

# IDE Research Bulletin

---

Research Summary based on papers prepared for publication  
in academic journals with the aim of contributing to the academia

## **Multinational Firms and the Globalization of Developing Countries**

Project Organizer  
TANAKA Kiyoyasu

March 2014

**IDE-JETRO**

**Multinational Firms and the Globalization of Developing Countries**

(多国籍企業と発展途上国のグローバル化)

田中清泰 (研究会主査)

The past few decades have seen that a number of developing countries attempt to increase foreign direct investment (FDI) by removing foreign ownership restrictions and offering preferential investment incentives for foreign firms. With FDI promotion, governments in developing countries attempt to build an industrial cluster and participate in global value chains. In this process, the expectation is that local firms can absorb advanced technology brought in by multinational firms through various channels such as imitation of advanced production technology, mobility of skilled workers, and buyer-supplier linkages on intermediate goods. Motivated by these policy issues, this research project seeks to shed light on the globalization issue in developing countries by investigating the role of multinational firms.

**(1) FDI and investment barriers in developing economies**

A number of developing economies attempt to increase foreign direct investment (FDI), but regulatory barriers to foreign investment in the developing economies remain greater than in developed economies. The average length of the investment process for foreign investors was 20 days for high-income economies and 47 days for middle- and low-income economies (World Bank Group, 2010).

Regulatory reforms and discriminatory tax practices for foreign investors are a crucial policy issue for governments in developing economies. Although the impact of eliminating policy-related obstacles to inward foreign investment is of great interest for policy makers, we know little about how policy-driven reductions in investment costs will affect FDI decisions differently across *individual* firms. Reductions in barriers lead not only to reallocations of resources across countries but also across individual firms. Their different responses carry important implications for both aggregate productivity gains and the concentration of production across firms. This paper investigates this issue one step further by examining how heterogeneous foreign firms will respond to a reduction of policy-specific investment barriers in developing countries.

Our task in this paper is to quantify firm-level responses to investment liberalization in developing economies. Linking positive aggregate shocks and individual firm responses in a standard econometric framework is difficult because of the lack of observable natural experiments and difficulty in quantifying barriers to FDI. Thus, we employ a structural approach

for counterfactual policy experiments by drawing on our prior work in Arita and Tanaka (2014), where a firm-heterogeneity model of Eaton, Kortum, and Kramarz (2011) is calibrated to match data on Japanese multinational firms.

We consider a hypothetical scenario in which only developing countries reduce investment barriers, but investment costs in developed countries remain constant. Specifically, we explore two policy experiments: (1) FDI barriers fall to the level of investment barriers faced by their domestic firms and (2) FDI barriers decline to the level of investment barriers in developed countries. Because the quantitative impact of policy changes on FDI barriers is not normally observable, the literature has applied ad-hoc reductions to assess the impact of liberalization. For our policy experiments, we apply two policy-specific measures of FDI barriers: the length of investment procedures for foreign investors and the effective corporate tax rate faced by foreign firms. To link these theoretical measures with actual policy barriers, we relate the fixed cost to the length of investment procedures and the variable cost to the corporate tax rates. Drawing on the estimated elasticity between FDI costs and actual measures of policy barriers, we translate the actual absolute reduction in these policy measures into a percentage point change in FDI costs, which will serve as counterfactual scenarios.

Comparing the baseline and counterfactual simulations for each policy experiment, we can summarize our main findings as follow. First, economies where there is a larger reduction in investment barriers tend to experience a welfare gain as measured by a change in real wages; the larger inflow of foreign firms contributes to increase nominal wages and market competition in local markets. By contrast, economies where there is a negligible elimination of investment obstacles could yield a welfare loss because their markets may become more unattractive than those of other economies that reduced FDI barriers significantly. Second, an improvement of investment processes encourages new entry of foreign investors relatively more than a reduction of local tax burdens on foreign firms.

