies. It is unlikely that one could observe the marginal physical product of capital directly, but it can be inferred from data on labor's share of income. Note that labor's share of total income equals total wages over aggregate output. Further note that while equation (5) in the appendix is used for calculations in this paper, it is equivalent to equation (1) above.

Data sources

China

For the Chinese Gross Domestic Product (GDP) data, we use two sources: the *Chinese Statistical Yearbook 2007* for 1978–2006 and the *Comprehensive*

Statistical Data and Materials on 55 Years of New China (1949–2004) for 1953–1977. For the investment goods deflator, we use the price indices for investment in fixed assets released by China's National Bureau of Statistics since 1990; for those before 1990, we simply use the indices from Bai, Hsieh, and Qian (2006).[3] Labor's share, theoretically, should be measured as aggregate compensation to employees over total income. However, the NBS only provides data on the basic condition of China's labor market in the industrial sectors. These data do not necessarily reflect the true condition of the aggregate labor market. Therefore, we estimate labor's share instead, using provincial annual labor share data, weighted by the share of provincial GDP in the aggregate GDP.

To estimate the capital stock in China, we use the perpetual inventory method (PIM). PIM has been widely used to estimate capital stocks (Gerhand, Verbiest, and De Wolf, 1998; Huang, Ren, and Liu, 2002). As appendix equation (6) indicates, the application of PIM requires estimates and assumptions about three parameters: (1) the service life of the investment goods, (2) depreciation, and (3) the constant price of capital invested. For the capital stock in China, we mainly have to consider two kinds of investment goods: (1) construction and installation, and (2) machinery and equipment. According to the estimates in Wang and Wu (2003), the useful life of construction and installation goods is 38 years and that of machinery and equipment is 12 years. This paper employs the declining-balance method of depreciation, which applies gradually decreasing depreciation charges over the service life of the asset and thus might provide a more realistic reflection of actual depreciation. Therefore, the average annual depreciation rate of construction and installation is 8 percent and that of machinery and equipment is 24 percent.[4]

In China, the series frequently used to measure annual capital invested is "investment in fixed assets," which is disaggregated into two types of investment: construction and installation, and purchase of equipment and instruments. However, Xu (2000) and Bai, Hsieh, and Qian (2006) argued that this widely used statistic might not provide an accurate estimate of aggregate

[3] Bai, Hsieh, and Qian (2006) assumed that the price of structures during 1978–89 equals the deflator of value added in the construction industry, and that of machinery and equipment equals the output price deflator of the domestic machinery and equipment industry; for the years before 1978, Bai, Hsieh, and Qian (2006) assumed investment goods deflator equals the growth rate of the aggregate price of fixed capital formation.

[4] In China, the residual value rate ranges from 3 to 5 percent; in this paper we use 4 percent as the residual value rate.

investment in China because the series includes the value of purchased land and expenditures on previously owned machinery and preexisting structures. These should not be regarded as part of reproducible capital stock; doing so might lead to biased estimates of the change in China's capital stock. Furthermore, the statistic counts only large investment projects, an approach that underestimates aggregate investment.

To circumvent these problems, many researchers recommend another statistic, "gross fixed capital formation," as an alternative to estimate the change in the capital stock. This statistic subtracts the value of land sales and the expenditure on preexisting machinery and equipment from the figure for investment in fixed assets, and adds expenditures on small investment projects. Because the gross fixed capital formation statistic is not disaggregated into different types of investment, we assume that the shares of the two types of capital are the same as those for investment in fixed assets[56].

The United States

In the National Economic Accounts, the U.S. Bureau of Economic Analysis (BEA) provides data for current-dollar and real GDP from 1929 to 2008. The BEA also provides data on compensation to employees for the same period, which includes wages, salary, and supplements to wages and salary. The BEA disaggregates fixed assets into private equipment and software, private non-residential structures, residential structures, durable goods owned by consumers, and government-owned fixed assets. Like China and Japan, the United States uses geometric depreciation methods for most asset types. The BEA determines the geometric rate for specific types of assets by dividing the appropriate declining-balance rate for each asset by the asset's assumed service life. The declining-balance rates used by the BEA are primarily derived from estimates made by Hulten and Wykoff, who divided assets into three major types: type A assets with extensive data for estimating geometric rates of depreciation; type B assets with limited studies or other relevant data to support estimates of the rate of declining balance; and type C assets with

[5] The data from 1953 to 1977 are from Hsieh and Li (1999), data from 1978 to 2004 are from Bai, Hsieh, and Qian (2006), and data from 2005 to 2006 are from China Statistical Yearbook 2007.

[6] We initialize the capital stock of 1952 as the ratio of investment in 1953 to the sum of the average growth rate of investment in 1953–58 and the depreciation rate.

no data.[7] In this paper, we do not have to conduct in-depth research into the depreciation rates for different types of assets in the United States, as the U.S. BEA provides data series on capital stock as well as depreciation in the National Economic Accounts. To obtain the average depreciation rate, we simply divide the depreciation by the capital stock.

Japan

The Economic and Social Research Institute (ESRI), which produces the Japanese national account in the *Japan Statistical Yearbook,* publishes several estimates of GDP. The national accounts of the *Japan Statistical Yearbook* for 2009 provide data on aggregate output for 1965–2006, whereas the national accounts of the *Historical Statistics of Japan* (2010) provide data on GDP for 1980–2003 under the 1993 System of National Accounts (93SNA) and for 1955–98 under the 1968 System of National Accounts (68SNA). In this paper, we use the data of aggregate output in the *Japan Statistical Yearbook* 2009 for 1965–2006 and the data in the *Historical Statistics of Japan* for 1955–64. For data on compensation to employees, we use the *Japan Statistical Yearbook* 2009 for 2003–06, 93SNA for 1980–2002, and 68SNA for 1955–79.

One of the primary categories of capital stock for which estimates are given in the *Japan Statistical Yearbook* is net capital stock (NCS), which covers such items as buildings, structures, transport equipment, and machinery. A second is gross capital stock of private enterprises (GCSPE), which covers all fixed assets, excluding residential buildings owned by private corporations or unincorporated enterprises and fixed assets owned by private nonprofit institutions. The main limitation of the NCS is that it is disaggregated into only six categories of tangible assets: (1) dwellings, (2) other buildings, (3) other structures, (4) transport equipment, (5) other machinery and equipment, and (6) cultivated assets. The current asset classification is too aggregated to fully satisfy our research needs, as high- and low-depreciation assets are bundled together in some of the classifications. However, the GCSPE, which is frequently used as the main data source for analysis of production by industry, is also a flawed measure of productive capacity because it does not have asset categories. Moreover, the GCSPE only counts the capital stock for private enterprises, which does not provide an appropriate measure for the capital stock of the aggregate economy. Because of this, we chose to use NCS as the capital stock of Japan in this paper, and added total inventories.

[7] This information is primarily extracted from "BEA Depreciation Estimates" at the BEA website.

