Foreign Direct Investment in Emerging Markets:
The Problem of Policy Uncertainty

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Foreign direct investment is of increasing importance to many emerging economies. However, political instability is also widespread in the developing world. This paper deals with how private investor uncertainty over a government's future policies influences foreign investment flows and how this in turn can influence government policies designed to encourage FDI. A simple model is used to compare the FDI flows into a country when the government is able to commit to a specific level of production subsidy with the results that obtain when the government is unable to credibly commit to its policies. Because the uncertainty over government policy faced by foreign investors acts as a disincentive to invest in the country, policy uncertainty leads a government to implement a larger subsidy in equilibrium than it would otherwise, resulting in greater FDI inflows but lower domestic welfare. There is thus a strong incentive for emerging economy governments to reduce the amount of political instability and policy uncertainty in their country.

INTRODUCTION

Foreign direct investment (FDI) is an increasingly important source of capital in developing countries. Annual flows of FDI to less developed countries (LDCs) have increased from $4.7 billion p.a. in 1970-75, to $18 billion p.a. in 1980-85, $71 billion p.a. in 1990-95 and to $311 billion p.a. in 2002-2007. In 1980, inflows of FDI to LDCs accounted for 14% of the world total. By 2007 this amount had risen to 60%[1]. From 1980 to 2007 the stock of FDI in LDCs has grown from 12% to 29% of their GDP. With such large amounts involved, many LDC governments have undertaken substantial efforts to attract greater amounts of FDI flows[2].

Political instability and the uncertainty it generates is especially prevalent in emerging markets, where changes in governments and key ministerial positions are frequent (Rodrik, 1989). The focus of this paper is "How does political uncertainty in emerging markets affect FDI decisions and government policy?"

If a government were able to commit to a policy stance a significant amount of uncertainty would be removed from the decision making process of foreign investors. A government could then announce and implement a policy program which would, in principle, elicit a level of FDI which is optimal given its particular objectives. Without a precommitment mechanism any

policy proposal may lack credibility as what is *ex post* optimal once FDI is in place may differ from the *ex ante* optimal policy. The pre-announced policy in this case is time inconsistent as the government has an incentive to alter it once the investments have been undertaken.

Consider a social welfare maximizing government operating in an atmosphere of complete credibility. The government makes its policy intentions – tax rates, production subsidies, import tariffs etc. – known to foreign investors. Entrepreneurs react to this information and invest the amount of FDI that is optimal for them. In the absence of any "shocks" the government has no incentive to alter its policies once these investments have been made, even if it is in fact able to do so.

Suppose instead that credibility is limited due, say, to investor ignorance of the objectives of a newly elected government, a time lag such that investments made now would not be realized until after a upcoming election, or previous experience which leads investors to distrust the government's promises. The policies which the government would have used in the first scenario may no longer be credible, as they do not perfectly reveal its objectives or are recognized as being time inconsistent. This uncertainty over the future policy yields a different level of FDI than before, altering the welfare maximization problem of the government and leading it to implement different policies than in the complete credibility scenario.

LITERATURE REVIEW

Studies on the effects of political factors on FDI have not reached a consensus. Some, such as Bennett and Green (1972) and Wheeler and Mody (1992), find political risk to be insignificant in determining the volume of FDI; others, such as Aharoni (1966) and Agodo (1978), find it to be a significant disincentive to FDI.

Surveys of business leaders (rather than aggregate FDI data) add to the belief that political instability can scare off foreign investors. Brewer (1991) concludes that surveys consistently find that company executives treat perceived host country instability as a major deterrent to FDI and Morisset (2000) finds that mounting an image building effort with the participation of high political figures has been successful at attracting FDI in parts of Africa. The Foreign Investment Advisory Service (1997) found that "87% of U.S. corporate executives state that they are more confident in Latin America as a region for investment than they were five years ago. This stance appears to be based on their belief that economic and political reforms in the region are genuine and should continue for the foreseeable future…Fortune 1000 company executives are almost unanimous in the view that the first step to increasing levels of FDI is for host countries to order their economic and political affairs…When corporations create long lists of potential sites for new investments, the first point of reference is the economic and political stability of the country."

India is a prime example of how political uncertainty can affect FDI flows to emerging markets. In the mid to late 1990s India had several changes in government, leading to a flip-flopping of trade policies. The constant threat of protectionism made foreign investors nervous (Jordan 1996). As a result, "in this climate of uncertainty, growth in foreign direct investment has slowed" (Karp, 1997) with the FDI flow falling by 19% in 1998 due to political uncertainty (The Tribune, 2003).

