China's Open Door Policy towards Foreign Direct Investment:
A Game Theoretic Interpretation[†]

Toshihiko Hayashi[*]

Since the Reform and Open Door Policy Initiative launched by Deng Xiaoping in 1978, the Chinese government gradually undertook the open door policy towards foreign direct investment (FDI). First, the government created Special Enterprise Zones (SEZ) in the selected coast cities. A set of preferential treatment is granted to the foreign enterprises invited in SEZs with a restriction on the transfer of profits to home.

Then in the second phase of the open door policy, the government lifted the regulation on the participation of foreign capital in the domestic enterprises and the ban on profit transfer. FDI surged and became to assume a significant portion of the manufacturing sector in China. Throughout the two phases of the open door policy the Chinese government reduced the tariff rate consecutively and pledges to lower it even further as precondition of China's accession to the World Trade Organization.

The purpose of this paper is to argue in the framework a simple game theory that the key to the success of the open door policy must have been the political liberalism among the Chinese public. We will show this by modeling the process of the open door policy as a game between the Chinese government and the foreign capital, and show that if it were not for liberal political atmosphere a reduction in the tariff rate would not have resulted in further deregulation and increase in FDI.

September 11, 2003

Stanford Japan Center

China's Open Door Policy towards Foreign Direct Investment:
A Game Theoretic Interpretation

Toshihiko Hayashi

1. Introduction

A number of economists cast the process of policy formation towards external trade in the framework of political game between conflicting domestic interest groups. The endogenous political economy of trade policy, as the approach became to be called, is now rich in literature. One approach stresses that economic policies are set by an incumbent government seeking to maximize its political support. An earlier work of Hillman [1982] assumed that the goal of the incumbent government is to be reelected. By offering a combination of import and export taxes and subsidies the government seeks to mobilize the maximum political support from different and sometimes antagonistic constituents.

Other approach stresses political competition between opposing candidates each of whom announces trade policies that they are committed if elected to the office. Organized lobby groups or citizens who are the ultimate constituency make contribution to the party of their liking. Contributions are fueled into the campaign activities. As a result it will be the party that can amass the greatest contribution that wins the political competition and their manifested policies will be implemented. Such an approach was undertaken by Ursprung [1988].

Grossman and Helpman [1994] sought to explain the political decision as the equilibrium structure of trade protection. They derive the political support function from the fundamental utility maximizing behavior of individuals and pose the question in a Ramsey type of optimization for the government. However, most of the literature was concerned with endogenous policy making mechanism within developed democracies.

China offers yet another interesting case for political economy of protectionism. The focal point is Chinese government's 'open door policy' towards foreign capital. Branstetter and Feenstra [1994] proposed to view the political process in China as trading off the social benefits of increased trade and foreign direct investment against the losses incurred by state-owned enterprises due to such liberalization. They applied Grossman and Helpman [1996] model to the Chinese economy with an emphasis on foreign direct investment rather than on tariff rate. However, they pay attention to the trade off between two domestic coalitions with conflicting interests in determining FDI policies.

One important actor is left out of consideration in the model of Branstetter and Feenstra: the foreign capital. The foreign interest is incorporated in the model by Hillman and Ursprung [1988] in the determination of a country's international trade policy. However, their model is basically

concerned with domestic competition between coalitions to which foreign interest is assumed to make donation for influence. The inference to the foreign capital was thus only indirect.

Hillman and Ursprung [1996] faced this problem and constructed a game theoretic model in which the host country government that promotes trade liberalization policy interacts with foreign companies that contemplate direct investment. They work on the assumption that the government has already decided on the trade liberalization and what are left with are the negotiations with foreign companies. Their model is based on the situation of East European transforming economies. As such they must accommodate the question of privatization and technological progress at the same time.

Thus it is the purpose of this chapter to give a theoretical explanation to the historical development of the Chinese open door policy and its outcome. In doing so, we give explicit consideration to the reaction of foreign capital as the Chinese government forms their FDI policies. We adopt the political support function approach. But we postulate that the government objective is not to maximize the value of the political support function but to enhance the politically committed objective of the open door policy towards foreign trade and capital subject to the condition that the government can maintain a certain level of political support.

The model that supposes the existence of competing political parties is not applicable to the Chinese case for obvious reasons. However, it is safe to assume that even under the Chinese socialism in which the communist party is the only legitimate political party, the government or the party leadership needs some minimum level of popular political support in order to implement the policies that they design.

Thus we view the decision process in China regarding the open door policy as adjustment or implicit negotiations between the Chinese government that tries to promote the open door policy without impairing certain level of popular support and the foreign capital that decides on FDI.

2. Foreign Direct Investment in China

China's 'open door policy' towards foreign direct investment was initiated as part of the overall reform and open door policy launched by Deng Xiaoping in 1978[1]. The Chinese government[2] created 'special economic zones' (SEZ) first along the coastline and then along the Yangtze River. It

---

[1] The turning point was the 11th general assembly of the central committee of the Chinese communist party in which the legacy of Cultural Revolution was officially repudiated and a resolution was adopted to the effect that emphasis would be placed on the modernization of socialism in the policies to start in 1979.