According to the ESRI, depreciation in NCS is based on the geometric method for dwellings, transport equipment, etc. The residual value rate is 50 percent for cultivated assets and 10 percent for other assets. We calculate the corresponding depreciation rate in table 1[8] and compute the aggregate depreciation rate as a weighted average of depreciation rates by types of assets, using the capital stock shares as weights.

Return to Capital in China, the United States and Japan

With the above-mentioned data in hand, we can estimate the return to capital. In table 2, we provide our estimates of the return to capital in China and list the variables used to calculate it. In tables 3 and 4, we do the same for the return to capital in Japan and in the United States.

Return to Capital in China

As shown in figure 1, the return to capital in China varied between 23.17 percent in 1978 and 21.82 percent in 2006, averaging over 20 percent during this 28-year period. However, there was a drastic fluctuation in the return to capital in China between 1992 and 1994, with a sharp increase in 1993 and a rapid decline in 1994. The spike in 1993 was likely due to a sharp increase in the growth rate of investment goods prices in 1993, which rose from 15.52 percent in 1992 to 29.35 percent in 1993. The rapid drawdown in the return to capital in China in 1994 was likely due to a rapid decline in the growth rate of investment goods prices in 1994, which fell from 29.35 percent in 1993 to 10.25 percent in 1994.

Return to Capital in Japan

As shown in figure 2, the return to capital in Japan was extremely volatile between 1956 and 2006, with a high point of 39.43 percent in 1961 and a low of 5.4 percent in 1994. This metric seems strongly correlated with the country's economic cycle. From 1956 to 1974, as Japan rebuilt its lost industrial capacity and experienced a series of economic booms, the return to capital in Japan was at its highest level, averaging above 31 percent. In the mid-1970s,

[8] All tables and figures are located after the Appendix.

Japan faced a severe economic challenge—the 1973 world oil crisis—which shocked its heavily petroleum-dependent economy. During this period, the return to capital plunged from 30.38 percent in 1974 to 13.94 percent in 1975. Throughout the last five years of the 1970s, this figure fluctuated around 14 percent. In the mid-1980s, the return to capital in Japan began another period of increase that continued until the country entered a recession in 1992. From 1993 to 2006, the return to capital in Japan remained relatively stable, albeit relatively low, with an average of 9 percent.

The Return to Capital in the United States

As shown in figure 3, the return to capital in the United States fell from around 15 percent after the Second World War to around 5 percent in the last decade. During the late 1920s, the United States enjoyed a period of sustained prosperity known as the Roaring Twenties. Even in the first three years after the Wall Street Crash of 1929, the United States maintained a return to capital as high as 15 percent. This, however, was likely due to the negative growth rate of the GDP deflator. As the Great Depression devastated the United States' economy, the return to capital dropped to around 6 percent by the mid-1930s. However, the depression also led to U.S. government efforts to restart the economy, and the return to capital from 1935 to 1945 averaged around 10 percent. During the period of postwar prosperity from 1945 to 1973, the return to capital in the United States fluctuated between 12 and 4 percent, averaging roughly 8 percent. The oil crisis in 1973, which caused the soaring inflation of the 1970s, badly hurt the U.S. economy. The return to capital in the United States averaged below 1 percent for a decade starting in 1974. To stimulate the American economy after a recession in the early 1980s, Ronald Reagan introduced expansionary fiscal policies, which led to an economic recovery starting in 1983. The return to capital in the United States averaged about 6 percent from then until the Clinton administration. The six-year span from 1994 to 2000 witnessed the emergence of a technology-driven "new economy," and the return to capital in the United States during this period averaged above 7 percent. Between 2000 and 2007 the U.S. return to capital remained relatively stable, averaging around 6 percent.

Investment Rates and FDI: From the Perspective of Return to Capital

The Investment Rate in China

Figure 4 shows that the investment rate in China increased from 29.46 percent in 1978 to 42.75 percent in 2006. In the intervening period, as noted earlier, the return to capital in China fluctuated around 22 percent. This indicates a positive relationship between the return to capital and the investment rate. We believe the investment rate in China was high during the period of 1978 to 2006 because the return to capital in China was the highest in the world, which heightened investors' willingness to invest in the country.

The Investment Rate in Japan

As shown in figure 5, the investment rate in Japan increased from 26.80 percent in 1956 to 39.02 percent in 1970 and declined to 23.46 percent in 2006, with an average of 30.45 percent over the entire period. From 1956 to 1970, as discussed earlier, the return to capital in Japan increased from 31.95 to 38.38 percent, averaging 32.36 percent. After 1970, the return to capital in Japan dropped to 12.79 percent by 2006, averaging only 13.62 percent. The evidence from Japan indicates that investors were willing to invest more when the return to capital was high and invest less when the return to capital was low.

The Investment Rate in the United States

From 1929 to 2007, the investment rate and the return to capital in the United States were highly correlated. Figure 6 shows that the investment rate in the United States declined during the Great Depression in the early 1930s but increased in the following years, rising from 15.60 percent in 1933 to 29.68 percent in 1950, the year that marked the highest investment rate in the United States for 1930–2007. After 1950, the investment rate in the United States fluctuated between 24 and 30 percent, with an average of around 27 percent. As discussed above, the return to capital in the United States, after a decline during the Great Depression period, increased from 1.27 percent in 1934 to 11.08 percent in 1950, with a slight decrease in the late 1940s when the investment rate fell. Between 1950 and 2007, the return to capital in the United States remained relatively stable except the period during 1974-1982.

Impacts on FDI inflows to China

In the observed period, FDI played a determining role in investment in China: its high level contributed to the high investment rate. One important factor that affected cross-border capital flows was the disparity in the returns to capital across countries. Figure 7 shows the differences in the returns to capital between China and the world's two largest capital export/import countries, Japan and the United States, as well as the growth rate of FDI inflows in China. We can see that the growth of FDI inflows in China increased significantly when the return-to-capital disparities between China and Japan and China and the United States widened, which is especially evident from 1992 to 1993. The correlation coefficient between the growth rate of FDI inflows and the difference between the return to capital in China and Japan was as high as 0.819; for the United States and China, the correlation was 0.799.

Factors That Affect Return to Capital

Marginal Effect of Factors

Figures 8 and 9 show that the marginal effects of labor's share and the capital-output ratio on the return to capital are always negative, which suggests that an increase in labor's share of income and the capital-output ratio will lead to a decrease in the return to capital. In the long run, however, the marginal effects of labor's share and the capital-output ratio seem to converge to zero. The return to capital changes significantly when it is at a high level, and changes little when it is at a relatively lower level. The return to capital is thus able to become stable again after a sharp decline. In the short run, the change in marginal returns results from the changes in labor's share of income and the capital-output ratio. In the following section, we will discuss how these factors change over time and how they affect the return to capital.