The model presented here is related to those in the strategic trade literature. For example, Staiger and Tabellini (1987) look at the credibility problems facing a government using import tariffs to give domestic protection, while Neary and Leahy (2000), Ionascu and Zigic (2005) and

Kujal and Ruiz (2007) model governments giving export subsidies. In these models all production is exported, removing any consideration of the impact to consumers in the government's decision. The model given here differs as the focus is on the effects of FDI inflows as well as consumers.

MODEL

Based on the empirical evidence about the monopolistic nature of many MNEs in emerging markets[3], consider a foreign-owned firm manufacturing a product for sale in the host market. For simplicity, the indirect demand function is linear and given by $p = a - bq$, where q is the firm's sales. The firm is risk neutral and profit maximizing, and faces the possibility of a FDI subsidy, s (or a tax if s is negative), per unit of production. The government subsidy is an incentive for FDI by the firm.

The structure of the game is as follows: In the first stage the government announces its subsidy and the firm invests in production capacity, k. In the second stage, after observing the investment choice, the government implements the subsidy, which might not be at the pre-announced level. In the third stage the firm chooses its level of output. Besides potential uncertainty about the government's *ex post* policy, all other information in the game is known to both the firm and the government.

The firm's cost structure is based on that in Maggi (1996) and is given by

Total Cost $= ck + c'(q - k)$ where $c' = 0$ if $q \le k$ and $c' = \theta$ if $q > k$, where $\theta > 0$. So capacity is not an inflexible constraint, as in Spence (1977) and Kreps and Scheinkman (1983), as the firm can exceed capacity but at an additional marginal cost, θ. But unlike Maggi, capacity investment is a sunk cost and producing below capacity does not give cost savings. θ could represent overtime or out-sourcing costs. Appelbaum and Lim (1985) propose that production exceeding capacity has a tighter time constraint, requiring speedier production and higher costs.

To have an incentive to invest in capacity, it must be that the per unit cost of capacity is less than the cost of producing in excess of capacity, so assume that $c < \theta$. Assume also that $a > \theta$, for obvious reasons. The firm faces an investment tradeoff in that capacity precommitment involves a "technical advantage" in that per unit production costs are lower up to the capacity level. However, there is an "informational advantage" to waiting until the subsidy is in place.

The profit maximization problem of the firm is to choose a capacity constraint and level of output to maximize

$$(1) \qquad \pi = (a - bq)\, q - ck - c'(q - k) + sq$$

where the level of FDI is the expenditure on capacity and production, $ck + c'(q - k)$. The government's objective is to choose a subsidy to maximize domestic welfare, W, as the sum of FDI and consumers' surplus, net the direct subsidy cost:

$$(2) \qquad W = \frac{bq^2}{2} + ck + c'(q - k) - sq$$

RESULTS

Model with Government Precommitment

With the above setup, consider the benchmark case in which the government credibly precommits to its policy announcement. Each stage of the game can then be addressed simultaneously. In this case, solving the firm's first order conditions, we have that the optimal

capacity and quantity choices are

(3) $k^* = q^* = \dfrac{a - c + s}{2b}$

so that, absent any uncertainty, the firm produces at capacity. Clearly, with what amounts to perfect foresight, the firm maximizes profits by investing in capacity at the exact level of its final production. From (3), the greater the subsidy level the larger the amount of FDI. Greater demand for the product also leads to more FDI, while higher investment costs reduce the desired amount of FDI.

Differentiating (2) yields the first order condition

(4) $\dfrac{dW}{ds} = bq\dfrac{dq}{ds} - s\dfrac{dq}{ds} + c\dfrac{dq}{ds} - q = 0$

(5)   → $s^* = c - bk^* = \dfrac{3c - a}{3}$

as the government's optimal subsidy in the game with no uncertainty, implying that the capacity choice in (3) reduces to $k^* = a/3b$. From (5), the government gives a more generous subsidy if the per unit investment cost, c, is large to counteract the disincentive to FDI arising from those greater costs. Also, a less generous subsidy is given when the demand for the product is high. The large demand means favorable market conditions for the MNE, so sufficient FDI can be obtained with a smaller subsidy (or tax if demand is large enough relative to production costs).

Model without Government Precommitment

Now suppose the government is unable to credibly precommit to its policy. This means that it may have an incentive to renege on any announced subsidy, once the capacity investment has been sunk. Thus the firm's expectations of the subsidy level are independent of what is "promised". But its expectations must be consistent with the assumed behavior of the government, narrowing the range of rationally expected subsidy levels. Backward induction can be used to derive the subgame perfect equilibrium. This procedure will then yield a time-consistent subsidy level.