[2] By Chinese government we mean, throughout the paper, the state council which is comparable to the cabinet in Japan. However, since the line of influence is complicated and individuals play far more important role in China's policy making, it is left to the political student of China who actually initiates policies and how they get authorized and implemented. All we are assuming here is that the decision making body called the government must be responsive to the public political sentiment in some way.

can be said that these zones were established outside the state's industrial centers to prevent 'contamination' of Chinese heavy industry by outside influences[3]. These zones gave preferential tax and administrative treatment to foreign firms locating there. Also, for the first time in modern Chinese history, wholly foreign owned enterprises were permitted in SEZs.

As is shown in Figure 1, FDI into China gradually increased in volume from 1979 to 1991. However, foreign enterprises in SEZs were subject to rather tight restrictions. They were permitted to operate only within the geographical area designated as SEZ. Naturally their business was confined to the 'passing trades', in which they bring in intermediate inputs from outside, process them and export the final products to some other country. Although they were given preferential treatment to import and export, foreign enterprises were not allowed to transfer the foreign exchanges they earn to the source country. We may call this period the first phase in China's open door policy towards FDI.

<Figure 1. China's FDI>

The second phase corresponds to the period between 1992 and 2002, when the decision to join World Trade Organization was made by the government. A series of deregulation on FDI followed in this period. There was a surge of FDI in this period as can be seen in Figure 1. Figure 2 illustrates the change in the foreign enterprise's share in exports and imports combined. Here again we can observe a remarkable upward trend.

<Figure 2. Share of Foreign Enterprises in External Trades>

Foreign affiliated enterprises are categorically called 'three types of foreign funded enterprises' which include joint ventures, contractual joint ventures and foreign independents (100% foreign owned enterprises). The joint ventures are established by Chinese capital and foreign capital jointly. They are given management autonomy and are permitted to sell their products within and outside of China. Foreign capital is allowed to remit their dividends home. Foreign enterprises are not confined in SEZs and their dividends are made completely transferable.

The contractual joint ventures arose at an early stage of the open door policy to accommodate the request from oversees Chinese to form a joint venture. Recently contracts are being drawn between town and village enterprises offering industrial sites and foreign capital bringing in capital, equipment and technology. The independents are Chinese legal persons contributed by foreign capital alone. The hurdles to establish foreign independents are still higher than those for joint ventures and contractual

---

[3] Branstetter and Feenstra [2002], p.339.

joint ventures.[4]

However, it is not to be mistaken that capital movement was completely liberalized. In fact, the Chinese government still maintains the industry guidelines for foreign investors[5], in which industries are classified into three groups; foreign capital encouraged industries, foreign capital limited industries, and foreign capital prohibited industries. The first category of industries include fruit and vegetable growing, petrochemical, machinery, transportation equipment, electronics, and research services among others. The limited access is permitted to grains, pharmaceutical, wholesale and retail, financial services and broadcasting. Foreign capital is not permitted into traditional indigenous industries, electricity and gas, and education and broadcasting.

On the trade side, the Chinese government lowered import tariff rate throughout the entire period of open door policy. After China was acceded to the World Trade Organization, the Chinese government promised to lower tariff even further to meet the accession condition. For example, tariff rates are promised to be lowered for automobile air conditioners from 40% in 1998 to 20% by 2005, for microbuses from 70% in 1998 to 25% by 2005, for motorcycles from 60% in 1998 to 40% by 2003 and for computers 25% in 1998 to 0% by 2005[6].

Thus the stylized fact is that throughout the past twenty-five years the Chinese government has consistently taken open door policy towards foreign import and foreign direct investment. On the one hand, this must have created tension or antagonism on the part of state-owned enterprises (SOE) because of increased foreign competition. On the other hand, increased competition with alien competitors may have contributed to the modernization of SOEs much to the benefit of Chinese consumers[7].

The question we want to ask in this chapter is this: how was it politically possible that the Chinese government lowered the tariff rate consecutively and at the same time deregulated foreign capital participation and hence increased the presence of foreign enterprises in the Chinese economy? There can be many hypotheses that shed light on this phenomenon. We would like to present a theoretical hypothesis in terms of game theory or Cournot duopoly model.

3.   The Model of the Open Market Policy

We assume that the trade policy with tariff rate as the most important instrument is closely interrelated to the foreign investment policy. The Chinese government has a policy trade-off between a

---

[4] *China Economic Data Handbook* [2002], p.60.
[5] This guideline was effectuated April 1, 2002.
[6] *China Economic Data Handbook* [2002], p.90.
[7] Naughton [1995] emphasized this point. It is one of his main conclusions that foreign competition was the key to the modernization of state-owned enterprises in China.

lower tariff rate and a less stringent regulation on foreign investment.

