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**Contribution of Foreign Direct Investment to Poverty Reduction: the
Case of Vietnam in the 1990s**

by

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No. 30

Bonn, November 2002

Contribution of Foreign Direct Investment to Poverty Reduction: The Case of Vietnam in the 1990s

Abstract

In the current context of increasing globalisation, there exist many arguments against it in that it does not benefit the poor. Globalisation through foreign direct investment (FDI) might do nothing for the poor since foreign investors usually recruit skilled workers who are likely to be non-poor. FDI may outcompete local small enterprises making local workers become poor or the poor workers worse. Nevertheless, whether this presumption is true in every developing country is still open to discussion.

The paper aims at analysing impacts of FDI on poverty reduction in Vietnam in the 1990s because following the economic reform in the late 1980s Vietnam achieved high economic growth, rapid poverty reduction, increasing FDI and trade. FDI is also considered an integral component of the economy. Hence to what extent FDI contributes to poverty reduction may be a relevant question to the country that was characterised by widespread poverty in the 1980s.

The paper analyses FDI's impact on poverty reduction in Vietnam through direct and indirect impacts. The direct impact of FDI works through employment creation and it is estimated to be negative but insignificant. The indirect impact of FDI works through FDI's effect on economic growth and through FDI's contribution to the local budgets. Regarding FDI's contribution to growth, estimated coefficients are significantly positive based on panel data covering 61 provinces of Vietnam and the 1990-2000 period. Furthermore, FDI interacts positively with local human capital in affecting economic growth. Economic growth is then estimated to exert significantly positive impacts on the magnitude of poverty reduction results. Therefore, FDI has indirectly helped reduce poverty in Vietnam. Regarding FDI's contribution to the local budget, this effect remains insignificant.

Globalisation through FDI thus benefits the poor. Policy implications then include policies that help attract FDI continuously, policies that facilitate the implementation of registered foreign investment projects and policies that upgrade the quality of the labour workforce.

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Contribution of Foreign Direct Investment to Poverty Reduction: The Case of Vietnam in the 1990s

1. Introduction

The last decades of the twentieth century were marked by increasing globalisation. There is increasing evidence that globalisation helps raise economic growth (Dollar and Kraay, 2001b and 2002; Schiff *et al.*, 2002; Hoekman *et al.*, 2001). However, there exist many arguments against globalisation in the sense that it does not benefit the poor (Mazur 2000; Forsyth quoted in Ravallion, 2001). Globalisation through foreign direct investment (FDI) may quite be possible to do nothing for the poor. This is because foreign invested enterprises (FIEs) usually recruit skilled workers who are likely to be non-poor. In addition, FDI may outcompete local small enterprises making local workers become poor or the poor workers worse. Nevertheless, whether this prejudice is true in every developing country is still open to discussion.

This paper aims at analysing impacts of FDI on poverty reduction in Vietnam in the 1990s quantitatively. The reason for choosing this topic is because during the 1990s, Vietnam changed significantly and comprehensively and FDI was seen as a considerable influence. Since 1986, to deal with the problems of underdevelopment, the Government of Vietnam (GoV) has carried out ambitious structural and institutional reforms that encompass promoting the domestic private and foreign sectors, liberalising prices, decollectivising agriculture etc. After fifteen years of 'renovation', Vietnam has obtained significant economic improvements while maintaining macroeconomic stability. Rural hunger has been eradicated, and the country has quickly changed from the position of importing food to the leading exporter of rice, coffee and pepper in the world. Gross Domestic Product (GDP) grows at an average rate of 7% annually (World Bank, 2000/2001; World Bank, 1999) while poverty was reduced from 58% in 1993 to 37% in 1998 (World Bank, 1999a). Inflation has been reduced from three digits in 1986 to single digit in the 1990s.