Finally, this paper examines how different types of FDI barriers and policy instruments affect heterogeneous firm activity. di Giovanni and Levchenko (2013) show a significant distinction between fixed and variable costs on welfare gains from trade in the presence of heterogeneous firms. Chor (2009) demonstrates that subsidies for FDI yield different welfare implications between fixed and variables costs of foreign production through selection effects of individual firms. Consistent with these studies, we find that individual firms respond differently to falling investment costs in developing economies. Specifically, an improvement in investment procedures induces low productive firms to shrink their foreign production in developing economies for intensified competition but induces middle productive firms to increase their entry and production there substantially. The most productive firms expand their foreign production modestly. The reason is that marginally productive producers below the entry

threshold of productivity are the primary beneficiaries from lower entry barriers. Comparing the type of policy reforms, we find that multinationals expand their entry and production in developing economies more substantially following a decline in entry barriers than following a decline in corporate tax rates.

## **(2) Does aid for roads attract foreign or domestic firms? Evidence from Cambodia**

Foreign investors consider a wide variety of location factors in making direct investment such as economic infrastructure. Good infrastructure is crucial to the success of FDI promotion. However, less developed countries (LDCs) have faced a wide range of constraints in the economic infrastructure to supply reliable services in transport, energy, and water. For instance, OECD estimates that more than 1 billion people around the world have no access to roads and 2.3 billion people lack reliable electricity (OECD, 2007). It is estimated that 5.5% of GDP in LDCs is necessary for annual investment in infrastructure including rehabilitation and maintenance for the period 2005-2015 while the actual investment falls far short (IMF and World Bank, 2005).

To finance infrastructure investment, LDCs have received a substantial amount of official development assistance (ODA). The expectation is that foreign aid in infrastructure would reduce transaction costs of economic activity and eventually contribute to poverty reduction and economic growth. However, it is an empirical question whether ODA projects in infrastructure can achieve the desired effects, making a quantitative assessment crucial for policy designs in foreign aid. Also, a crucial issue is whether aid for roads contributes to attract foreign investors.

This paper focuses on aid projects in road infrastructure and assesses their impact on foreign and domestic firms in Cambodia. Our analysis is motivated by the several facts in Cambodia. The share of paved roads in total roads was 45.0% on average for the world in 2004, but was only 6.29% in Cambodia.<sup>1</sup> For a sizeable demand for investment in roads, the ODA disbursements of 627 million U.S. dollar have been completed for road rehabilitation and construction whereas those of 1.3 billion U.S. dollar are ongoing. Because the Cambodian government's revenues were merely 2.03 billion U.S. dollars in 2011, these ODA projects should yield quantitatively large impacts (The CIA World Factbook). Moreover, the target location of these projects widely ranges from the capital to rural areas. The benefits from improving roads depend on the geographic location of aid and economic activity. We hypothesize that aid in roads should improve business environments mainly in the recipient regions to encourage economic activity there. Therefore, we assess the impact of aid by investigating whether foreign and domestic firms have been attracted to the regions that receive a larger amount of aid disbursements in road infrastructure.

---

<sup>1</sup> The figures come from the World Development Indicator of World Bank.

This analysis is related to the large literature on the impact of foreign aid on private investment. Official aid possibly promotes private investment because aid projects in public infrastructure would increase the marginal product of capital. For instance, Harms and Lutz (2006) and Selaya and Sunesen (2012) investigate whether foreign aid promotes FDI. In their findings, aggregate aid has little effect on FDI for a negative effect of rent-seeking and crowding-out in private investment whereas aid in public infrastructure has the positive effect. By contrast, Kimura and Todo (2010) find little positive impacts of foreign aid on FDI in general, but a positive effect of foreign aid from Japan on FDI from Japan. Additionally, Reinikka and Svensson (2002) find that private investment of domestic firms is encouraged by better public infrastructure as measured by access to public electricity supply.