We postulate that in choosing a combination of trade and investment policy, the Chinese government needs to take into account the behavior of foreign companies. We hypothesize that the Chinese government tries to maintain a popular support from the people at some prefixed level and tries to accommodate the foreign company's investment decisions. Foreign companies, on the other hand, try to maximize the take-home profit subject to the selected policy instruments in deciding how much to invest in China.

We take that the game played by the Chinese government and foreign companies yields a Nash equilibrium which characterize the policy output and the level of direct investment in China. We can also perform some comparative analyses by making use of this framework.

3-1. The Behavior of Foreign Capital

First, we would like to formulate the behavior of foreign companies. Assume that the Chinese government has at its disposal two policy instruments to effectuate the open door policy; the tariff rate $t (0 \leq t \leq 1)$ and the allowable foreign capital ratio $s (0 \leq s \leq 1)$. The tariff rate applies to the value of imported goods by the domestic companies.

The foreign capital ratio or FDI ratio has two meanings. In the framework of the first phase of the open door policy, it represents the degree to which foreign capital is allowed to transfer profits generated in the host country to the home country. $s = 1$ refers to the case where a 100 percent of locally generated profits is transferable and $s = 0$ refers to the case where no part of foreign subsidiary's profit can be transmitted to the home country. In the second phase of open door policy, s refers to the maximum allowable ratio for foreign capital to take part in domestic economic activities. This comes around by joint ventures in which the foreign capital's share is s. Or s may mean an aggregate ratio between the foreign owned and indigenous corporations. In any event, only s of total profits generated in the entire industrial sectors will be transmitted to the rest of the world.

Lowering the tariff rate will be part of the open door policy, especially when China eyes towards accession to the World Trade Organization. A lower tariff would benefit Chinese consumers in terms of lower import prices. However, it would harm indigenous industries that must face a tougher international competition.

By controlling the foreign capital ratio s the Chinese government can influence the effective rate of return on foreign investment. In the first phase of the open door policy, the Chinese government "encourages" foreign direct investment in the designated free economic zones. Foreign companies are allowed to operate fully controlled subsidiaries within the zone. However, we assume that the Chinese government imposes a regulation that a portion $1 - s$ of the profits made by foreign

companies must be retained within China. The foreign capital ratio s in this setting is tantamount to the profit tax for foreign capital.

Let π_f be the foreign company's profit made in China and K be the direct investment in China. Then the profit that can be transmitted to the home country or the take-home profit π^* can be written as

$$\pi^* = s\pi_f(K) - rK, \tag{1}$$

where r is the interest rate prevailing in the home capital market. We are assuming here for the sake of simplicity that the capital-labor ratio is constant so that the employment generated in the foreign sector is proportional to K. Also, we are assuming that the foreign companies in the special economic zones are exempt from import tariff.

We assume that the foreign capital decides on K so as to maximize the take-home profit π^*. On the Chinese side, we assume that the Chinese government is interested in the foreign exchange retainable from the foreign company, $(1-s)\pi_f(K)$ and the employment generated in the foreign sector, which is proportional to K.

In the second phase of the open door policy, we assume that the foreign capital is allowed to participate in the domestic market. This has two meanings. One is that the Chinese government allows foreign companies operating in the special economic zones to sell their products in the domestic market. The other is that the foreign capital is allowed to acquire Chinese companies or establish joint ventures for domestic operation. Either way, the foreign participation will improve the quality of domestically produced goods to the benefit of the Chinese consumers.

We will also assume that π now stands for the profit made by the domestic company with foreign participation and s is the foreign capital participation ratio. s can be interpreted in two ways. s may be the percentage of foreign controlled companies in the total number of companies. Or, s may be the limit to which foreign capital participation is allowed in any Chinese company. Either way we are assuming that the Chinese government does not impose the *de facto* profit tax on foreign investment any more. s remains to be a policy instrument under control by the Chinese government. Then the take-home profit can be expressed as

$$\pi^* = s\pi(t, K) - rK. \tag{2}$$

Notice that the tariff rate affects the joint venture as they import foreign goods for production.[8] A higher tariff rate is detrimental to the foreign owned subsidiaries as well as purely domestic companies.

3-2. The Policy Target and Political Feasibility

In this model the Chinese government is committed to the open door policy. It has at its disposal two policy instruments, t and s. However, the implementation of any policy would be impossible without popular political support. This assumption may be debatable since the political market is monopolized by the communist party in China. We are under the impression that dissatisfaction felt by localities or industries or social classes may not easily be transmitted to the political channel. However, we assume that Chinese democracy works at the level of the choice of cabinet; no ruling cabinet is sustainable in the face of mounting dissatisfaction in the society.

The stake-holders who are affected by a policy change are workers employed in domestic companies and foreign subsidiaries and the owner of domestic companies, namely, the government. The Chinese consumers stand to benefit from the improvement of the quality of products which will be brought about by increased competition between SOEs and foreign enterprises. However, they may have nationalistic political interest in the tariff rate and the foreign participation rate.