Within the renovation package that has brought such results, opening the economy to foreign investors is a policy of considerable importance. This policy of the GoV in addition to other factors (economic and political stability, high economic growth, rich natural resources, relatively well-educated and low-cost labour force) has attracted FDI to Vietnam quickly. From USD 371 million in 1988, registered capital of FDI rose to USD 8,497 million in 1996. In relative terms, implemented FDI in Vietnam recorded an exceptionally high level (7.2% of GDP in 1997) compared with other developing countries (4.9% in China, 2.2% in Indonesia, 5.2% in Malaysia, 2.4% in Thailand and 1.5% in the Philippines)¹.

Very recently, the Government of Vietnam (GoV) has officially acknowledged that FDI is an integral component of the economy and the government has therefore affirmed its

¹ World Bank (1999b): World Development Indicators, pp. 270-72.

long-term strategy to attract FDI. As one way of evaluating FDI's contributions to the country, examining FDI's impacts on poverty reduction is relevant in the context of a country where the poor and people who live just above the poverty line account for a large part of the whole population.

The paper presents theoretical arguments on FDI's influences on poverty in Section 2. Models that capture such influences are then developed and introduced. Basing on these models, estimation results using Vietnamese data are shown in Section 3. The results confirm that globalisation through FDI benefit the poor in Vietnam. Conclusions and policy implications follow in Section 4.

2. How does Foreign Direct Investment Affect Poverty?

2.1 Arguments from the Literature

FDI's influences on poverty reduction can be classified into indirect and direct impacts. The indirect impact works through FDI's contribution to economic growth given the increasingly accepted role of economic growth in poverty reduction (World Bank 2000/2001; IFC 2000; Dollar and Kraay 2001a). In addition, FDI contributes to tax income of the state budget and may thus facilitate government-led programs for the poor (Klein *et al.* 2000, pp. 2-3). Moreover, FDI may induce host governments to invest in infrastructure. If this investment is in poor areas it may benefit the local poor. The direct impact of FDI on poverty is assumed to be its effects on unemployment (Chudnovsky and Lopez, 1999; IFC, 2000; Saravanamuttoo, 1999).

Indirect Effects of FDI on Poverty

Regarding FDI's indirect impact on poverty, FDI may affect economic growth through raising total capital formation. This is because FDI provides external finance and may help reduce financial constraints on investment due to low savings in LDCs. Moreover, FDI may crowd in domestic investment through backward and forward linkages further pushing economic growth. In addition, inward investment may induce local governments to invest in infrastructure like roads, bridges, harbors, water and electricity supply which might facilitate domestic investment as well. Externalities and spillover effects that foreign-invested enterprises may have on domestic ones *horizontally* and/or *vertically*² have also been recognized as a benefit accruing to host LDCs (Burger, 1999). More importantly, FDI may bring technology, know-how, management and marketing skills to LDCs representing something more than a simple import of capital (Blomström and Kokko, 1996). According to Caves (quoted in Andersson 1989, p. 34), this is considered as the most powerful effect on growth of FDI.

² Horizontal effects occur when there is dissemination of skills, say in advertising, managing, maintaining, quality-product controlling, from foreign-invested enterprises (FIEs) to domestic ones that produce the same products, and hence, compete with FIEs.

Vertical effects occur when there is dissemination of skills from FIEs to domestic ones that supply inputs to FIEs or sell FIEs' products.

Technology Diffusion Impacts of FIEs on local counterparts include (i) technology (including organizational technology) transfer and (ii) technology dissemination.

i) Technology transfer is a formal transfer of technology that works through markets (for example, licensing, joint ventures).