Third Stage: Output Choice

In the third stage, given its sunk level of capacity, $\bar{k}$, and the government's production subsidy, s, the MNE must choose output, q, to maximize its profits

(6) $\pi = (a - bq)\,q + sq - c\bar{k} - c'(q - \bar{k})$

The profit maximizing level of output is then given by the solution to

(7) $a - 2bq + s - c' = 0$

As in Goldberg (1995), note that in a subgame perfect equilibrium the firm produces at capacity, as the firm has no incentive to invest in capacity which is unused or to incur the higher costs of producing beyond capacity.

Second Stage: Subsidy Choice

In the second stage, given the capacity choice of the firm, $\bar{k}$, the government chooses the level of production subsidy, s', to maximize

(8) $W = \dfrac{bq^2}{2} + c\bar{k} + c'(q - \bar{k}) - sq$

This yields the first order condition

$$(9) \qquad \frac{\partial W}{\partial q}\frac{dq}{ds} + \frac{\partial W}{\partial s} = 0$$

$$(10) \quad \rightarrow \quad (bq - s + c')\frac{dq}{ds} - q = 0$$

First Stage: Capacity Choice

In the first stage the firm chooses its capacity based on its expectations of the subsidy. The firm's optimal capacity is determined by the first order condition

$$(11) \qquad \frac{d\pi}{dk} = \frac{\partial \pi}{\partial k} + \frac{\partial \pi}{\partial s}\frac{ds}{dk} = 0$$

which in the subgame perfect equilibrium can be expressed as

$$(12) \qquad a - 2bk - c + s + k\frac{ds}{dk} = 0$$

so that the profit maximizing amount of capacity is given by

$$(13) \qquad k' = \frac{a - c + s}{2b - ds/dk}$$

As shown below, $ds/dk < 0$. Comparison of (13) and (3) shows that, for any *ex ante* subsidy, the firm chooses a less FDI in the absence of policy precommitment than when precommitment is guaranteed, so a lack of government credibility acts as a deterrent to FDI. If the government were able to commit to a pre-announced subsidy level before any foreign capital were invested, then $ds/dk = 0$, and (13) would equal the capacity choice shown in (3). Without any commitment mechanism, $ds/dk \neq 0$.

From the second stage of the game, suppose that the firm cannot produce beyond capacity. In this case the left-hand side of (10) is negative for any positive level of FDI. To see this, note that if $\partial W/\partial q > 0$ the government has an incentive to increase the subsidy to encourage more production, but as the capacity constraint does not allow this $dq/ds = 0$ and the first term on the left-hand side of (10) is zero. Alternatively, if $\partial W/\partial q < 0$ the government has an incentive to decrease the subsidy. Then $dq/ds > 0$ and the first term on the left-hand side of (10) is negative. Thus, dW/ds is always negative when the MNE has invested in any capacity, so the government always has an incentive to decrease the subsidy *ex post*. Then the only time-consistent equilibrium subsidy when the firm is unable to exceed capacity is such that the government taxes FDI so much that the firm chooses not to invest at all. From (12), we can see that the firm will choose not to invest in the domestic market if $a - c + s \leq 0$, so that the only time-consistent subsidies are such that $s \leq c - a < 0$.

Returning to the assumption that production can exceed capacity, see that for (9) to hold, $(\partial W/\partial q)(dq/ds)$ must be positive, which given (7) means that $\partial W/\partial q > 0$. Solving (10) at the subgame perfect equilibrium yields

$$(14) \qquad s' = \theta - bk$$

which proves the earlier assertion that $ds/dk < 0$. Thus the size of the subsidy increases with the cost of exceeding capacity while an increase in capacity is an incentive for the government to reduce the subsidy. Using (14) to solve (13) gives the subgame perfect equilibrium outcomes:

$$(15) \qquad k' = q' = \frac{a - c + \theta}{3b}$$

$$(16) \qquad s' = \frac{c - a + 2\theta}{3}$$

which shows that FDI will be larger the greater the cost of producing beyond capacity, the smaller the cost of producing at or below capacity and the greater the demand for the product. The government subsidy increases as the domestic demand for the product decreases and as the production and capacity costs increase.

CONCLUSIONS

The model presented here illustrates how a government's inability to commit to future policies can reduce the quantity of FDI that would result in the absence of foreign investor uncertainty. This uncertainty exists because the government has an incentive to alter its policies once investments have been made. Without any formal precommitment mechanism, the only credible policies are ones which are time consistent – the *ex ante* optimal policy is also *ex post* optimal. To counter the MNE's uncertainty about the final policy, a social welfare maximizing government might be tempted to over-compensate – promising a generous level of investment incentives. However, if such a promise is time inconsistent then it lacks full credibility with rational, profit maximizing investors.