Thus, we assume that the Chinese government cannot implement any policy unless they are able at least to secure the minimum level of political support. Let $V(t, s, K)$ be the political support function and $V_{\min}$ be the critical level of support. We assume that the Chinese government must act subject to the following constraint in phase 1:

$$V(t,s,K) = \alpha_f(1-s)\pi_f(K) + \alpha_d\pi_c(t) + \beta_f L_f(K) + \beta_d L_d(t) + \delta t^2 + \varepsilon s^2 \geq V_{\min} \qquad (3)$$

The political support function gives a weight $\alpha_f > 0$ to the portion of foreign establishment's profits retained in the host country and $\alpha_d > 0$ to the profits generated by domestic companies. This is to say that the larger the domestically held foreign profits and the domestic companies' profit the stronger political support will the government receive. Coefficients $\beta_f > 0$ and $\beta_d > 0$ are the weight given to the employment generated by foreign companies and domestic companies, respectively. A larger employment effect gives a stronger political support to the

---

[8] Since most of foreign subsidiaries in developing countries bring in technology and material inputs to the host country, it is safe to assume away the case where foreign investment is made to the company that only operates in domestic inputs and outputs.

government.

$\delta < 0$ represents the weight given to the tariff rate[9]. We are assuming that trade liberalization policy is supported by the Chinese consumers. The indirect effects of tariff rate change on foreign and domestic company's profits and employment are already taken into consideration in terms of α's and β's. Thus δ is supposed to capture the anti-protectionist sentiment in the Chinese public. Or, it may be interpreted to represent the policy stance of the political leaders.

Likewise we assume that the Chinese public has some nationalistic antagonism against the lenient regulation on the cross-border transfer of the foreign exchanges earned by foreign companies. In the country plagued with the shortage of foreign exchange in the early stage of development, it is easier for the government to secure political support if it applies a tighter control over capital transfers. For this reason we assume $\varepsilon < 0$.[10]

In phase two, the political support function becomes

$$V(t,s,K) = \alpha(1-s)\pi(t,K) + \beta L(t,K) + \gamma Q(K) + \delta t^2 + \varepsilon s^2 \geq V_{min} \qquad (4)$$

$\alpha(>0)$ is the weight given to the domestically held profits of all companies, $\beta(>0)$ is the weight given to the employment effect, and $\gamma(>0)$ represents the positive evaluation of the product quality index Q which is assumed to be positively correlated with foreign investment K. We retain the similar assumptions regarding the political sentiment against protectionism and for nationalistic concern for raising the barrier for earning transfer.

3-3. The First Phase

The basic assumption of our model is that the outcome of the Chinese government's choice of policy and the foreign direct investment decision by foreign companies can be described as the Cournot equilibrium of the game played by these two parties. In other words, the foreign companies decide on the level of investment so as to maximize their take-home profit taking as given the foreign capital ratio set by the Chinese government. On the other hand, the Chinese government, taking the level of FDI as fixed, chooses the tariff rate and the foreign capital ratio. In so doing, the Chinese government's objective is to stay at the same level of political support as at the original situation. Interaction by these two players will result in a Cournot equilibrium.

---

[9] Technically speaking, if $\delta > 0$ so that a higher tariff rate is politically preferred by the public, then only the degenerate case would follow in the later analysis. If such is the case, there will be no chance that a tariff reduction will bring about deregulation on FDI.

[10] If a higher s is politically appreciated by the public and hence $\varepsilon > 0$, that is to say, if increasing foreigners' share in the aggregate profits is preferred by the public, then the whole analyses in the later sections collapse.

3-4. The Policy Equilibrium

The foreign companies maximize their take-home profit (1). It then follows from the necessary condition for maximization that

$$\pi'_f(K) = \frac{r}{s},$$

from which we can deduce

$$\frac{ds}{dK} = \frac{s^2 \pi''_f}{r} > 0 \qquad (5)$$

where we are assuming $\pi''_f < 0$ as is usually done.

This is the reaction function of the foreign companies. It says that in order for FDI to increase the foreign capital restriction should be relaxed and s should be raised.

Regarding the Chinese government's choice of policy combination, we will first consider the case where the tariff rate is fixed at $t = t_0$. The Chinese government reacts to the decision of foreign companies so as to keep the level of political support unchanged. This is to say that the government's reaction follows (3) with equality. Totally differentiating (3) with equality, we have

$$(-\alpha_f \pi_f + 2\varepsilon)ds + \left\{\alpha_f(1-s)\pi'_f + \beta_f L'_f\right\}dK = 0,$$

whence we can derive

$$\frac{ds}{dK} = \frac{\alpha_f(1-s)\pi'_f + \beta_f L'_f}{\alpha_f \pi_f - 2\varepsilon} > 0. \qquad (6)$$

Notice that the last inequality follows from the assumptions $\pi'_f > 0$, $L'_f > 0$ and $\varepsilon < 0$.

