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Information Externalities Affecting the Dynamic Pattern of
Foreign Direct Investment: The Case of China

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Abstract

The dynamic pattern of foreign direct investment (FDI) in developing countries shows a three-phase pattern. Despite government policies that promote it, initially the inflow of FDI is sluggish, followed by a period of considerable fluctuation before finally entering the stage of rapid growth. The paper explains the pattern through recourse to two concepts: the searching process of individual investors and the information externalities of investors in the aggregate. Policy implications that may serve to shift an economy of a developing country from small-scale FDI to one of rapidly expanding FDI are considered. As China is a clear example of this pattern, it has been selected to promote understanding of the process.

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Summary

Why doesn't capital flow from rich to poor countries? This important question illustrates the inadequacy of the neo-classical theory of trade and growth in explaining the pattern of foreign direct investment (FDI). This paper shows that the dynamic pattern of FDI in developing countries, despite government policies to actively promote it, has shown a sluggish increase initially, followed by a period of considerable fluctuation, before reaching the stage of rapid growth. Some countries, however, remain at the stage of small-scale FDI and their economies have not taken off. This paper addresses why China's open-door policy, which attracted many potential investors, did not actually realize large-scale FDI in the early 1980s, and why the pattern of foreign investment has shown discontinuity over the period.

The purpose of this paper is to provide an explanation for this pattern of FDI, through recourse to two concepts. The first is the searching process carried out by individual investors, and the second is the information externalities of investors in the aggregate; this refers to the information transmission mechanism from pioneer investors to potential investors. In developing countries, foreign investors often take a wait-and-see attitude because the investment environment is generally highly uncertain. The degree of uncertainty may decline to a large extent if more information, based on the actual performance of the initial investors, becomes available. In the absence of incentives to be the first to initiate projects, information about the investment environment is revealed slowly. This information revealing process is delayed further because investors not only need to find profitable projects, but also face high search costs owing to the dearth of reliable information. As a result, host countries may end up without any capital inflow.

The second objective of the paper is to consider policies that may help to shift the economies in developing countries from small-scale FDI to rapidly expanding FDI. Third parties, such as international organizations and governments in source countries, can play a crucial role in promoting the disclosure of information by initiating or financing joint ventures. Foreign investors with greater information about the investment environment are able to allocate their resources to achieve optimal returns. In addition, by promoting this process, governments in developing countries would be able to adjust their policies before facing stagnant investment inflows and the associated operational problems that inhibit new inflows. Thus, the role of information in such an environment is to provide signals to potential investors about the profitability of a given market, as well as to host country governments to enable them to make earlier policy adjustments that would attract the needed FDI.

I. Introduction

Why doesn't capital flow from rich to poor countries? This important question points out the inadequacy of the neoclassical theory of trade and growth in explaining the pattern of foreign direct investment (FDI). 1/ According to the theory, capital should flow from capital-abundant developed countries to labor-abundant developing countries. In reality, capital does not flow as rapidly as the theory predicts. Indeed, the puzzle is much deeper than whether the theory can predict the actual pattern of FDI. Looking at the dynamic pattern of FDI in developing countries, we are startled by the fact that despite government policies that actively promote it, these countries show only a sluggish increase initially, then experience considerable fluctuations for a while, and finally, reach the stage of rapid growth. 2/ However, some developing countries still remain at the stage of small-scale FDI and their economies do not take off. Therefore, our concern lies with the issue of how developing countries can shift their economies from small-scale FDI to rapidly expanding FDI.

Owing to the insights of Caplin and Leahy (1993), two common features emerge regarding the dynamic pattern of FDI in developing countries. One is that it may be time-consuming and costly for foreign investors to search for new investment opportunities in the early stage. 3/ The other is that there exists a high degree of uncertainty about the overall investment environment. 4/ The degree of uncertainty may decline if more information based on the actual performance as demonstrated by pioneer investors in these countries becomes available. This information transmission mechanism from pioneer investors to potential investors may be labelled information externalities. Due to the information externalities and in the absence of

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1/   For example, Lucas posed this question in 1990.

2/   Aharoni (1966) has considered the situation in Israel where the large infusions of FDI, which were anticipated when Israel's Law for Encouragement of Capital Investments was enacted, did not materialize. Young (1992, p. 24) has emphasized that Singapore's Pioneer Industries Ordinance introduced in 1959, which provided the most significant tax holiday enjoyed by foreign investors, failed to attract much FDI until after 1968. Since then when the Singaporean government expanded its own financial participation in manufacturing and other sectors, FDI began to increase.

3/   Arni (1987) has provided a detailed description of the sequential process of operations before a joint venture is implemented. The operations include, for example, market surveys, preinvestment studies, searches for joint venture partners, detailed project studies, proposals to host country governments, approvals by them, and project financing. These sequential operations are included in the broad definition of search costs.

4/   The overall investment environment refers to economic and political fundamentals. It includes both the general environment as well as the environment specific to locations and industries. Uncertainty about the general environment is likely to decline faster than for the specific environment since more information about the later is necessary to lower uncertainty.

incentives to be the first to initiate projects, information about the overall investment environment is revealed slowly. This information revealing process is delayed further as investors need to find profitable projects but the search costs are high. At worst, poor countries could end up being trapped with no capital inflow.