Trends in Key Factors

As appendix equation (9) indicates, the marginal impact of an increase in labor's share of income on the return to capital is always negative—i.e., the return to capital decreases as labor's share increases. Figure 10 shows that labor's share of income in Japan rose from 41.44 percent in 1956 to 51.6 percent in 2006, while that of the United States rose from 51.43 percent in

1930 to 56.63 percent in 2007. However, labor's share of income in China fell from 49.67 to 40.61 from 1978 to 2006. Labor's share of income in China is much lower than those in either Japan or the United States, which is why the country's return to capital is higher. This is very intuitive: when labor receives less compensation, capital will earn more, which leads to a higher return to capital.

There are two major reasons that labor's share of income is so low in China. China has a large manufacturing sector, and laborers are paid less than those who work in the service industry. Also, an abundance of rural migrant workers provide a steady flow of cheap labor for manufacturers; this is the chief reason that labor's share of income in China has actually decreased during the last two decades. In the future, as the economy develops, workers in China will undoubtedly seek better compensation. This will lead to an increase in labor's share of income in China, just as Japan and the Unites States saw increases in the past. The increase of labor's share of income will ultimately reduce the return to capital in China. However, it seems likely that Chinese labor's share of income will remain at a lower level than the Japanese or American for a number of years, given China's manufacturing-based economy and its persistently large flow of rural workers into manufacturing.

What is the economic meaning of a high capital-output ratio? Does it indicate a low GDP, or imply a high capital stock? In the cases of Japan and the United States, the two largest economies in the world, the answer should be a high capital stock. It's natural that Japan and the United States attracted significant amounts of investment during the 20th century, which led to the accumulation of large capital stocks in the two countries. Figure 11 shows that the capital-output ratio in Japan increased from 1.71 in 1956 to 2.41 in 2006, while that of China rose only a slightly—from 1.47 in 1978 to 1.74 in 2006. Although the capital-output ratio in the United States experienced no remarkable change during the period of 1930 to 2007, it persisted at 3.4, which was much higher than both China's and Japan's.

From the experiences of Japan and the United States we can predict that the capital stock in China will increase in the future, which potentially may lead to an increase in the capital-output ratio. The high return to capital in China is likely to attract more investment, which will increase the capital stock and lead to a high capital-output ratio. However, it seems unlikely that the capital-output ratio in China will experience a significant increase in the near future because China has the world's third largest GDP and a fast-growing economy.

The lower capital-output ratio in China relative to those of Japan and the United States will likely cause the return to capital in China to remain the highest of the three countries in the years ahead.

Trends in Return to Capital and the Future Investment Climate in China

As shown in figure 12, the return to capital in Japan decreased from 31.95 percent in 1956 to 12.79 percent in 2006, while that of the United States decreased from 15.28 percent in 1930 to 6.94 percent in 2007, indicating that the return to capital seems to decline in the long run. Increases in labor's share of income and the capital-output ratio seem to follow the development of the economy, leading to a decline in the return to capital. Also, the evidence from Japan and the United States indicates that the return to capital remains high during the early stages of economic booms. From 1965 to 1980, for example, the period that marked the economic booms of Japan, the return to capital in Japan averaged above 28 percent. From 1978 to 2006, the period that marked China's "Reform and Opening Up" movement, the return to capital in China was also very high.

As stated above, the experiences of major developed countries indicate that the return to capital in China will decrease in the future because of increases in labor's share of income and the capital-output ratio. However, it seems that the return to capital in China will remain higher than that of Japan and that of the United States in the near future because labor's share and the capital-output ratio are still very low and are unlikely to significantly increase any time soon. Considering the experience of Japan, whose return to capital converged to that of the United States after more than 40 years of economic development, we can conclude that, considering the size of its economy, China will still be able to enjoy a high return to capital for at least 10 more years. In addition, as the return to capital in China is significantly higher than those of other major countries, foreign capital will continue to flow into China, especially as China increasingly opens more sectors to foreign investors as part of the commitments it made toward entry into the WTO.

Discussion

In this paper, we take labor's share of income and the capital-output ratio to be the primary determinants of the high return to capital observed in China. They therefore have a direct impact on the calculations used. However, there are also many other secondary considerations that may indirectly affect the return to capital, but which are beyond the scope of this paper.

For example, because China's financial market is not fully developed, financing costs are high. There are also many investment inefficiencies in China (NDRC 2005). In addition, because China is still a transition economy, there are many investment uncertainties, including regulations, pricing mechanisms, and the level of market development. Businesses face more risk because of these factors, and as a result they demand a higher return to capital as compensation. Moreover, many sectors in the Chinese market are still monopolies: this imperfect competition allows the return to capital in those sectors to be comparatively high. In the long run, as China's economy develops, changes in these factors will contribute to decreases in the return to capital.

Theoretically, a high investment rate and a quickly growing stock of FDI in China will have a negative effect on the return to capital, taking the form of a lagging effect rather than a current effect. When capital stocks increase, the return to capital decreases. This is supported by the experiences of the United States and Japan. According to our estimates for China over the past 30 years, we have not yet seen a significant decrease in the return to capital, excepting a slight decline after 1994. However, we can assume that a high investment rate and large FDI inflows, while not causing the return to capital to decrease to any large extent, have had a dampening effect.

We consider the return to capital to be sufficient for evaluating the relative size of FDI inflows and for predicting future trends. However, it is insufficient for determining actual quantities of FDI in China due to the complexity of the factors which affect capital flows. China's infrastructure, reform path, and FDI competitors all need to be taken into account to predict investment and FDI with more accuracy.

Since China's entry into the WTO in 2001, the country has become increasingly open to outside investment. In addition, local governments have often adopted preferential taxation and loan policies to attract FDI to their regions. Many studies have discussed the impact of globalization on FDI inflows in China. The specific actions of these governmental bodies merit further research, as they could be used to further analyze the stylized conclusions made in this paper.

Conclusion

By estimating the aggregate return to capital in China, the United States, and Japan, this paper studies the impacts of the return to capital on the investment rate. We use our findings to better understand the unusually high investment rate and flow of FDI to China. Our findings show that the return to capital in China maintained a high level of 21.9 percent during the last three decades—even higher than those in Japan, which was over 10 percent. The investment rate in China increased from 29.46 percent in 1978 to 42.75 percent in 2006, again a level much higher than those found in Japan and the United States. We also find that the investment rate was always high when the return to capital was high and low when the return to capital was low, suggesting that the investment rate was significantly affected by return to capital. Thus, we believe that China maintained a higher investment rate during the last 30 years precisely because of its higher return to capital.

The disparities among the returns to capital in China, Japan, and the United States may persist into the near future, maintaining current trends of a high investment rate and high FDI in China. Although in the long run the increase in labor's share of income and in the capital-output ratio will likely cause the return to capital in China to decline, our analysis shows that China should continue to have much higher return to capital than that in Japan or the United States. Return to capital statistics for the United States, China, and Japan show no evidence of convergence, and neither labor's share of income nor the capital-output ratio in China is likely to experience a significant increase in the near future.