The possible Cournot equilibrium is illustrated in Figure 1, in which foreign company's reaction (5) is drawn as a steeper curve and the government's reaction (6).

<Figure 3. The Policy Equilibrium in Phase One>

As can be seen from the Figure 1, there is a possibility that the two curves intersect in the first quadrant to give meaningful policy equilibrium. However, the interaction between the two parties shows a zigzag adjustment process out of equilibrium. The conclusion is due to the basic assumption that one party makes a move after another. However, this much can be summarized:

Proposition 1. In the policy adjustment process towards the stable equilibrium in the first phase of FDI liberalization, an increase in the allowable transfer of foreign enterprises by the Chinese government will be followed by an increase in FDI.

The step-wise adjustment goes somewhat like this. The Chinese government, observing a slow reaction and less than expected level of employment creation by foreign capital, tries to increase FDI flow by raising the foreign capital ratio out of concern for weakening public support to their policy. Responding to an increased foreign capital ratio, there will be a new inflow of FDI. Despite some nationalistic antagonism against the increased presence of FDI, the government becomes bolder in openness policy encouraged by the positive reaction of foreign capital and the resulting increase in employment and retained earnings. The virtuous cycle leads to the policy equilibrium.

However, the reaction functions of the two parties may never intersect in the positive quadrant in Figure 1, in which case there will be no stable policy equilibrium. The stability condition is given by the following:

$$-\frac{s^2 \pi_f^{''}}{f} > \frac{\alpha_f (1-s)\pi_f^{'} + \beta_f L_f^{'}}{\alpha a_{f\pi_f} - 2\varepsilon}.$$

As can be seen from this expression, the larger the value of β_f the less likely the stability condition is satisfied. Thus we can conclude:

Proposition 2. The greater the employment effect by foreign capital in the political support function, the more likely the policy adjustment process diverges. In the case where the stability condition is not satisfied, no harmonious equilibrium will emerge out of policy game between the government and foreign capital.

We will now investigate the effect of lowering the tariff rate in the case where the policy

- 10 -

interaction converges.

3-5. The Effect of a Tariff Reduction

In order to analyze the effect on the reaction curve of the government of a change in the tariff rate, we differentiate (3) with respect to t and s holding K constant to obtain

$$(-\alpha_f \pi_f + 2\varepsilon)ds - (\alpha_d \pi_d' + \beta_d L_d' + 2\delta t)dt = 0$$

or,

$$\frac{ds}{dt} = \frac{\alpha_d \pi_d' + \beta_d L_d' + 2\delta t}{\alpha_f \pi_f - 2\varepsilon}.$$

Generally speaking, the sign of this expression is ambiguous. We know that the denominator is positive and the first two terms in the numerator are also positive in sign. Hence if the first two terms in the numerator dominate the negative third term in absolute value, t and s move in the same direction and *vice versa*. The former is the case where the domestic profit and employment expansion effect overwhelms the pro-liberalization sentiment in the political market. We will refer to this as "protectionism" case. Naturally the protectionism is strengthened when the effect of a change in tariff rate is felt strongly in domestic profit and employment.

Contrariwise, if the domestic profit and employment expansion effect is relatively weak as compared to the pro-liberalization sentiment, we will observe that s moves in the opposite direction as t. Call this "liberalism" case. Notice that different constituents in the country may harbor different political opinions. We are differentiating the liberalism case from the protectionism case on the basis of relative political strength of the opposing views in the political support function.

Summing up we can draw two figures. Figure 2 corresponds to the case of protectionism.

<Figure 4. A Tariff Reduction in Protectionism>

A reduction in the tariff rate will shift the government reaction curve to the right. Since the foreign capital's reaction curve is steeper than the government curve, the resulting change in equilibrium is in the direction of lower s and smaller K. Thus we have demonstrated

Proposition 3. In the case where the public political inclination is towards protectionism, a reduction in the tariff rate will result in a stronger foreign capital regulation and a decreased volume of FDI.

Strikingly opposite result is obtained for the case of liberalism. The relative position of the two reaction curves are the same as in protectionism case. However, a reduction in the tariff rate now creates a leftward shift in the government reaction curve. As is depicted in Figure 3, this change results in a greater value for s and a greater value for K in the new equilibrium.

<Figure 5. A Tariff Reduction in Liberalism>

Proposition 4. If the Chinese public is politically inclined towards liberalism, a tariff reduction will bring about less stringent restriction on foreign income transfer and an increased inflow of FDI.

Thus it is critically important whether the public is politically inclined toward liberalism or not for the government's openness policy to succeed. The Chinese government will face a trade-off between a restrictive trade policy and a restrictive foreign capital policy in the case of protectionism. If the public is more inclined toward liberalism, the government can reduce the tariff rate in compliance with the condition of accession to WTO and at the same time employ more generous open door policy for foreign capital.