To promote understanding about this pattern of FDI, we have selected China as our case study. In July 1979, China promulgated the Chinese Foreign Joint Venture Law, a clear departure from the virtually closed-door policy that had been in force since 1949. Factors such as a cheap labor force, a vast land rich in natural resources and a potentially large market attracted many enthusiastic foreign investors seeking new investment opportunities. Nevertheless, the flow of FDI to China "has not been as rapid, nor has the outcome been as successful, as either the foreign investors or the Chinese officials had hoped" (Grub and Lin (1991)). Rather, the investment flows have shown a slow to moderate increase in the initial stage, followed by a period of fluctuation, and then a large-scale expansion in the later stage. The pattern of FDI in China is closely related to the behavior of foreign firms in a world of uncertainty. In theory, investors should have responded immediately to new market opportunities by selecting profitable projects when China announced its open-door policy, and FDI should have expanded without delay.

In reality, however, FDI did not take place immediately for the following reasons. First, investors do not search when they expect an insufficient number of other investors to search, because they expect fewer investors to undertake projects and to thereby reveal information about the overall investment environment. Second, investors take a wait-and-see attitude by not undertaking projects unless they are very profitable. The reason is that investors have an incentive to take a free ride on others--to obtain from them the information about the overall investment environment. Third, if the information revealing processes develop slowly, the total number of investors who actually undertake projects is small and FDI remains at a small-scale level.

To facilitate these processes, policies should attempt to build up investors' expectations. Bateman and Mody (1991) have reached a similar conclusion in the case of China: "... the key variable to be influenced by policymakers is the expectations held by investors". Investors increase their expectations and respond to investment policies if pioneer investors show successful performance in targeted countries. Admirable legal codes and guarantees do not mean much unless investors go into the market and reveal them by undertaking projects (Morino (1981)). Furthermore, the response to policies may be different if potential investors possess different expectations at the time of the change in policies. For example, the change in China's foreign exchange regulation in 1986 discouraged many potential investors from undertaking projects, while the austerity program introduced in 1988 and the Tiananmen Square incident in 1989 did not significantly discourage new investment. Since the incident, "none of the companies based here has announced plans to quit the mainland and abandon a potential market of 1.1 billion customers" (Washington Times,

December 8, 1989). In the late 1980s, the number of investors already investing in China had grown; these firms continued to operate and showed reasonable performance. Thus, investors' expectations about China's overall investment environment have remained high; consequently, they did not overreact to the policy change or the political incident and FDI did not plunge.

Recent developments on the theory of information have helped to stimulate and elaborate the ideas presented in this paper. We have benefitted from the pioneer works of Zeira (1988), Rob (1991), and Caplin and Leahy (1991, 1992, 1993) on the issues of information revelation and irreversible investment. Especially, the work by Caplin and Leahy (1993), which emphasizes the aspect of the information externalities in a search market, has promoted our understanding about the pattern of FDI in China. Furthermore, we have benefitted from the literature on coordination failure (Cooper and John (1988)). The purpose of our paper is to address the issues such as why China's new open-door policy, which attracted many potential investors, did not actually realize large-scale FDI in the early 1980s and why the pattern of FDI has shown discontinuity over the period. The time span in our frame of reference is short since we focus on investors' investment behavior when they face new investment opportunities in an unfamiliar market. Most of the existing literature fails to explain how this dynamic pattern of FDI occurs. 1/ To our knowledge, this paper is the first attempt to apply the concept of information externalities in a search market to explain the dynamic pattern of FDI in the context of developing countries.

The paper is organized as follows. Section II begins with the model developed by Caplin and Leahy (1993), which is utilized to highlight our view about the dynamic pattern of FDI. Section II extends the model to establish a basic framework in order to address important issues related to FDI, particularly as seen in developing countries. Section III explains the pattern of FDI in the case of China by applying the framework. We also focus on the problems of coordination failure as well as policy implications. Section IV contains some concluding remarks.

1/ There are at least four major theories that attempt to explain the pattern of FDI. The Hecksher-Ohlin-Samuelson model suggests that capital flows from capital-abundant countries to labor-abundant countries. The product cycle theory indicates that FDI occurs as firms in the product-maturing market try to capture the remaining rents, by expanding overseas. The portfolio theory regards FDI as a way to reduce the overall investment risk through diversification. The industrial organization theory emphasizes firm-specific advantages, transaction costs and maintenance of oligopolistic power, as forces for FDI. For an extensive survey of the literature, see Agarwal (1980), Eckaus (1986) and Lizondo (1990).

II. Theoretical Framework

1. Basic framework

Following the tradition of international economic theory, we assume that there is a host country and a source country.

Assumption 1: There are two types of countries: a host country and a source country.

Assumption 2: There are N number of investors who search for new projects in the host country.

We assume two types of uncertainty: uncertainty about the overall investment environment, and uncertainty about the quality of individual projects. The first type of uncertainty is commonplace in developing countries. In China, for example, investors face ambiguity and underdevelopment of regulations, lack of credibility of policies, and unavailability of data to undertake feasibility studies. This type of uncertainty declines to a considerable degree only after a number of investors undertake projects and demonstrate some level of performance. The second type of uncertainty exists because of investors' ignorance about the location, availability of raw materials and intermediate goods, lack of infrastructure, and ambiguity about the approval process. We refer to these two types of uncertainty as λ and μ, respectively. For simplicity, we assume that λ is discrete and takes a value of either 0 or 1. If λ is 0, the environment is unfavorable. If λ is 1, the environment is favorable. Furthermore, μ is assumed to be uniformly distributed between 0 and 1.