Several results from this model are worth highlighting. It shows that, in equilibrium, the absence of policy precommitment leads to a larger subsidy. This encourages a greater volume of FDI and greater profits for the MNE.

In addition, for any given subsidy level the flow of FDI is lower when the government is unable to commit to its policies. The ability to alter policies once the investment has been made acts as a disincentive to such investment. This is consistent with those studies that find political risk to be a deterrent to FDI.

From the government's welfare function, domestic welfare is also lower when the government is unable to precommit. The belief by the MNE that the government will alter its policies after the fact leads to a socially suboptimal level of FDI. In this situation it is in the interests of the government to institute some kind of precommitment mechanism, perhaps through political reform.

To many, emerging markets are seen as a tempting locale for foreign direct investment. If the governments of such nations are to maximize the benefit of the current foreign investment boom they need to recognize the impact that their political system has on FDI flows. Political uncertainty can be costly in terms of the investment that it discourages, the subsidy payments needed to attract investors back and the long-term expense incurred in trying to build a reputation for reliability.

REFERENCES

Agodo, O. (1978). The Determinants of US Private Manufacturing Investments in Africa. Journal of International Business Studies, winter, 95-107.

Aharoni, Y. (1966). The Foreign Investment Decision Process. Harvard University Press, Cambridge, Mass.

Appelbaum, E. & Lim, C. (1985). Contestable Markets Under Uncertainty. Rand Journal of Economics, 16, (1), 28-40.

Bennett, P.D. & Green, R.T. (1972). Political Instability as a Determinant of Direct Foreign Investment in Marketing. Journal of Marketing Research, 9, 162-186.

Brewer, T.L. (1991). Foreign Direct Investment in Developing Countries: Patterns, Policies, and Prospects. Working Paper WPS 712, The World Bank, Washington DC.

Foreign Investment Advisory Service. (1997). Is Latin America Number One Again with U.S. Multinationals? FDI News, Volume II, No. 1.

Goldberg, P.A. (1995). Strategic Export Promotion in the Absence of Government Precommitment. International Economic Review, 36, (2), 407-426.

Ionascu, D. & Zigic, K. (2005). Free Trade versus Strategic Trade as a Choice between Two "Second Best" Policies: A Symmetric versus Asymmetric Information Analysis. International Economic Journal, 19, (3), 417-446.

Jordan, M. (1996). Indian Voters Nip at Hand That Fed Them. Wall Street Journal, May 6.

Karp, J. (1997) India's Growth Belatedly Advances Economic Reform. Wall Street Journal, February 19.

Kim, W.S. & Lyn, E. (1986). Excess Market Value, the Multinational Corporation and Tobin's q-ratio. Journal of International Business Studies, 17, 119-125.

Kreps, D.M. & Scheinkman, J. (1983). Quantity Precommitment and Bertrand Competition Yield Cournot Outcomes. Bell Journal of Economics, 14, (2), 326-337.

Kujal, P. & Ruiz, J. (2007). Cost Effectiveness of R&D and Strategic Trade Policy, The B.E. Journal of Economic Analysis & Policy, 7, Iss. 1 (Topics), Article 21.

Maggi, G. (1996). Strategic Trade Policies with Endogenous Mode of Competition. American Economic Review, 86, (1), 237-258.

Morisset, J. (2000). Foreign Direct Investment in Africa: Policies Also Matter. Policy Research Working Paper 2481, The World Bank and the International Finance Corporation Foreign Investment Advisory Service, November.

Morisset, J (2003) Using Tax Incentives to Attract Foreign Direct Investment. Viewpoint, The World Bank Group Private Sector and Infrastructure Network, January.

Neary, J.P. & Leahy, D. (2000). Strategic Trade and Industrial Policy Towards Dynamic Oligopolies. Economic Journal, 110, April, 484-508.

Rodrik, D. (1989). Promises, Promises: Credible Policy Reform via Signalling. Economic Journal, 99, 756-772.

Spence, A.M. (1997). Entry, Capacity, Investment and Oligopolistic Pricing. <u>Bell Journal of Economics</u>, 8, (2), 534-544.

Staiger, R.W. & Tabellini, G. (1987). Discretionary Trade Policy and Excessive Protection. <u>American Economic Review</u>, 77, (5), 823-837.

The Tribune (of India). (2003) FDI actual inflows to total approvals below 50 pc. September 2.

Wheeler, D. & Mody, A. (1992). International Investment Location Decisions: The Case of U.S. Firms. <u>Journal of International Economics</u>, 33, 57-76.

FOOTNOTES

1. All data from UNCTAD's FDI/TNC Database.
2. See, for example, Morisset (2003).
3. See, for example, Kim and Lyn (1986).