These previous studies mainly exploit variations across countries in aid and investment for identification. However, the majority of aid projects in infrastructure target not uniformly on a country, but unevenly on different regions within a country. Aggregating aid disbursements over the regions may mask the positive impact of aid on economic activity. In particular, aid in road infrastructure is specific to the target location and its potential benefits should mainly accrue to the recipient regions. Our contribution is to exploit geographically fine variations in aid spending to identify whether aid in roads have attracted domestic and foreign firms. Additionally, we use the Economic Census of Cambodia in 2011 (EC2011), which covers all the business establishments in all areas of Cambodia. As the EC2011 is the first census implemented in Cambodia, it was not possible to conduct a comprehensive analysis on the location of firms. Thus, to the best of our knowledge, we provide the first formal evidence on the impact of aid in road infrastructure on firms' location in the case of Cambodia.

We employ a negative binomial regression model to analyze the impact of aid on a count of firms across communes. Our results suggest that aid in roads has little influence on the entry of foreign and domestic firms after the year 2008. Measuring the quantitative impacts of alternative determinants, we find that the entry of foreign firms is encouraged strongly by the population size, skilled labor, and electricity accessibility. These commune-level characteristics also promote the entry of domestic firms.

### **(3) Agglomeration effects of informal sector: Evidence from Cambodia**

Governments in developing countries attempt to attract foreign investors and build an industrial cluster, with the intention to generate positive agglomeration externality for local firms. Although these policy goals are often raised for economic development, our research points to the fact that industrial development of local firms is still immature and economic linkages between foreign and local firms are weak in Cambodia. This implies that there would be little positive spillovers from foreign firms to local firms. One of crucial constraints to

promote FDI spillovers is the dominant role of informal sectors, which tend to have weak economic linkages with formal sectors including foreign firms. Thus, the analysis of informal sectors is crucial to improve our understanding of industrial development for Cambodia in the context of globalization.

A spatial concentration of industrial activity has crucial implications for developing economies. Williamson (1965) argues that agglomeration favors economic growth at an early stage of economic development because limited resources such as capital, human capital, and infrastructure can be most efficiently utilized in an agglomerated area. Fujita and Thisse (2003) demonstrate that agglomeration can promote growth in a two-region model of endogenous growth. Indeed, the importance of agglomeration has been emphasized because firms and workers in the agglomerated area benefit from agglomeration externalities through more efficient sharing of local suppliers, better matching between employers and workers, and knowledge spillovers among firms and workers (Duranton and Puga, 2004).

However, it is controversial whether a spatial concentration of industrial activity would produce similar benefits for low income economies, as is previously demonstrated for agglomeration economies in high and middle income countries (Rosenthal and Strange, 2004; Melo et al, 2009). Developing economies are substantially different from developed economies in that an informal sector plays a large role in the economy (Schneider and Enste, 2000). A large number of business firms do not register formally to the government and they are different from formally registered firms in economic characteristics such as productivity, profitability, and size. For instance, Annez and Buckley (2009, p.15) discuss that “some critics argue that informality is unproductive and raises the costs to the formal sector, crowding out agglomeration economies.” By contrast, Overman and Venables (2005, p.20) suggest that “the informal sector also contributes to agglomeration economies.”

In this paper, we seek to shed light on the role of informal sector in agglomeration economies using the Economic Census of Cambodia in 2011. This census covers all the nonfarm establishments across all industrial sectors in all areas of Cambodia and asks whether individual establishments register to the Ministry of Commerce. Unregistered economic activities are a commonly used definition of informality and the business registration can be used as an objective criterion to classify formal and informal economic activities (Schneider, 2005). We exploit this dataset to address the following questions. To what extent is informal activity concentrated over space? Does a spatial concentration of informal activity contribute to the economic performance of informal firms? Do formal firms also benefit from agglomeration effects of informal firms?