Assumption 3:
$$\lambda = \begin{cases} 1 \text{ with probability} & p \\ 0 \text{ with probability} & 1\text{-}p \end{cases}$$

$$\mu \sim U[0\ ,\ 1]$$

Investors who do not search in the host country are assumed to invest in the source country and to receive W from their investments. Throughout the paper, reservation utility is developed by W.

Assumption 4: Investors have the same W.

Assumption 5: Investors pay search costs.

Due to the search costs, investors are unable to search without limit for new investment opportunities. For simplicity, we assume that an investor can seek only one project in each period.

Assumption 6: δ is a discount rate
$\mu \cdot \lambda$ is a payoff to an investor of undertaking a project
with μ.

We simplify the information revealing process by assuming that as long
as one of the investors starts a project, all other potential investors will
know λ in the next stage. The dynamic investment process is divided into
two phases following Caplin and Leahy (1993): an uninformed phase and an
informed phase. In the uninformed phase, an investor does not know λ. At
the beginning of the uninformed phase, an investor will search for a project
if its expected payoff from the search exceeds W. Among those who have
searched, only investors whose μ exceeds the cutoff level U, undertake
projects. In the informed phase, an investor knows λ. If $\lambda=0$, no potential
investor will search; thus, the initial FDI does not take place. If $\lambda=1$, an
investor continues to search. Among investors who have searched, only
those, whose μ exceeds the cutoff level I, undertake projects.

In the informed phase, an investor will stop searching when $\lambda=0$. When
$\lambda=1$, optimal investment behavior of an investor who searches and finds μ is
presented by the following value function:

$$V_I(\mu) = Max[\mu \ , \ \delta\int_0^1 V(\mu)d\mu] \tag{1}$$

If an investor decides to undertake a project with the quality μ, it
receives the rate of return, $\mu \cdot \lambda = \mu$. If the investor decides not to
undertake a project, it will continue to search in the next period and
receive the expected discounted payoff, $\delta\int_0^1 V(\mu)d\mu$. Depending on the
relative size of the two terms, an investor will decide to undertake a
project or to continue to search for another one.

In the uninformed phase, an investor faces two types of uncertainty, λ
and μ. Optimal investment behavior of an investor who searches and finds μ
is presented by the following value function.

$$V_U(\mu) = Max \ [\ \mu \cdot p \ , \ \delta(Pr(U)\int_0^1 V_U(\mu)d\mu + (1-Pr(U))EV_I)], \tag{2}$$

$$where \ EV_I = E[Max\{W \ , \ (1+I^2)/2\}] = W + p((1+I^2)/2 - W).$$

The expected payoff to an investor from a search in the beginning of the
informed stage when λ is unknown is EV_I. Investors will undertake a project
if the expected payoff of undertaking a project, $\mu \cdot p$, exceeds the expected
payoff of continuing to search, $\delta(Pr(U)\int_0^1 V_U(\mu)d\mu + (1-Pr(U))EV_I)$. If an
investor does not learn the information about the overall investment
environment in the next period because no other investor takes on a project,
the uninformed phase will repeat itself. The probability that the
uninformed phase repeats is Pr(U) is and, 1-Pr(U) is the probability that
the informed phase emerges in the next period. If one of N undertakes a
project, investors will face the informed phase in the next period. Thus,

$Pr(U) = U^{N-1}$. The expected payoff to an investor from a search in the uninformed phase is $\int_0^1 V_U(\mu)d\mu$. [1]

2. Analysis of the model

Caplin and Leahy (1993) have shown that the expected payoff to an investor from a search in the uninformed phase, $EV_U|_N$, is an increasing function of the number of investors who searched, or N. The intuition behind the result is that an investor has more opportunities to take a free ride on other investors by obtaining the information about the overall investment environment.

Analysis 1: $EV_U|_{N=n} > EV_U|_{N=m}$ where $n > m$.

We now introduce a concept of critical mass, N^*. It is defined as the number of minimum investors that it takes to induce an investor to search.

Definition: $\exists N^*$ such that $EV_U|_{N*} = W$.

We also distinguish investors by W.

Assumption 7: There exist two groups of investors: N_1 number of investors with W_1 and N_2 number of investors with W_2.

Assumption 8: $EV_U|_{N=N1+N2} > W_2 > EV_U|_{N=N1} > W_1 > EV_U|_{N=1}$.

As $W_1 < W_2$, $N_1^* < N_2^*$. Suppose that N is an investor's belief about the number of investors who search. Then, if an investor believes that N is low, it will not search since the expected payoff from the search is lower than W. If all investors have a similar belief about N, the host country could end up being trapped in the equilibrium where no investor searches and no capital inflow of FDI occurs. If an investor with W_1 believes that N is larger than N_1^* so that the expected payoff from a search exceeds W_1, a search will be undertaken. If an investor with W_2 believes that N is smaller than N_2^* so that the expected payoff from the search would be lower than W_2, it will not search.

Assumption 8 suggests that there exist three symmetric equilibria. In the first equilibrium, all investors search for new projects in the host country. This is because individual investors believe that all other investors search. The second equilibrium refers to an equilibrium where investors with W_1 search while investors with W_2 do not search. As for the third equilibrium, no investors search. The first equilibrium is the most desirable for the host country. The third equilibrium is the least desirable because it creates no capital inflow of FDI. In the right hand figure below, E1, E2 and E3 correspond to three equilibria, respectively.

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[1] Caplin and Leahy (1993) have derived solutions for this problem in detail.

Analysis 2: There exists an equilibrium with no capital inflow of FDI in the host country.