References

Bai Chong-En, Chang-Tai Hsieh, and Yingyi Qian. 2006. The return to capital in China. *Brookings Papers on Economic Activity* 2:61–88.

Baumol, W., P. Heim, B. Malkiel, and R. Quandt. 1970. Earnings retention, new capital and the growth of the firm. *Review of Economics and Statistics* 52 (4): 345–55.

Brealey, R., S. Hodges, and D. Capron. 1976. The return on alternative sources of finance. *Review of Economics and Statistics* 58 (4): 469–77.

Bureau of Economic Analysis, National Economic Accounts, available in website: *http://www.bea.gov/national/index.htm*

China's National Development and Reform Commission, "Analysis of the investment rate and consumption rate in China", August 4 2005, *http://www.sdpc.gov.cn/zjugx/t20050804_38750.htm*.

CCER China Economic Observer Research Group, 2007. Measurements of China's capital return (1978–2006): Microeconomic underpinnings for the recent economic boom in China. *China Economic Quarterly* 6 (3): 723–58.

Government of China. National Bureau of Statistics. *Chinese Statistical Yearbook,* China Statistics Press, 1978–2007.

Government of China. *National Bureau of Statistics. Comprehensive Statistical Data and Materials on 55 Years of New China (1949-2004)*, China Statistics Press, 2005.

Fan Ming. 2009. Political factors of high investment rate and low consumption rate in China: An explanation based on a comparison between the political systems of China and the US. *Economic Survey* 2:1–4.

Fan Yuejin and Xu Weicheng. 2009. Analysis of the impact of RMB appreciation on foreign direct investment in China. *Journal of University of Jinan (Social Science Edition)* Vol. 19, No. 1, 2009: 1-5.

Friend, I., and F. Husic. 1973. Efficiency of corporate investment. *Review of Economics and Statistics* 55 (1): 122-127.

Gugler, K., D. Mueller, and B. Yurtoglu. 2003. The impact of corporate governance on investment returns in developed and developing countries. *Economic Journal* 113 (491): 511–39.

Gugler, K., D. Mueller, and B. Yurtoglu. 2004. Corporate governance and the returns on investment. *Journal of Law and Economics* 47 (2): 589–633.

Hu Xueqin. 2007. Some considerations about China's high investment rate. *Modern Economic Research* 2007 (9): 34–38.

Huang Xiaoqi and Chai Min. 2006. Regional choice of FDI from the perspective of new economic geography: An empirical study based on provincial panel data. *Management World* 2006 (10): 7–13.

Huang, Yongfeng, Ren Ruoen, and Liu Xiaosheng. 2002. Capital stock estimates in Chinese manufacturing by perpetual inventory approach. *China Economic Quarterly* 1 (2): 377–96.

Japan Ministry of Internal Affairs and Communications, "Historical Statistics of Japan," 2010. *http://www.stat.go.jp/english/data/chouki/index.htm.*

Japan Ministry of Internal Affairs and Communications, "Japan Statistical Yearbook," 1955–2009. *http://www.stat.go.jp/english/data/index.htm*

Kuijs, L., and B. Hofman. 2006. Profits drive China's boom. *Far East Economic Review* 169 (8): 39–43.

Li Qin. 2004. An empirical study of the relationship between FDI inflow and foreign trade. *World Economic Research* 2004 (9): 75–79.

Li Rupeng. 2007. Exploring [??] the reasons for low consumption in China. *Jiangsu Commercial Forum* no. 5:22–24.

Luo Zhi. 2009. The determinants of FDI inflow to China: The empirical research based on international panel data. *Southern Economy* 1:33–41.

McFetridge, D. 1978. The efficiency implications of earnings retentions. *Review of Economics and Statistics* 60 (2): 218–24.

Meinen, Gerhard, Piet Verbiest, and Peter-Paul de Wolf. 1998. *Perpetual inventory method: Service lives, discard patterns, and depreciation methods.* Heerlen-Voorburg, Netherlands: Statistics Netherlands.

Mueller, D., and E. Reardon. 1993. Rates of return on corporate investment. *Southern Economic Journal* 60 (2): 430–53.

Mueller, D., and B. Yurtoglu. 2000. Country legal environments and corporate investment performance. *German Economic Review* 1 (2): 187–220.

Nomura, Koji, and Tadao Futakami. 2005. Measuring capital in Japan: Challenges and future directions. Paper prepared for the 2005 Organisation for Economic Co-operation and Development Working Party on National Accounts, October 11–14, 2005, Paris, France.

Xin Qinquan, Lin Bin, and Yang Deming. 2007. Return to capital investment and its determinants in China: Evidence from listed companies. *China Economic Quarterly* 6 (4): 1143-1164.

Xu Kangning and Wang Jian. 2002. Determinants of U.S. investment in China, 1983-2000, *Social Science in China* 2002 (5): 66–77.

Yu Jian. 2008. An examination of the high investment rate in China. *Journal of Shanxi Finance and Economics University* 4:47–52.

Appendix

$$r(t) = \frac{P_Y(t)MPK_j(t)}{P_{K_j}(t)} - \delta_j - \hat{P}_Y(t) + P_{K_j}(t) \quad \ldots\ldots \textbf{(1)}$$

Where

$r(t)$: The real rate of return to capital;

$P_Y(t)$: The price of the output;

$P_{K_j}(t)$: The price of capital *j*;

$MPK_j(t)$: The marginal physical product of capital *j*;

δ_j : The depreciation rate of capital *j*;

$\hat{P}_Y(t)$: The growth rate of $P_Y(t)$;

$\hat{P}_{K_j}(t)$: The growth rate of $P_{K_j}(t)$.

Note that labor's share in total income equals total wages over aggregate output. Thus, the share of capital in total income is:

$$\alpha(t) = 1 - \frac{W(t)L(t)}{P_Y(t)Y(t)} \quad \ldots\ldots \textbf{(2)}$$

Where $W(t)$ is wages and $L(t)$ is employment.

Additionally, the share of payments of capital can be given as:

$$\alpha(t)=\frac{\sum_j P_Y(t)MPK_j(t)K_j(t)}{P_Y(t)Y(t)}$$

$$=\frac{\sum_j \frac{P_Y(t)MPK_j(t)}{P_{K_j}(t)}K_j(t)P_{K_j}(t)}{P_Y(t)Y(t)}$$

Substituting equation (1) into $\alpha(t)$, we get:

$$\alpha(t)=\frac{\sum_j\left(r(t)+\delta_j+\hat{P}_Y(t)-P_{K_j}(t)\right)K_j(t)P_{K_j}(t)}{P_Y(t)Y(t)}$$

$$=\frac{\sum_j\left(r(t)+\hat{P}_Y(t)\right)K_j(t)P_{K_j}(t)+\sum_j\left(\delta_j-P_{K_j}(t)\right)K_j(t)P_{K_j}(t)}{P_Y(t)Y(t)}$$

$$=\frac{\left(r(t)+\hat{P}_Y(t)\right)K(t)P_K(t)+K(t)P_K(t)\left(\frac{\sum_j \delta_j K_j(t)P_{K_j}(t)}{K(t)P_K(t)}-\frac{\sum_j \hat{P}_{K_j}(t)K_j(t)P_{K_j}(t)}{K(t)P_K(t)}\right)}{P_Y(t)Y(t)}$$

$$=\frac{K(t)P_K(t)\left(r(t)+\hat{P}_Y(t)+\delta(t)-P_K(t)\right)}{P_Y(t)Y(t)} \quad \ldots\ldots \textbf{(3)}$$