The main results of our analysis can be summarized as follows. First, we find the evidence that a spatial concentration of informal firms produces the positive impact on regional economic

performance of both formal and informal firms in manufacturing and wholesale/retail trade industries. In particular, we find the strong evidence to give a causality interpretation for the estimation results when the performance is measured by sales per workers. Second, the positive impact of informal agglomeration tends to be larger for the performance of informal firms than that of formal firms. This result would reflect that informal firms tend to have weaker backward and forward linkages with formal firms than with the other informal firms. Finally, we calculate spatial multiplier effects of an increase in informal agglomeration and find that more accessible regions are more likely than less accessible regions benefit from informal agglomeration. The spatial impacts depend crucially on road infrastructure, geographic conditions, and relative location of the regions within a country.

## References

- Annez, P. C., Buckely, R. M., 2009. Urbanization and growth: setting the context. In *Urbanization and Growth*, ed. M. Spence, P. C. Annez, and R. M. Buckely, the Commission on Growth and Development, Washington, D.C.
- Arita, S., Tanaka, K., 2014. Heterogeneous multinational firms and productivity gains from falling FDI barriers. *Review of World Economics* 150 (1), 83-113.
- Chor, D., 2009. Subsidies for FDI: implications from a model with heterogeneous firms. *Journal of International Economics* 78 (1), 113-125.
- di Giovanni, J., Levchenko, A., 2013. Firm entry, trade, and welfare in Zipf's world. *Journal of International Economics* 89 (2), 283-296.
- Duranton, G., Puga, D., 2004. Micro-foundations of Urban Agglomeration Economies. In J.V. Henderson and J.-F. Thisse (ed) *Handbook of regional and urban economics*, vol. 4, North-Holland, New York; 2063-2117.
- Eaton, J., Kortum, S., Kramarz, F., 2011. An anatomy of international trade: evidence from French firms. *Econometrica* 79 (5), 1453-1498.
- Fujita, M., Thisse, J.-F., 2003. Does geographical agglomeration foster economic growth? and who gains and loses from it?, *The Japanese Economic Review* 54(2), 121-145.
- Harms, P., Lutz, M. 2006. "Aid, governance and private foreign investment: some puzzling findings for the 1990s." *Economic Journal* 116 (513), 773-790.
- IMF and World Bank. 2005. "*Global Monitoring Report 2005*." Washington, DC.
- Kimura, H., Todo, Y., 2010. "Is foreign aid a vanguard of foreign direct investment? a gravity-equation approach." *World Development* 38 (5), 482-497.
- Melo, P. C., D. J. Graham and R. B. Noland, 2009. A meta-analysis of estimates of urban agglomeration economies, *Regional Science and Urban Economics* 39(3), 332-342.

- OECD. 2007. *"Promoting Pro-Poor Growth: Policy Guidance for Donors."* Paris: OECD.
- Overman, H. G., Venables, A. J., 2005. Cities in the developing world. CEP Discussion Paper No. 695, Department for International Development, London.
- Reinikka, R., Svensson, J., 2002. "Coping with poor public capital." *Journal of Development Economics* 69 (1), 51-69.
- Rosenthal, S., Strange, W. C., 2004. Evidence on the nature and sources of agglomeration economies. In *Handbook of Regional and Urban Economics*, vol. 4, ed. J. V. Henderson, J.-F. Thisse. Amsterdam: Elsevier.
- Schneider, F., Enste, D. H., 2000. Shadow economies: size, causes, and consequences. *Journal of Economic literature* 38 (1): 77-114.
- Schneider, F., 2005. Shadow economies around the world: what do we really know? *European Journal of Political Economy* 21(3), 598-642.
- Selaya, P., Sunesen, E. R. 2012. "Does foreign aid increase foreign direct investment?" *World Development* 40 (11), 2155-2176.
- Williamson, J. G., 1965. Regional inequality and the process of national development, *Economic Development and Cultural Change* 13(4), 3-45.
- World Bank Group., 2010. *Investing Across Borders*, Washington D.C.