In Analysis 2, we have discussed the existence of multiple equilibria. These equilibria are not socially optimal for two reasons. First, an investor decides to undertake a project or to continue to search for another project without considering the impact of its decision on the expected payoff to other investors. Thus, there is room for a social planner to intervene in the market to achieve the socially optimal equilibria. The planner might fulfill the goal by subsidizing or coordinating some investors to undertake projects in order to speed up the process by which information is revealed.
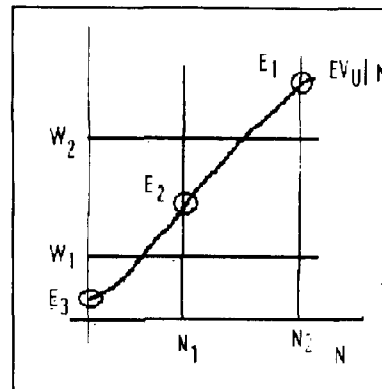
Analysis 3: Market equilibria are not optimal.

Investors have different W when their search costs vary. Investors with low search costs are more likely to search than investors with high search costs. Thus, the host country may face a situation where the former always search while the latter do not.

Analysis 4: Investors with low search costs are likely to dominate the market in the initial stage.

In the previous section, we have emphasized that the degree of uncertainty about the overall investment environment may decline if some investors take on projects and transmit the information by demonstrating performance. One important extension of this model is to show how the degree of uncertainty declines as the information is revealed to other investors. We have assumed that $\lambda=1$ with the probability, p, and that $\lambda=0$ with the probability, 1-p. We could interpret p as the expectation that an investor holds in the beginning of the uninformed phase. Suppose that p is a function of the number of investors who have undertaken projects, N'. Also, p can be either an increasing or a decreasing function of N'. If some pioneer investors show good performance in the host country, potential investors modify and reinforce their expectations about the investment environment. Then, some of the potential investors increase incentives to search for new projects and, possibly, to undertake them. This process further reinforces the expectations of other potential investors. Through this process, the degree of uncertainty gradually declines. On the other hand, if pioneer investors show unfavorable performance, investors lower their expectations. At worst, their downward-adjusted expectations could discourage potential investors from searching for new projects and undertaking them. This process further lowers the expectations of other potential investors.

Analysis 5: The degree of uncertainty declines when more investors undertake projects.

III.   The Pattern of FDI in China

The pattern of FDI in China seems to show three distinctive phases.
The first phase, from 1979 to 1983, is a period of sluggish increase, while
the second phase, from 1984 to 1986, shows fluctuating FDI, and the third
phase, from 1987 to the present time, is a period of large-scale expansion
(see Figures 1 and 2). During the first phase, the number of projects was
nearly constant until 1983, increasing only from 230 in 1979 to 396 in 1983.
Between 1984 and 1986, the number of projects fluctuated, from 1,863 in 1984
to 3,073 in 1985, but decreased to 1,498 in 1986. Since 1987, however, the
number increased dramatically, growing from 2,233 in 1987 to 12,978 in 1991.
The value of projects also showed a similar pattern: increasing from
$0.5 billion in 1979, to $1.5 billion in 1983 and then, decreased to
$2.8 billion in 1986. Since 1987, the value showed an increasing trend.

1.   Three phases of FDI in China

a.   The first phase: sluggishness (1979-83)

We find four distinctive characteristics in the first phase. First,
potential investors, who showed strong interest in the Chinese market, took
a wait-and-see attitude by not searching for new investment opportunities.
Morino (1981) pointed out that despite the almost daily flood of news
reports from Hong Kong and Beijing regarding joint venture talks, few of
these talks made it past the negotiation stage. Without sufficient market
information, investors usually based their expectations about the overall
investment environment on the performance of the pioneer investors who had
already invested in China. The Industrial Bank of Japan reported that among
respondents 50.3 percent of Japanese firms said they would "possibly" be
interested, if other companies moved toward operating business in China.

Second, some investors, who had made costly searches for new projects,
took a wait-and-see attitude and continued to search for other projects.
Many investors "... contemplating investment in China seem to have become
cautious and appear to hesitate before initiating the investment process,
waiting to see whether the leadership will continue to endorse the open
policy and welcome foreign direct investment and whether the country appears
likely to enjoy further political stability" (United Nations (1988)).
Therefore, investors did not undertake projects unless they were expected to
be very profitable. The higher profitability requirement made it difficult
for investors to undertake a project; consequently, the information
revealing process was delayed and the Chinese market remained highly
uncertain.

Third, during the first phase, investors from Hong Kong and Macao
dominated the Chinese market. Until 1983, these investors undertook 128 out
of 188 projects, while investors from the United States initiated
21 projects and those from Japan 13 projects. In fact, investors from
Hong Kong and Macao accounted for more than half the FDI in China during
most of the 1980s (see Figure 3). More than half of Hong Kong's FDI went

Figure 1. Foreign Direct Investment in China, 1979-91

(The number of approved projects)

Figure 2. Foreign Direct Investment in China, 1979-91

(The value of approved projects, $ million)