FDI involves technology transfer to host countries in the sense that transnational corporations (TNCs) transfer their physical goods and tacit knowledge, which comprises new skills, technical and organisational capabilities to foreign affiliates and other local related parties in concomitant with injecting capital activities (UNCTAD, 1999, p. 203). Technology transfer through FDI is thus an internalised transfer or an intra-firm transfer, as distinguished from externalised transfer like licensing. Through FDI, more technologies become available in host countries, or host countries can use a larger range of technology and expand their productive base. Moreover, generally new, valuable technologies are more likely to be transferred through FDI than through licensing to unrelated parties to TNCs because of imperfect technology markets aforementioned. In addition, the continued stake of foreign investors in FIEs may induce them to keep the enterprises updated with technology. In principle, FDI provides an access to the whole range of TNC technological, organizational and skill assets.

ii) Technology dissemination and spillover: these effects occur in informal, non-market mediated channels. They imply the productivity or efficiency benefits accruing to host country enterprises due to the presence of FIEs and these cannot be reaped by FIEs (Blomström and Kokko, 1996). Technology dissemination thus represents an externality or unintentional technology transfer from FIEs. Generally, the less firm-specific the technology the wider the spillover is. Spillovers may be found in different forms: imitation, reverse engineering³ and spillover from competition.

Technology dissemination and spillover can occur through different channels:

a) Vertical linkage: FIEs may give technical assistance to their suppliers or buyers. Close linkages between FIEs and their local upstream suppliers or subcontractors and downstream distributors seem more likely to lead to (uncompensated) technology dissemination (Blomström *et al.*, 1999, p. 13). They may also induce workers in FIEs to turn to FIEs' customers or suppliers, and thereby disseminating technology from FIEs.

Technology dissemination through vertical linkages in this sense depends on local content requirements, ownership requirements, the technical capability (the absorptive capability) of local suppliers or customers and (local) market size. Though formal technology diffusion requirements seem to promote technology dissemination notoriously, empirical results do not support this (Kokko and Blomström, 1995; Blomström *et al.*, 1999). This is because these policies may discourage FDI inflows and therefore dissemination effects. Only local technical capability is a widely accepted determinant of technology dissemination in empirical studies (Kokko and Blomström,

³ Reverse engineering implies activities of taking apart and analysing products in order to learn about the technologies embodied in them.

1995; UNCTAD, 1999). Market size may affect technology dissemination since in large economies, there may be multiple suppliers and distributors of FIEs, so vertical linkages may be more likely to occur, assuming that local technological capability is not so backward.

b) *Labour turnover*: technology is embodied not only in equipment, expatriate managers and technicians but also in workers in FIEs. This is acquired through either FIEs' formal training or non-formal training aforementioned. Labour turnover may disseminate technology to other companies in the domestic economy when workers trained or employed by FIEs switch to domestic employers or start running their own business.

This fact may induce foreign investors to pay efficiency wages to productive employees in order to keep them in the FIEs. In other cases, it may discourage foreign investors to invest in local human capital or in host countries that in turn may have more adverse effects on long-run economic growth of host countries. Thus, labour turnover limitations have been conducted in some developing countries.

c) *Demonstration effect*: this effect refers to the fact that successful introductions of new products or new processes by FIEs may reduce the risk and information costs associated with the adoption of those products or processes thereby stimulating domestic enterprises to follow up through imitation or reverse engineering (i. e. learning-by-watching). This is because in the absence of FIEs, it may be very costly for domestic firms to collect information on new products or processes (Saggi, 2000). The point is that FDI may expand the set of technology available to local enterprises.

The demonstration effect hence tends to depend on the pool of FDI, the technology gap between foreign and local firms and on the competitive environment. The larger the pool of FDI, the greater the possibility that domestic investors can choose the most suitable activity to imitate. The technology gap matters because there might be little scope for domestic enterprises to learn and imitate when foreign technology far exceeds domestic technology. However, this may not be the case if the local workforce possesses a sufficiently high level of education and training. This situation may to some extent be found in Vietnam since the GoV has long pursued policies that promote education while investment activities, except that of state-owned enterprises, have been discriminated. The competitive environment might motivate domestic firms to adopt foreign technology in order to successfully compete with foreign firms. This in turn may induce foreign firms, facing increased spillovers, to use technology with lower quality thereby affecting adversely the demonstration process. Hence the net impact of a competitive environment on the demonstration effect is somehow inconclusive.

d) *Market structure effect*: The presence of foreign affiliates may make the market more competitive. As a result, local firms, in facing increased competition, tend to use their existing factors of production more efficiently or adopt new foreign technology quicker. This may, on the one hand, stimulate foreign enterprises to introduce new technology quicker to get a superior position; on the other hand, it may induce them to use technology with lower quality to reduce leakage to domestic firms.