Where

$K(t)P_K(t)=\sum_j K_j(t)P_{K_j}(t)$: The aggregate produced assets;

$\hat{P}_K(t)=\sum_j \frac{K_j(t)P_{K_j}(t)}{K(t)P_K(t)}P_{K_j}(t)$: The growth rate of the investment goods deflator;

$$\delta(t)=\sum_j \frac{K_j(t)P_{K_j}(t)}{K(t)P_K(t)}\delta_j$$: The depreciation rate;

From equation (3) we can get the real return to capital as:

$$r(t)=\frac{\alpha(t)}{K(t)P_K(t)\big/P_Y(t)Y(t)}+\left(\hat{P}_K(t)-P_Y(t)\right)-\delta(t) \quad \ldots\ldots \textbf{(4)}$$

Substituting equation (2) into equation (4), we get:

$$r(t)=\frac{1-\dfrac{W(t)L(t)}{P_Y(t)Y(t)}}{K(t)P_K(t)\big/P_Y(t)Y(t)}+\left(\hat{P}_K(t)-P_Y(t)\right)-\delta(t) \quad \ldots.. \textbf{(5)}$$

$$K_t=\sum_{\tau=0}^{d-1} w_\tau * I_{t-\tau} \quad \ldots.. \textbf{(6)}$$

Where

K_t is the capital stock at time t;

d is the service life of the investment goods;

$I_{t-\tau}$ is the constant value of the investment goods invested τ years before;

w_τ is the weight of the investment goods invested τ years before.

According to equation (5), we have:

$$r(t)=\frac{1-\frac{W(t)L(t)}{P_Y(t)Y(t)}}{K(t)P_K(t)\big/P_Y(t)Y(t)}+\left(\hat{P}_K(t)-P_Y(t)\right)-\delta(t)$$

$$\Rightarrow r(t)=\frac{1-\beta(t)}{\varphi(t)}+\left(\hat{P}_K(t)-P_Y(t)\right)-\delta(t) \quad \text{..... } \mathbf{(7)}$$

Where

$\beta(t)=\frac{W(t)L(t)}{P_Y(t)Y(t)}$ is labor's share

$\varphi(t)=K(t)P_K(t)\big/P_Y(t)Y(t)$ is the capital-output ratio.

By taking a partial derivative on return to capital with respect to each of the five factors, we have:

$$dr(t)=\frac{\partial r(t)}{\partial\beta(t)}d\beta(t)+\frac{\partial r(t)}{\partial\varphi(t)}d\varphi(t)+\frac{\partial r(t)}{\partial\hat{P}_K(t)}d\hat{P}_K(t)+\frac{\partial r(t)}{\partial P_Y(t)}dP_Y(t)+\frac{\partial r(t)}{\partial\delta(t)}d\delta(t) \quad \text{.. } \mathbf{(8)}$$

Where

$\frac{\partial r(t)}{\partial\beta(t)}=-\frac{1}{\varphi(t)}$, the marginal return of labor's share;

$\frac{\partial r(t)}{\partial\varphi(t)}=-\frac{1-\beta(t)}{\left(\varphi(t)\right)^2}$, the marginal return of capital-output ratio;

$\frac{\partial r(t)}{\partial\hat{P}_K(t)}=1$, the marginal return of investment goods deflator;

$$\frac{\partial r(t)}{\partial \hat{P}_Y(t)} = -1$$, the marginal return of GDP deflator;

$$\frac{\partial r(t)}{\partial \delta(t)} = -1$$, the marginal return of depreciation rate.

$$\Rightarrow dr(t) = -\frac{1}{\varphi(t)} d\beta(t) - \frac{1-\beta(t)}{(\varphi(t))^2} d\varphi(t) + d\hat{P}_K(t) - dP_Y(t) - d\delta(t) \quad \text{..... (9)}$$

Table 1: Depreciation rates used in *Japan Statistical Yearbook* (by types of assets)

	Service life	Depreciation rate
Dwellings	28.0	7.9
Other buildings	37.4	6.0
Other structures	33.7	6.6
Transportation equipment	7.6	26.2
Other machinery and equipment	10.6	12.1
Cultivated assets	5.4	9.9

Source: Nomura and Futakami, 2005.

Table 2: Variables and return to capital in China (%)

Year	Labor's share	Capital output ratio	Depreciation rate	Growth of investment deflator	Growth of GDP deflator	Return to capital
1978	49.67	1.39	12.10	0.93	1.92	23.17
1979	51.38	1.37	11.97	2.15	3.58	22.07
1980	51.15	1.35	11.82	4.95	3.78	25.41
1981	52.68	1.44	11.43	1.78	2.25	20.98
1982	53.57	1.45	11.06	2.34	-0.21	23.62
1983	53.54	1.43	10.82	3.76	1.04	24.44
1984	53.68	1.33	10.67	4.80	4.96	23.92
1985	52.90	1.24	10.69	8.62	10.24	25.77
1986	52.82	1.31	10.86	7.52	4.70	27.91
1987	52.53	1.33	10.81	6.98	5.17	26.60
1988	51.72	1.27	10.84	12.50	12.10	27.49
1989	51.51	1.41	10.88	9.55	8.55	24.58
1990	53.36	1.48	11.00	7.31	5.80	21.96
1991	50.03	1.44	10.91	9.05	6.87	26.09
1992	50.09	1.35	10.79	15.52	8.20	33.37
1993	50.37	1.31	10.72	29.35	15.16	41.47
1994	51.11	1.38	10.65	10.25	20.63	14.29
1995	52.56	1.37	10.74	4.97	13.71	15.25
1996	52.80	1.39	10.71	4.51	6.43	21.42
1997	52.89	1.47	10.61	2.12	1.52	22.01
1998	53.12	1.57	10.61	0.02	–0.89	20.23
1999	52.42	1.64	10.59	–0.15	–1.27	19.59
2000	51.48	1.63	10.59	1.60	2.03	18.75
2001	51.46	1.65	10.56	0.70	2.05	17.52
2002	50.92	1.67	10.55	0.37	0.60	18.62
2003	49.62	1.65	10.55	3.09	2.59	20.48
2004	45.51	1.63	10.54	6.86	6.93	22.83
2005	41.40	1.71	10.53	1.42	4.14	21.00
2006	40.61	1.72	10.65	1.20	3.24	21.82

Source: China Statistical Yearbook, various years, and author's calculations.