Source: Almanac of China's Foreign Economic Relations and Trade, MOFERT.
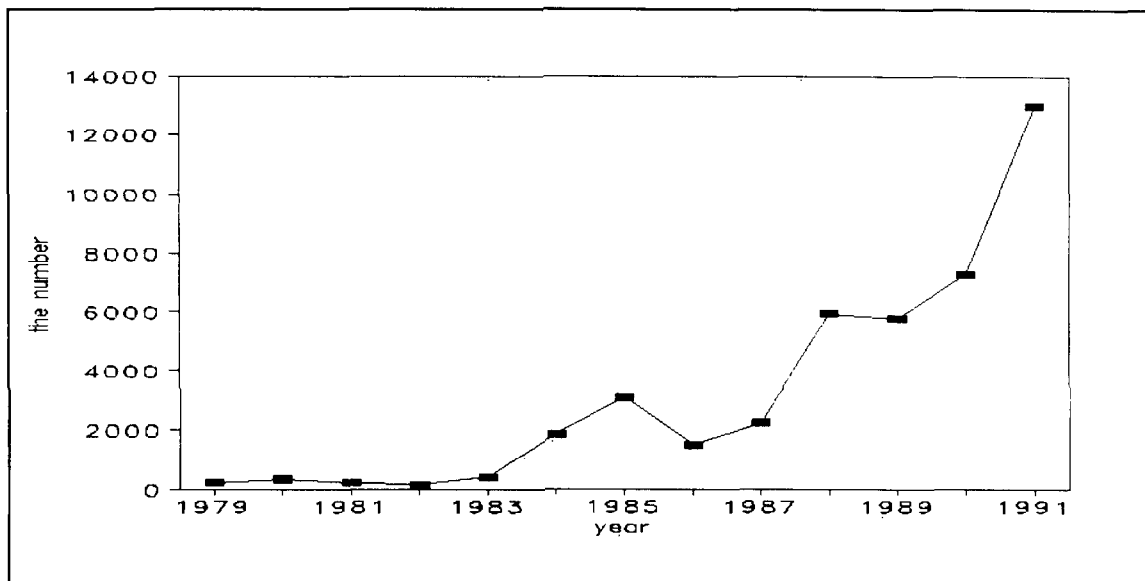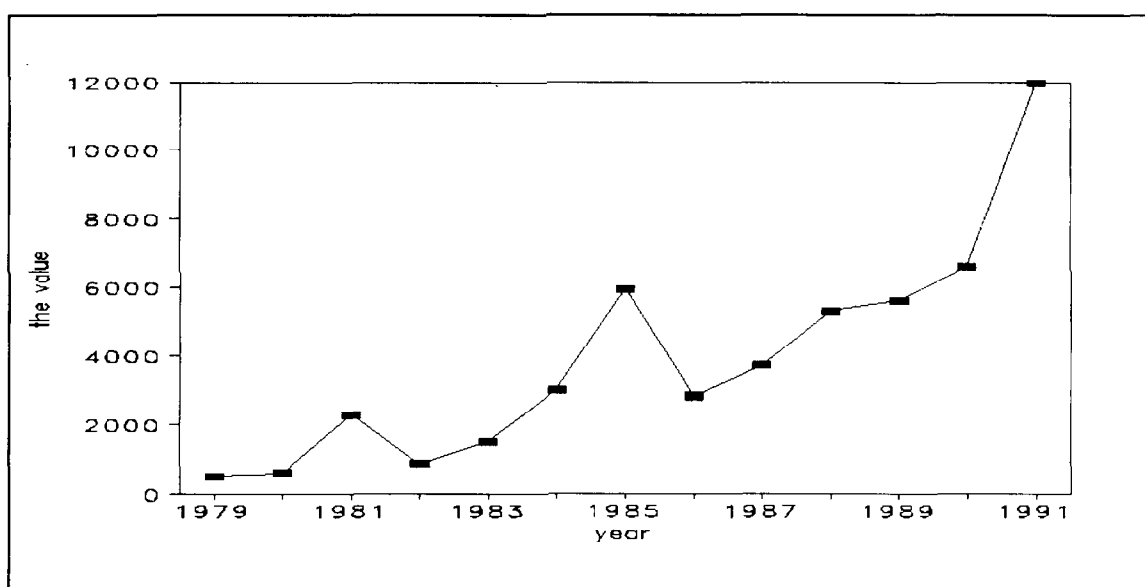
Figure 3.   Foreign Direct Investment in China, 1984-89

(The value of approved projects, percentage)
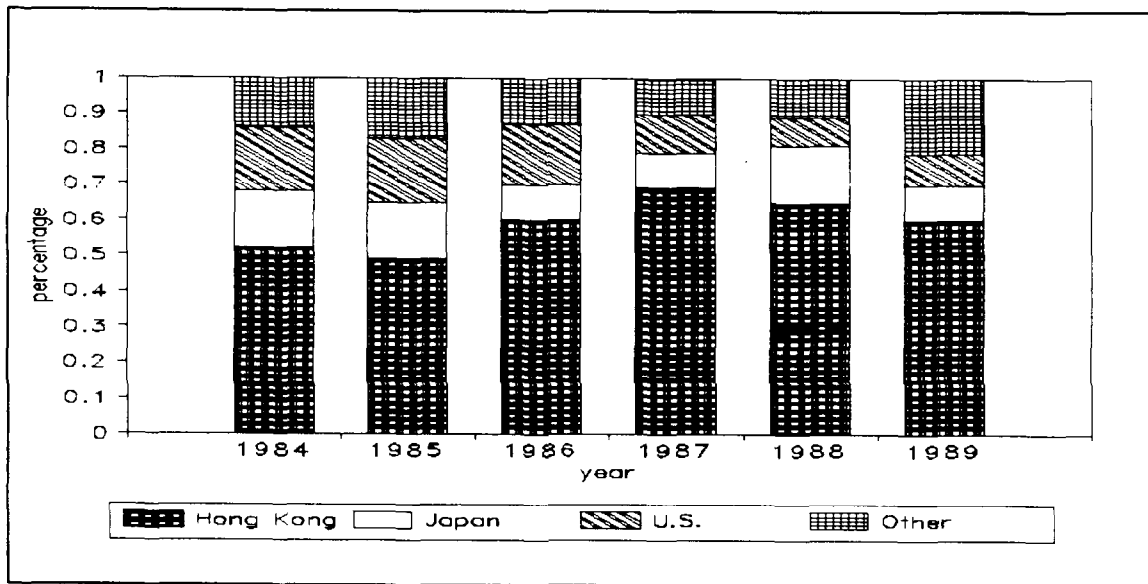
Source: Almanac of China's Foreign Economic Relations and Trade, MOFERT.