Given the positive effects of FDI on local economic growth, the indirect impact of FDI on local poverty then depends upon how economic growth affects poverty. Theoretically, this may occur through different channels. Firstly, economic growth may affect poverty through its impact on investment and employment. On the supply side, according to the flexible accelerator principle, 'an increase in the growth rate of output-an acceleration-is needed to increase the level of investment' (Branson, 1989). On the demand side, as an economy grows there is increasing demand for existing products or arising demand for new products (UNCTAD, 1999) thereby raising demand for investment. Since investment and technology innovation are the main drive for jobs and worker income, poverty may be improved. Secondly, economic growth may improve (national and local) budgets thereby facilitating (national and local) government spendings on social programs, that may directly aim at the poor, and on public investment in infrastructure especially in poor areas. This may create more jobs for the local poor as well as improve their life environment. World Bank (2000/2001) concluded that economic growth is the single most important influence on poverty.

In addition to the effects on growth, FDI may affect local poverty through its contributions to the budget of the host country and through its effect on government investment. FDI's contribution, notably in terms of tax and fee payments, allows the host to raise its spendings on social programs. If these programs are targeted at the poor, say, investing in irrigation systems, in rural roads, schools, clean water, health care, FDI may considerably contribute to local poverty reduction. Moreover, FDI may induce local governments to invest in infrastructure (roads, electricity, water and sanitation supply, etc.) in a way that it benefits the local poor.

Direct Effects of FDI on Poverty

FDI's direct impacts on poverty may work through providing opportunities, particularly providing jobs and training to local workers. To the extent that foreign capital inflows do not replace local investment absolutely and foreign investment takes the mode of green-field investment FDI may contribute to reducing existing unemployment and underemployment, providing people with income and therefore directly contributing to poverty reduction. In this sense FDI's impact on poverty works through its impacts on employment. This impact has been considered a major impact of FDI on poverty (Chudnovsky and Lopez 1999, IFC 2000, Saravanamuttoo 1999).

FDI's impacts on employment refers not only to employment created within FIEs (direct employment) but also to employment created in related entities vertically or horizontally or macroeconomically (indirect employment) (UNCTAD 1994, pp. 192-95). With direct employment, FDI may reduce unemployment or underemployment when it comes under the mode of green-field investment. Green-field investment implies investment which relates to producing distinctive products without close substitutes in the host country. Conversely, FDI may raise unemployment when it is a merge-and-acquisition (M&A) activity. This is because M&A activities are usually followed by restructuring the merged enterprise in accordance with the objectives underlying the M&A (UNCTAD, 1999, p. 261). However, when FDI takes the mode of merge-and-acquisition of moribund enterprises it may help prevent potentially increased unemployment and therefore

poverty. In other situations, foreign investors may preempt investment opportunities for any local firms, the resulting direct unemployment impact may not be of great value since similar results would have been occurred otherwise. With regard to indirect employment in vertically related entities, including backward (or upstream) linkages like suppliers, subcontractors, service providers and forward (or downstream) linkages like distributors, service agents, FDI's implication is more complicated. It may raise employment in backward-linkage entities when it purchases raw materials, spare parts, components and services from them helping them extend operations. On the contrary, FDI may have no effect or even negative effects when it relies on imported inputs. Similarly, FDI may have a positive impact on employment in forward-linkage entities when using local distributors or may not have any positive impact otherwise. With regard to indirect employment in horizontally related entities like local enterprises competing in the same industries with foreign affiliates, FDI may have a negative impact when it outcompetes these local entities. This kind of effect is especially significant when foreign affiliates with capital intensive and knowledge intensive technologies replace small, and usually labour intensive, enterprises. This may quite be the case since foreign investors are supposed to possess a large pool of technology that may grant them a higher productivity compared with their domestic counterparts equipped with poorer technologies. In contrast, FDI may have a positive impact when it helps the domestic enterprises raise the productivity or the quality of products, unintentionally or compulsory by host governments, thereby expanding their access to the foreign market for example. Macroeconomic effects of FDI on employment refer to employment indirectly generated in the host economy as a result of spending of FIEs' workers or shareholders or employment indirectly replaced due to crowding out effects (UNCTAD 1994, p. 192).