4.   The Second Phase of Open door policy

    4-1. The Policy Equilibrium

The Second Phase of Open door policy is represented by equations (2) and (4). As regards the foreign capital's reaction, we obtain, by partially differentiating (2) with respect to K, from the necessary condition for the maximum,

$$\pi_K(t, K) = \frac{r}{s}, \tag{9}$$

where π_K stands for the partial derivative of π with respect to K. The optimum level of FDI can be obtained by solving this equation given $t = t_0$.

By partially differentiating (9) with respect to K again, we derive

$$\frac{\partial s}{\partial K} = -\frac{s^2 \pi_{KK}}{r} > 0 . \tag{10}$$

This means the reaction curve of the foreign capital is upward sloping. For later convenience we also note, by differentiating (9) with respect to t ,

$$\pi_{KK} \frac{dK}{dt} + \pi_{Kt} = 0 \quad ,$$

so that

$$\frac{dK}{dt} = -\frac{\pi_{Kt}}{\pi_{KK}} < 0 \quad . \tag{11}$$

The inequality follows from the assumptions $\pi_{KK} < 0$, and that the marginal profit decreases as the tariff rate increases or $\pi_{Kt} < 0$.

Notice that whereas the foreign companies are not affected by a change in the tariff rate as they are exempt from such tax in the first phase, the foreign companies' decision is affected by a change in the tariff rate in the second phase. They now have a closer tie with indigenous companies either as trading partners or as co-investors in the joint ventures. Equation (11) tells that when foreign capital ratio is unchanged, an in crease in the tariff rate will result in a reduction in FDI. We will use this result for a later analysis.

Turning to the government's reaction, we have from (4), when $t = t_0$, the following:

$$(-\alpha\pi + e\varepsilon)ds + \left\{\alpha(1-s)\pi_K + \beta L_K + \gamma Q_K\right\}dk = 0 .$$

Rearranging the terms we have

$$\frac{ds}{dK} = \frac{\alpha(1-s)\pi_K + \beta L_K + \gamma Q_K}{\alpha\pi - 2\varepsilon} > 0 \quad .$$

Thus the slopes of two reaction curves are the same as in phase one. Hence we can immediately claim

Proposition 5. In the second phase of the open door policy, a Nash equilibrium will be established

- 13 -

after the political adjustment process between the government and foreign capital. The adjustment process has a higher tendency to diverge when a larger weight is attached to the employment effect and the quality improvement effect.

4-2. The Effect of a Tariff Reduction

The most significant change appears in the effect of a tariff rate reduction in the second phase of open door policy as compared with the first phase. As we observed in (11), a reduction in the tariff rate shifts the foreign capital's reaction curve to the right. From (4) we can derive, for the government's reaction, the following:

$$\frac{ds}{dt} = \frac{\alpha(1-s)\pi_t + \beta L_t + 2\delta t}{\alpha\pi - 2\varepsilon} \quad .$$

Again the sign of this derivative is ambiguous. We need to distinguish two cases here according to the relative strength in political concern between the profit and employment and the public support for liberal trade policy. If the effect of a tariff rate increase is favorable to the aggregate profit and employment so that $\pi_t > 0$ and $L_t > 0$ and the concern on profit and employment overwhelms the trade liberalism (α and β are relatively larger than δ), then we have $\frac{ds}{dt} > 0$. We may call this the case of "protectionism". The favorable effects of protectionism are strongly felt among domestic industries and they are appreciated in the political support function.

The opposite is the case of "liberalism". If the effects on profit and employment of a raise in the tariff rate are weakly positive or even negative, then there arises a possibility that the numerator becomes negative in sign and we have $\frac{ds}{dt} < 0$.

Putting pieces together, we can draw two diagrams, Figure 4 and Figure 5.

<Figure 6. Consumer Oriented Preference and the Effect of Tariff Reduction>

Figure 4 corresponds to the case of protectionism. An increase in the tariff rate shifts the two reaction curves to the right. We cannot derive any definite conclusion regarding the relative position of the old equilibrium point A and the new equilibrium point B. The new equilibrium foreign capital ratio s may or may not be smaller than before. The new equilibrium volume of FDI may or may not

be larger than before. Thus, it is even conceivable that a degenerate equilibrium entails in which foreign capital ratio is lowered and there will be less FDI. This would be the case that in the face of strong public protectionism the Chinese government would have to assume a tougher regulation on foreign capital and the foreign capital would retreat as a result.

Proposition 6: In the protectionist political environment, it cannot be predicted which direction the foreign capital ratio and the resulting volume of FDI changes after a tariff reduction. The worst outcome that is a combination of increased capital regulation and a reduced level of FDI might even be a possibility after a trade liberalization policy of the government.

In the case of liberalism, we can obtain a definite conclusion. In this case, a lower tariff rate will shift the foreign capital's reaction to the right and the government's reaction to the left. The resulting new equilibrium B is unambiguously lies to the north-east of the old equilibrium A. Thus we can claim

Proposition 7: In the liberal political environment, a more liberal trade policy will lead to a more relaxed foreign capital regulation and an increased level of FDI.