Figure 4.   Japan's Direct Investment in China, 1981-90

(The number of approved projects)
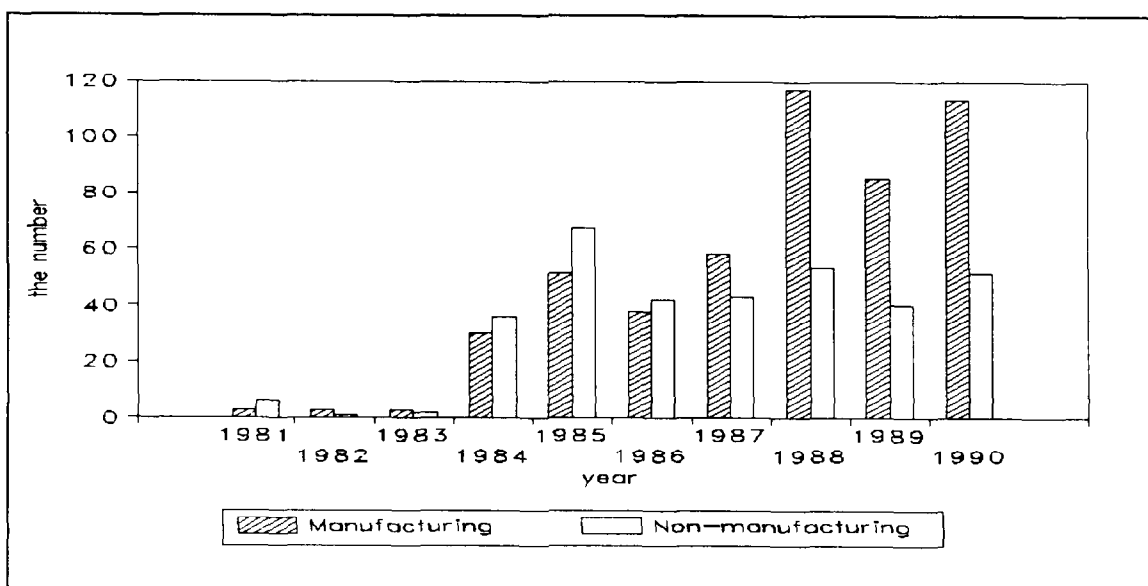
Source: Zaisei Kinyu Tokei Geppo, Ministry of Finance.

Table 1. Foreign Direct Investment by Sector, 1984-88

(US$10,000)

Sector	1984	1985	1986	1987	1988
Total	2,875	6,333	2,834	3,709	5,297
Industry	496	2,384	785	1,776	4,022
Real estate, public utilities, and services	1,017	2,271	1,617	1,471	530
Building	78	133	53	55	119
Commerce, catering	230	527	100	29	64
Agriculture, forestry, fishery	79	1,126	62	125	209
Communications	84	106	33	16	91
Other	891	797	184	237	262

Source: Almanac of China's Foreign Economic Relations and Trade, Ministry of Foreign Economic Relations and Trade (MOFERT).

Note: We used the table from Grub and Lin (1991), p. 89. The data are on the approved base.

been taking a slower, more cautious approach" (Morino (1981)). 1/ The
United Nations (1988) has pointed out that "... as the "gaps" in the legal
environment for investors are gradually filled, the sophistication of
economic transactions increases, and the facilities for foreigners to
conduct business improve, the impression that the People's Republic of China
is becoming a more and more "normal" place to do business also increases.
Such an impression will, however, lead to misunderstandings and friction,
because the more "normal" some aspects of the investment environment become,
the more expectations are raised, and the more frustrated the foreign
investor becomes when difficulties and delays continue to beleaguer his
efforts". This information revealing process possibly explains the
fluctuations observed during this second phase.

The second characteristic of this phase is that non-overseas-Chinese
investors, such as those from Japan and the United States, began to invest
in China (see Tables 2 and 3). These investors initially hesitated to
invest because they expected low payoffs from making costly searches or else
that they would need to find profitable projects to justify the high search
costs. As the number of investors who undertook projects increased, more
information about the Chinese investment environment became available, with
the result that some potential investors' expectations about the investment
environment increased and they began to search for profitable projects.

c.   The third phase: expansion (1987 to the present)

There are three distinctive characteristics of the third phase. The
first is that FDI shifted away from the nonmanufacturing sector to the
manufacturing sector. Initially, investors in the manufacturing sector
were reluctant to initiate projects because it took a longer time to recover
initial costs and to earn reasonable profits. The investors tended to have
longer time horizons in making investment decisions since they needed to
train local workers, find reliable sources for raw materials and
intermediate goods, establish sales-distribution systems, improve the
quality of products, and form efficient communication networks between
operational units. "China was a risky market to make a large-scale,
capital-intensive investment because of uncertainties regarding economic