Table 3: Variables and return to capital in Japan (%)

Year	Labor's share	Capital output ratio	Depreciation rate	Growth of investment deflator	Growth of GDP deflato	Return to capital
1956	41.55	1.71	10.34	14.39	6.22	31.95
1957	40.81	1.54	10.00	11.59	7.16	32.79
1958	42.91	1.67	9.92	-5.64	-0.91	19.46
1959	42.47	1.56	9.92	1.57	5.50	23.15
1960	40.48	1.29	9.76	4.95	9.48	31.76
1961	39.53	1.17	9.83	7.96	10.21	39.43
1962	41.90	1.17	9.93	0.00	5.55	34.09
1963	42.34	1.24	10.10	0.00	7.18	29.03
1964	42.44	1.19	10.07	2.19	6.85	33.66
1965	44.12	1.22	10.04	-0.53	13.94	21.48
1966	43.96	1.21	10.00	3.76	5.34	34.86
1967	43.12	1.15	9.92	4.92	5.50	39.09
1968	42.43	1.12	9.94	2.22	5.83	37.74
1969	42.51	1.13	10.11	2.66	4.93	38.59
1970	43.49	1.11	10.18	4.47	6.87	38.28
1971	46.86	1.21	10.39	1.35	5.40	29.32
1972	47.65	1.31	10.52	3.56	5.60	27.44
1973	49.05	1.25	10.30	16.31	12.71	34.17
1974	52.15	1.31	10.17	24.72	20.81	30.38
1975	55.00	1.64	10.16	3.85	7.18	13.94
1976	55.24	1.83	9.99	4.84	8.01	11.30
1977	55.38	1.79	9.76	4.76	6.75	13.16
1978	54.34	1.86	9.60	2.85	4.60	13.23
1979	54.19	1.87	9.45	6.68	2.75	19.01
1980	53.84	1.88	9.27	8.51	-1.08	24.81
1981	54.13	2.04	9.35	1.74	4.52	10.33
1982	54.50	2.22	9.27	1.18	1.76	10.65
1983	55.10	2.24	9.24	0.11	1.71	9.16
1984	54.62	2.22	9.22	1.16	2.48	9.94
1985	53.11	2.11	9.26	0.73	3.01	10.65

Table 3: Variables and return to capital in Japan (%) — Continued

Year	Labor's share	Capital output ratio	Depreciation rate	Growth of investment deflator	Growth of GDP deflator	Return to capital
1986	52.89	2.11	9.33	-0.83	1.66	10.51
1987	52.57	2.09	9.37	-0.73	-0.36	12.92
1988	51.72	1.99	9.34	0.32	1.00	14.19
1989	51.48	1.95	9.37	1.89	2.32	15.06
1990	51.68	1.92	9.38	2.89	2.99	15.62
1991	52.49	2.01	9.42	2.20	2.94	13.43
1992	52.82	2.14	9.42	1.27	1.63	12.26
1993	53.55	2.28	9.42	-0.19	0.53	10.27
1994	54.35	2.35	9.36	-1.55	3.09	5.40
1995	54.51	2.37	9.26	-1.48	-0.50	8.97
1996	54.22	2.36	9.25	-1.18	-0.57	9.52
1997	54.44	2.33	9.23	0.41	0.60	10.12
1998	55.01	2.46	9.27	-1.56	0.03	7.45
1999	54.88	2.57	9.27	-2.14	-1.29	7.44
2000	54.68	2.52	9.23	-1.23	-1.73	9.23
2001	54.93	2.54	9.18	-2.13	-1.23	7.67
2002	54.30	2.60	9.15	-2.05	-1.55	7.94
2003	52.74	2.57	9.08	-1.77	-1.60	9.12
2004	51.44	2.51	9.00	-0.21	-1.08	11.25
2005	51.51	2.49	9.02	-0.07	-1.23	11.58
2006	51.60	2.41	9.05	0.82	-0.94	12.79

Source: Japan Statistical Yearbook, various years, and author's calculation.

Table 4: Variables and Return to Capital in the United States (%)

Year	Labor's share	Capital output ratio	Depreciation rate	Growth of investment deflator	Growth of GDP deflator	Return to capital
1930	51.43	3.37	4.82	1.99	-3.67	15.28
1931	52.03	3.47	4.63	0.56	-10.36	20.14
1932	52.98	4.16	4.53	-0.77	-11.80	17.81
1933	52.48	4.60	4.84	-1.19	-2.68	6.99
1934	51.97	4.02	4.75	-0.34	5.60	1.27
1935	51.02	3.67	4.79	0.37	1.98	6.94
1936	51.19	3.55	4.94	1.68	1.17	9.31
1937	52.23	3.41	4.91	1.89	4.31	6.68
1938	52.26	3.67	4.60	1.11	-2.97	12.50
1939	52.17	3.50	4.63	1.87	-0.91	11.81
1940	51.48	3.46	4.80	2.42	1.11	10.56
1941	51.14	3.16	5.57	3.88	6.69	7.10
1942	52.69	2.82	5.20	5.77	7.81	9.55
1943	55.19	2.56	5.57	5.79	5.38	12.37
1944	55.19	2.47	5.79	4.59	2.37	14.57
1945	55.27	2.63	6.46	1.84	2.65	9.76
1946	53.85	3.09	6.95	0.33	11.99	-3.69
1947	53.24	3.26	6.88	1.58	10.89	-1.82
1948	52.71	3.15	6.52	2.28	5.63	5.14
1949	53.05	3.22	5.83	2.76	-0.18	11.68
1950	52.83	3.28	6.11	3.90	1.09	11.08
1951	53.46	3.49	5.71	4.09	7.18	4.54
1952	54.76	3.45	5.49	3.95	1.71	9.87
1953	55.40	3.37	5.47	4.31	1.24	10.84
1954	54.99	3.49	5.63	3.70	0.95	10.03
1955	54.44	3.45	5.74	4.24	1.78	9.94
1956	55.91	3.54	5.87	3.65	3.46	6.77
1957	55.87	3.52	5.71	3.43	3.32	6.94
1958	55.57	3.58	5.77	2.65	2.30	6.99
1959	55.49	3.43	5.69	3.58	1.23	9.64
1960	56.34	3.40	5.72	3.22	1.40	8.93
1961	56.07	3.40	5.69	3.05	1.12	9.16
1962	55.87	3.30	5.69	3.54	1.36	9.86
1963	55.90	3.24	5.72	3.74	1.06	10.58
1964	55.86	3.20	5.80	4.08	1.53	10.56
1965	55.56	3.15	5.79	4.46	1.83	10.96
1966	56.18	3.12	5.88	4.53	2.85	9.83
1967	57.06	3.18	5.87	4.01	3.09	8.56
1968	57.62	3.19	5.99	4.10	4.27	7.14
1969	58.66	3.21	5.97	3.89	4.96	5.83
1970	59.43	3.30	5.95	3.17	5.29	4.22
1971	58.46	3.34	5.95	3.28	5.00	4.77