5.   Concluding Remarks

Thus we could derive some meaningful propositions in our model concerning the outcome of the open door policy towards FDI by the Chinese government. Two most important propositions are Propositions 4 and 7. Proposition 4 states that in the first phase of the open door policy the governmnet's initiative to reduce the tariff rate will lead to a more lenient foreign capital regulation and a corresponding increase in the inflow of FDI provided that the political atmosphere is inclined towards liberalism.

A reduction of the tariff rate will benefit the Chinese consumers but it will be disliked by SOEs and their employees. However, if the tariff reduction meets with strong political support to overwhelm the negative repercussions, then the government can afford to reduce the rate of retained profit and hence invite in more FDI. The key to success for the open door policy is the prevalence of political and economic liberalism.

Proposition 7states the similar result for China in the second phase of the open door policy. In this situation foreign enterprises have no restriction on the profit transfer. However, the relative share of foreign enterprises in the aggregate production is controlled by the government in that they need to get permission to establish in China and the government has a list of industries to which foreign

investment is encouraged, limited or prohibited.

According to Proposition 7, it is when the political environment is liberal in the sense that the support for liberal trade overwhelms the concern over detrimental effects on domestic employment and profitability of SOEs that the Chinese open door policy will result in both a reduction in the tariff rate and an expansion of FDI.

Naturally more work needs to be done. However, we propose to look at the question not in the framework of domestic political contest alone but from the perspective of the need for international accommodation and domestic political tension.

$billion

Figure 1. China's FDI

Share of 3 capital enterprises
in external trades

%
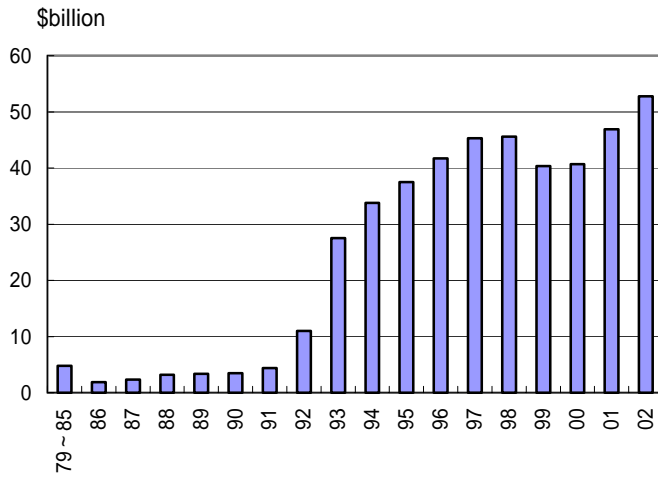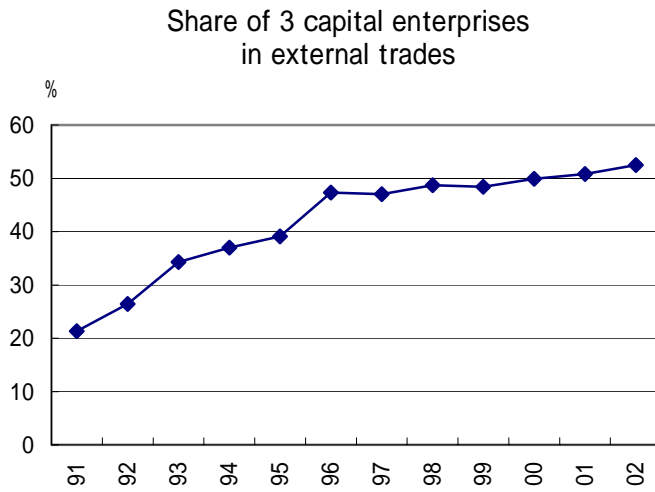
Figure 2. Share of 3 Capital Enterprises in External Trades
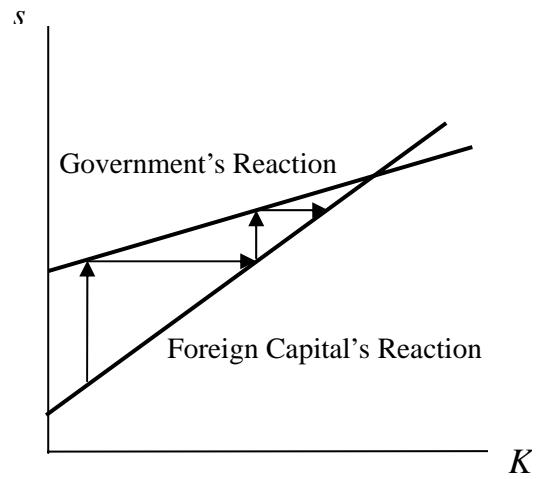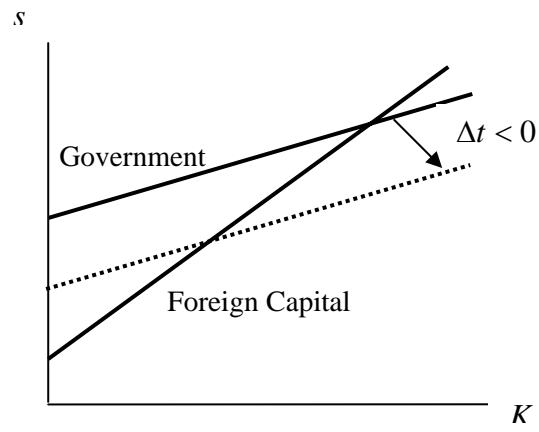
Figure 3. Policy Equilibrium in Phase One