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1/ For example, it took a few years for All-Nippon Airways (ANA) until it
finally took an joint venture equity in the hotel industry with Xiyuan
Hotel, the Bank of China and C. Itoh, one of the leading Japanese trading
houses. In early 1984, the Japanese carrier began to investigate investment
opportunities in China by sending a study mission to various cities.
However, it could not make a firm investment decision for a long time
because investment conditions were judged to be difficult. In May 1986,
China, which needed to provide parking and other facilities for the 1990
Asian Games, contacted ANA through C. Itoh, which was already involved in
other joint projects in China. After the initial approach from the Chinese
side and negotiation by the experienced Japanese firm, ANA finally signed a
joint venture contract in October 1987.

Table 2. Japan's Foreign Direct Investment in China, 1981-90

Year	Number of projects	Value of projects (US$1 million)
1981	9	25.8
1982	4	18.5
1983	5	3.0
1984	66	114.2
1985	118	99.9
1986	80	173.4
1987	101	133.1
1988	170	295.3
1989	125	437.4
1990	164	346.3

Source: <u>Zaisei Kinyu Tokei Geppo</u>, Ministry of Finance.

Note: Notification basis.

Table 3. Foreign Direct Investment by the United States in China, 1982-90

Year	Number of affiliates	Value of total assets (US$1 million)
1982	11	70
1983	11	88
1984	15	285
1985	20	529
1986	23	821
1987	24	857
1988	35	1244
1989	66	1788
1990	66	2050

Source: <u>United States Direct Investment Abroad: Operations of the United States Parent Companies and their Foreign Affiliates</u>, revised estimates, Department of Commerce, Bureau of Economic Analysis.

policy and an underdeveloped legal system, not to mention poor infrastructure and shortage of foreign currencies" (Ono (1992)). After 1987, Japanese investors shifted their FDI from the nonmanufacturing sector to the manufacturing sector (see Figure 4 on p. 8b). They further diversified their investment into fields such as electrical equipment, electronics, precision machinery and transportation equipment (Hirano (1993)). Such a shift might be explained as a spillover effect from the information about the investment environment in the nonmanufacturing industry, or from investors from Hong Kong who had invested in the manufacturing industry in the early stage. Also, China's efforts to clarify regulations, establish property rights and simplify the approval process may have reduced search costs associated with the industry.

Second, the austerity program introduced in 1988 and the Tiananmen Square incident in 1989 did not discourage the flow of FDI significantly. While the unfavorable policy and the political incident lowered investors' expectations about the overall investment environment in China, this was seen as transient. As long as performance is strong, a sudden decline in expectations, due to exogenous shocks, can be reversed and quickly catch up to the original level (Brecher (1990)). The 1991 survey done by Stelzer, Chunguang and Banthin (1992) has shown that the performance of the pioneer American investors is strong. This result could encourage potential investors to view China more favorably since they would face far fewer difficulties than the earlier investors did.

Third, the small share of Japan's FDI in China, as compared with its investment in other Asian countries indicates that although it has declined to a certain extent, a high degree of uncertainty about the investment potential there still remains. This disparity in the share to China-- amounting to 8 percent of Japan's total FDI in Asia in 1987 and 11 percent in 1990--is reflected in terms of both the number and the value of projects in China (see Table 4). Although the number of projects undertaken by Japanese investors in China increased by 52 percent during the same period, large-scale projects by large-scale projects by Japanese firms were rare until the late 1980s.

Until the mid-1980s, Japan's FDI in manufacturing was concentrated in Korea, Singapore and Taiwan. In particular, Korea and Taiwan were the traditional locations for Japanese offshore production as they were considered the easiest and most reliable destinations in Asia (Ono (1992)). However, after the currencies of Korea and Taiwan appreciated against the U.S. dollar in the late 1980s, Japanese firms began to expand their FDI in Indonesia, Malaysia and Thailand. Although Japan increased its FDI in China as well, the size of the increase was smaller than that of other Southeast Asian countries. Khan (1991) has concluded that governments' incentives to promote FDI among these countries are quite similar. Thus, the difference in the concentration of Japan's FDI across countries may reflect the degree of uncertainty about the overall investment environment in the region and the difference in accumulated investment experience of the pioneer investors.

Table 4.   Japan's FDI in China compared to its investment in Asia, 1981-90

(<u>In percent</u>)

Year	Number of projects	Value of projects
1981	0.13	0.078
1982	0.01	0.014
1983	0.01	0.002
1984	0.10	0.071
1985	0.18	0.070
1986	0.10	0.077
1987	0.08	0.234
1988	0.10	0.055
1989	0.07	0.054
1990	0.11	0.050

Source: <u>Zaisei Kinyu Tokei Geppo</u>, Ministry of Finance.

Third, if few investors search for projects, it is crucial for third parties such as international organizations or governments in source countries to assist foreign investors to undertake projects. For example, the parties might initiate joint ventures with Chinese investors or with foreign investors or assist foreign investors indirectly by providing financial support. This policy is important as it increases the speed with which the information is revealed by encouraging foreign investors to undertake projects in the initial stage.