Table 4: Variables and Return to Capital in the United States (%)— Continued

Year	Labor's share	Capital output ratio	Depreciation rate	Growth of investment deflator	Growth of GDP deflator	Return to capital
1972	58.56	3.34	5.86	3.73	4.34	5.92
1973	58.67	3.41	5.87	4.02	5.58	4.70
1974	59.35	3.72	5.92	3.10	9.03	-0.93
1975	57.94	3.67	5.71	2.32	9.43	-1.37
1976	58.04	3.59	5.79	2.75	5.78	2.87
1977	58.13	3.61	5.91	3.26	6.35	2.60
1978	58.23	3.62	5.96	3.67	7.03	2.20
1979	58.55	3.74	5.99	3.59	8.29	0.41
1980	59.22	3.90	5.91	2.69	9.07	-1.82
1981	58.37	3.81	5.83	2.54	9.39	-1.76
1982	59.17	3.84	5.71	1.91	6.10	0.71
1983	57.76	3.66	5.61	2.39	3.96	4.36
1984	57.35	3.49	5.74	3.29	3.75	6.03
1985	57.46	3.42	5.87	3.48	3.04	7.00
1986	57.63	3.43	5.99	3.39	2.20	7.54
1987	58.06	3.43	6.01	3.14	2.73	6.62
1988	58.15	3.39	6.06	3.02	3.41	5.87
1989	57.37	3.34	6.15	2.83	3.78	5.66
1990	57.56	3.31	6.12	2.52	3.86	5.37
1991	57.51	3.27	6.13	1.80	3.50	5.14
1992	57.41	3.23	6.22	1.91	2.30	6.59
1993	57.15	3.23	6.21	2.21	2.31	6.97
1994	56.58	3.23	6.30	2.41	2.13	7.45
1995	56.74	3.23	6.20	2.59	2.05	7.71
1996	56.22	3.20	6.19	2.88	1.90	8.46
1997	56.19	3.17	6.20	3.03	1.66	8.99
1998	57.44	3.17	6.21	3.32	1.11	9.42
1999	57.86	3.19	6.27	3.52	1.45	9.04
2000	58.95	3.20	6.33	3.52	2.18	7.83
2001	58.72	3.26	6.33	2.93	2.40	6.85
2002	58.23	3.30	6.13	2.62	1.75	7.39
2003	57.76	3.32	6.07	2.62	2.13	7.15
2004	57.01	3.42	6.14	2.69	2.87	6.26
2005	56.65	3.52	6.17	2.57	3.26	5.45
2006	56.46	3.57	5.71	2.71	3.22	5.99
2007	56.63	3.38	5.58	2.37	2.69	6.94

Source: National Economic Accounts of U.S. Bureau of Economic Analysis; authors' calculations.

Figure 1: Return to capital in China 1978–2006 (%)

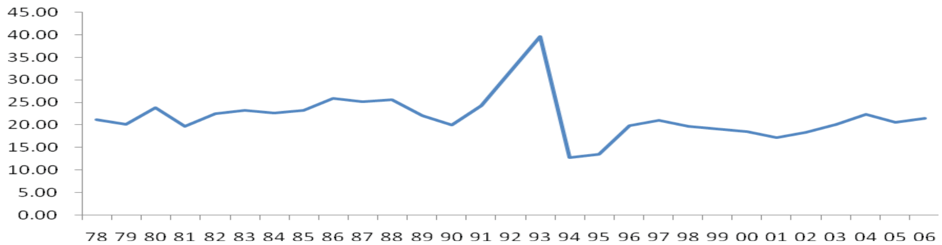

Figure 2: Return to capital in Japan 1956–2006 (%)

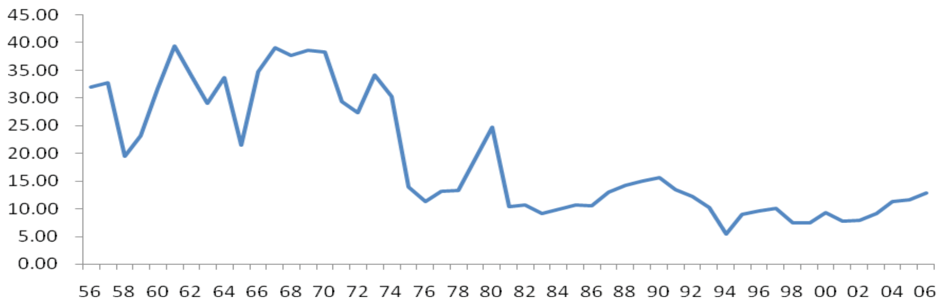

Figure 3: Return to capital in the United States 1930–2007 (%)

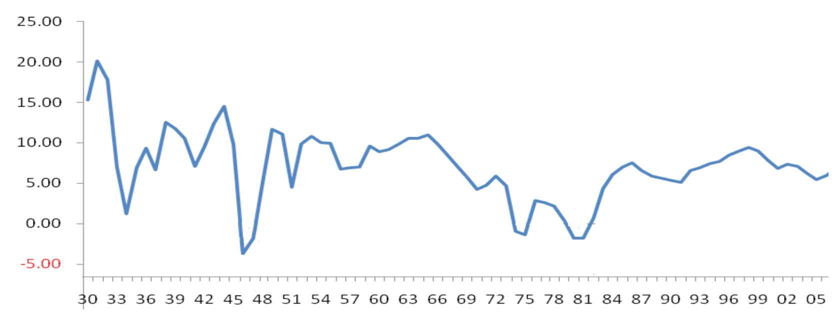

Figure 4: Investment rate in China 1978–2006 (%)

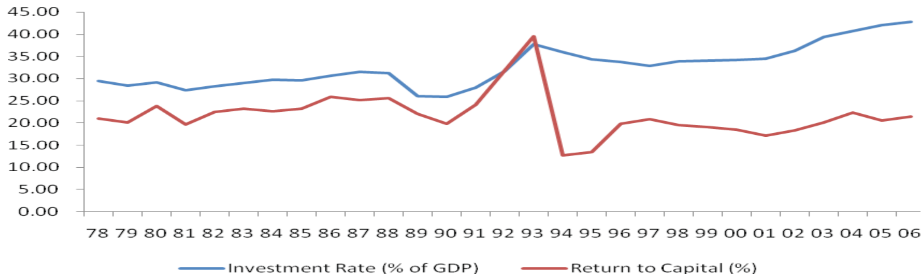

Figure 5: Investment rate in Japan 1956–2006 (%)