Figure 4. A Tariff Reduction in Protectionism
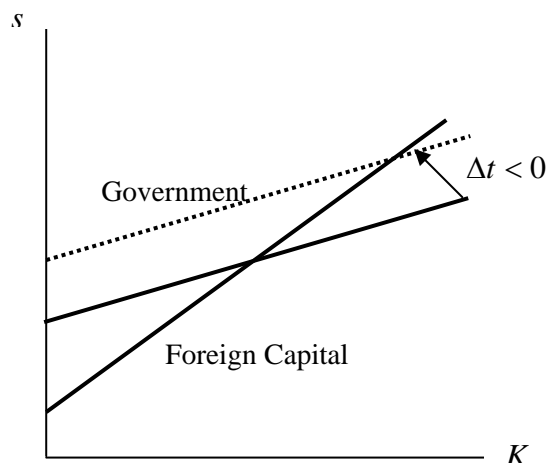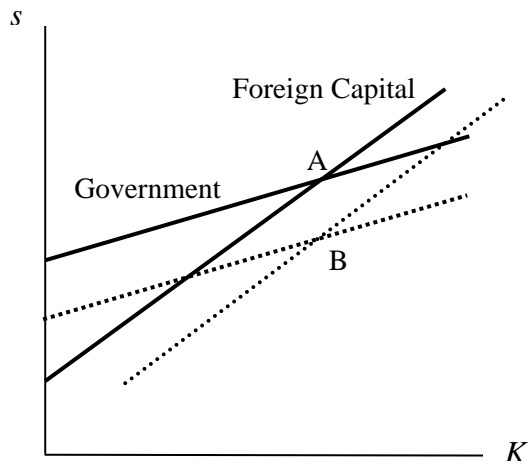

Figure 5. A Tariff Reduction in Liberalism

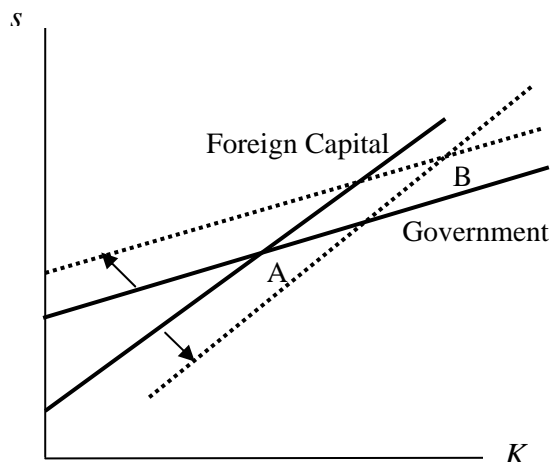Figure 6. Protectionism in Phase 2

Figure 7. Liberalism in Phase 2

Reference

Branstetter, Lee G. and Robert C. Feenstra [2002], "Trade and foreign direct investment in China: a political economy approach," *Journal of International Economics,* 58, 335-358.

Grossman, Gene M. and Elhanan Helpman [1994], "Protection for Sale," *American Economic Review,* 84, 4, September, 833-850.

Grossman, Gene M. and Elhanan Helpman [1996], "Foreign Investment with Endogenous Protection," in Feenstra, R.C., Grossman, G.M., Irwin, D.A. (Eds.), *The Political Economy of Trade Policy: Papers in Honor of Jagdish Bhagwati,* MIT Press, pp. 199-224.

Hillman, Arye L. [1982], "Declining Industries and Political=Support Protectionist Motives," *American Economic Review*, 72, 5 , December, 1180-1187.

Hillman, Arye L.. and Heinrich W. Ursprung [1988], "Domestic Politics, Foreign Interests, and International Trade Policy," *American Economic Review,* Sep., 78(4), 729-745.

Hillman, Arye L. and Heinrich W. Ursprung [1996], "The political economy of trade liberalization in the transition," *European Economic Review,* 40, 783-794.

Japan-China Economic Association [2002], *China Economic Data Handbook 2002.*

Naughton, Harry [1995], *Growing Out of the Plan: Chinese Economic Reform 1978-1993*, Cambridge University Press.