In the second stage in which FDI faces fluctuations, we see two important policies. First, the Chinese government needs to improve the investment environment to maintain investors' expectations about the overall investment environment as high. For example, the government needs to remove some regulations, clarify laws, increase the number of special economic zones, and facilitate the labor mobility. In 1984, China extended economic reform to the urban economy, and in 1985, announced new patent and accounting laws. However, FDI dropped dramatically in 1986 due to "a growing wariness on the part of foreign investors about the problems in China's overall economy and the effect of these problems on joint ventures" (Pearson (1991)). Prospective investors learn about China's investment environment by observing the operations of others who have invested, including the processes required until projects are approved. The difficulties faced by investors who invested or for those who searched for and negotiated projects in this phase lowered the expectations about the investment environment. To maintain or increase investment expectations, policies that reinforce the potential for profit are crucial to shift from the phase of fluctuating FDI to the third phase of rapidly increasing FDI. It can be said that China failed to implement consistent policies to direct the open-door policy and to reinforce their expectations in this phase.

However, as Pearson (1991) pointed out, by the middle of 1986 the Chinese government was well aware of the plummeting growth rates for FDI, of the complaints of foreigners, and of competition between developing countries for FDI. The Chinese government sought ways to respond to foreign concerns and to satisfy their own goals. In late 1986, the government announced a new law, which contained a number of clauses that had been lobbied for strenuously by the U.S.-China Business Council and individual firms. The 1986 Provisions not only clarified the legal environment for joint ventures but also liberalized substantially the investment environment to attract investors. The provisions also attempted to further guarantee the autonomy of joint ventures from external bureaucratic interference. They eliminated many local costs that foreigners had believed to be unfair, and provided alternative ways for joint ventures to balance foreign exchange earnings. This dynamic shift in China's policies, which passively adjusted to the bad performance of FDI, certainly improved the investment environment and, thus, reinforced investors' expectations by encouraging them to undertake projects and demonstrate better performance.

Second, third parties might be able to assist the host country to facilitate the information revealing process by initiating long-term projects in this phase. Many foreign investors invested in nonmanufacturing

industries, such as services and real estate to earn a quick return. Investors are unlikely to invest in a manufacturing industry that requires them to have long-time horizons since they are not sure whether the environment will remain favorable in the future. As a result, FDI grows slowly due to a lack of inter-industry diversity. Thus, the intervention by third parties to initiate joint ventures is crucial for the host country in order to decrease the degree of industry-specific uncertainty and to encourage potential manufacturing investors to search and possibly undertake projects in the high technology or the heavy manufacturing industries.

In the third phase, investors have less operational problems and begin to increase profitability. As there are many investors in China, they reveal information about the overall investment environment to a considerable degree. Also, by this time, there are many information sources such as newspapers, journals, statistics and official organizations, from which investors are able to obtain general information. Thus, investors are likely to seek more specific information about the environment, in particular about specific locations, industries and investment forms. Therefore, policies need to focus on establishing outlets for more specialized information, such as consulting firms. This can be done either by establishing official information centers or by encouraging investors to invest in this business.

IV. Conclusions

The pattern of FDI shows a similar trend among developing countries. Many countries experience a sluggish increase in the initial stage despite government policies actively promoting FDI. 1/ Then, they face fluctuations in FDI before it begins to expand. In general, the investment environment is highly uncertain in these countries. With insufficient market information, foreign investors take a wait-and-see attitude until more information becomes available. The degree of uncertainty may decline if more information based on the actual performance demonstrated by pioneer investors in host countries is available. The change in policies might modify the investment environment. Nevertheless, foreign investors will not search for new projects and not undertake them unless they have high expectations about the investment environment. And, they increase their expectations by observing the impact of policies on the performance demonstrated by pioneer investors. As developing countries face similar problems related to FDI, we believe that the case study of China provides profound insights to the analysis of FDI in other countries.

1/ We wish to mention that we encountered a working paper by Thimann and Thum (1993) when we were finalizing our first draft. They have applied a similar idea to the case of East Germany after the collapse of the communist system.

Uncertainty about China's overall investment environment declined over the decade. This is because the number of investors who invested in China grew dramatically and thus, potential investors could learn about the environment by observing the performance of these pioneer investors. Also, the recent increase in publications about FDI in China provided investors with general information. Thus, a lack of regional or industry-specific information is the important remaining uncertainty. With a lack of such information, FDI is slow to spread into the different industries and regions. Thus, to speed up the growth rate of FDI, the Chinese government needs to develop the searching and information revealing processes in other industries, such as high technology and heavy manufacturing and in regions other than the special economic zones and coastal areas. To fulfill the goal, it is crucial for the Chinese government, or for third parties such as international organizations and governments in source countries, to initiate or finance joint ventures in these underdeveloped industries and regions.

We stress that the third parties play a crucial role in promoting the information revealing process and, thereby, in speeding up the growth rate of FDI in developing countries. Promoting this information revealing process is important since foreign investors, who have gained more information, may be able to achieve optimal use of their resources by allocating them among different countries. Furthermore, if this information revealing process develops quickly, the true overall investment environment may appear in the earlier stage. As a consequence, host country governments might be able to adjust their policies without waiting too long before they become aware of stagnant FDI inflows and the associated problems inhibiting FDI. We have seen that the Chinese government's adjustment of policies in response to poor performance played a crucial role in shifting China from the period of fluctuating FDI to one of expansion.

Therefore, the role of information is to provide signals not only to potential investors regarding the profitability of the market, but also to governments in host countries, to help them recognize the problems associated with FDI in the earlier stage. Thus, it is important to understand that the role of information is far more important than just reporting whether projects are successful or not.

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