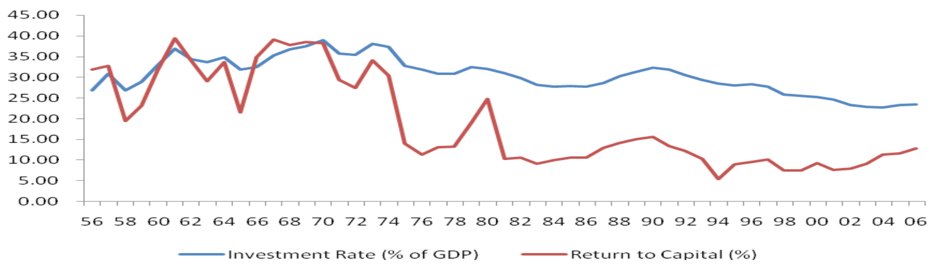

Figure 6: Investment rate in the United States 1930–2007 (%)

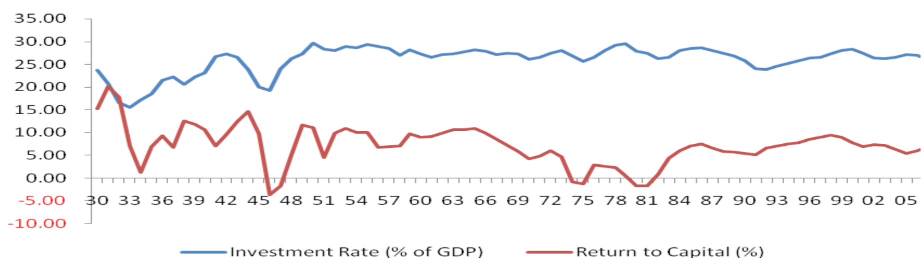

Figure 7: Discrepancy of return to capital and growth rate of FDI in China 1985–2006

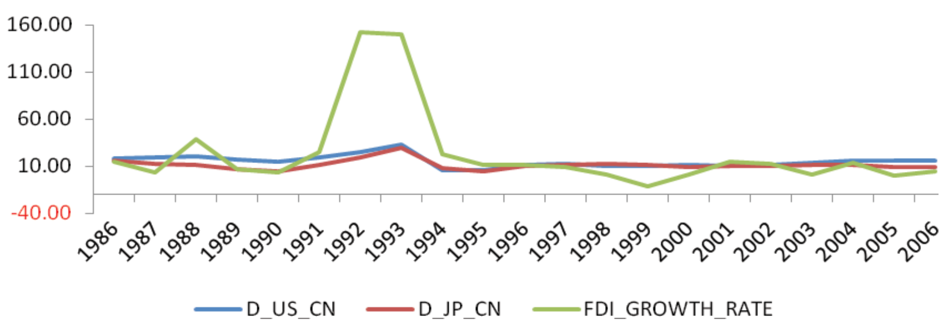

Figure 8: Marginal effect of labor's share on return to capital in in China, Japan, and the United States 1930–2006

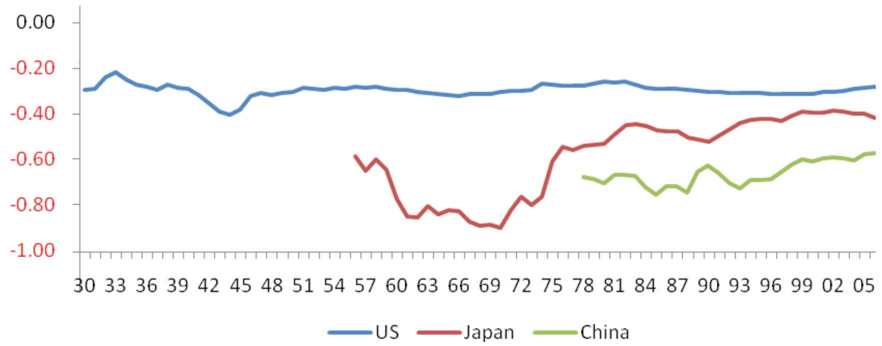

Figure 9: Marginal Effect of Capital-Output Ratio on Return to Capital in China, Japan, and the United States 1930–2006

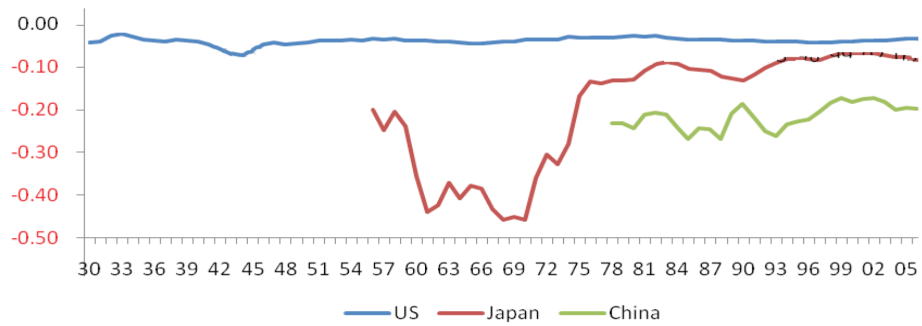

Figure 10: Labor's share of national income in China, the United States and Japan 1930–2006 (%)

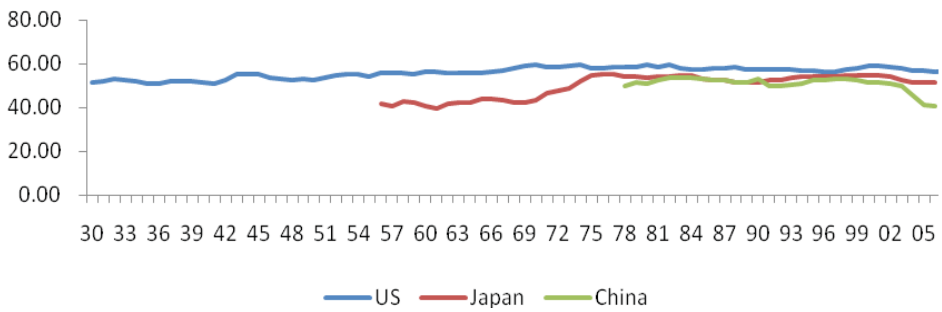

Figure 11: Capital-output ratio in China, the United States and Japan 1930–2006 (%)

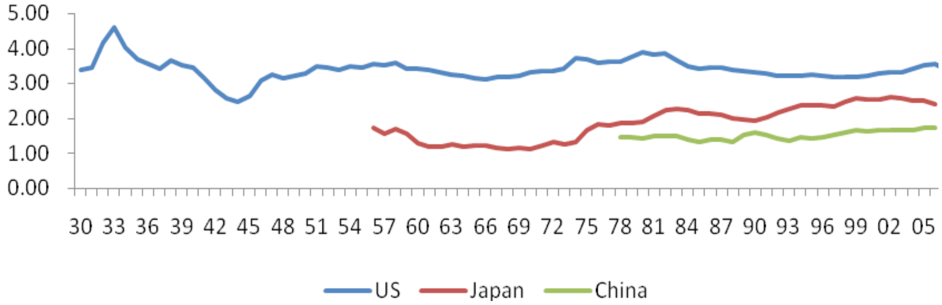

Figure 12: Return to Capital in China, the United States and Japan 1930–2006 (%)