In the framework of the Heckscher-Ohlin model, FDI to developing countries may generate adverse effects on unemployment and poverty. This is because (unskilled) labour abundance is assumed to be prevalent in LDCs and this engenders lower relative price of (unskilled) labour compared with developed countries and results in higher relative production of labour-intensive products than in developed countries. FDI inflow may therefore lead to an increase in production of capital-intensive products and a shrinking in the traditional, labour-intensive, sector provided that relative product prices are unchanged, relative factor prices are constant and production technology is the same (Krugman and Obstfeld, 1997, pp. 74-76; 86). This kind of outsourcing activities may, however, be regarded by developed countries as relatively labour-intensive ones (Feenstra and Hanson, 1997). Demand for skilled labour in the capital-intensive sector in LDCs may thus increase while that for unskilled workers may be left unchanged or even adversely affected. In this sense, FDI's implication on unemployment, especially of unskilled workers, and therefore FDI's implication on poverty, will be adverse.

Hence the impacts of FDI on employment are complicated and it is hard to predict the net result. Moreover, assessing FDI's impacts may need to take into account its possibly dynamic impacts. Although employment contraction may occur in the short-run as domestic firms adjust to the competitive pressures from FIEs, in the longer run, employment prospect may improve as domestic firms adapt to the new environment and economic growth induced by FIEs occurs.

Given the potential role of FDI with respect to employment creation and the practice of high unemployment and underemployment in host LDCs, some governments in the host LDCs establish export-processing zones (EPZs) to attract resource-seeking investment by low labour cost, and somewhere, loosen labour standards, among other factors. Though there are widespread issues in these EPZs (ILO 2001), they provide workers with income that otherwise some of them would not have. The fact that FDI in the labor intensive sectors that entail little training like clothing, food processing, electronic assembly industries tend to employ mainly young women may improve the poverty state of low-skilled women workers.

FDI's implications on poverty do not work only through increased employment but the quality of employment and the location of employment created are also of concern. FIEs may reduce underemployment in host LDCs by offering jobs with higher pay, better working conditions, training and promotion. FDI in low-wage, low-skill labour industries without or with negligible training or upgrading human capital may help reduce poverty in the short-run but not in the long-run. With less investment in physical and human capital like inward investment in garments, footwear, or electronic assembly, this kind of FDI locks workers in a low-skill state and it can easily move to new places having lower labour costs thereby leaving workers become redundant. In this sense, it is not only that an employment is offered to the poor but also which kind of employment being created and the sustainability of the employment are of relevance to help the poor. In other cases, the presence of FIEs may erode the wage level as domestic enterprises now try to compete by reducing labour costs.

Location of employment created by FDI seems to be of direct relevance to poverty reduction. FIEs in areas with high unemployment or underemployment, loosely speaking, poor areas, may raise income directly in such areas. Similarly, in case FDI stimulate migration of domestic investors to poor areas with widespread unemployment or underemployment, it is considered to reduce poverty as well. However, these effects seem rarely to occur except the case of resource-seeking FDI or the host governments have policies to promote investment in such areas to exploit excess labour supply. To the extent that FDI locates in congested urban areas with good infrastructures it may just worsen income distribution and its implication on poverty seem thus negligible. Likewise, FIEs that crowd out local producers in poor areas by their competitiveness or by reliance on imports adversely affect poverty.

Apart from the impact on unemployment and underemployment, FDI may have indirect impact on poverty through its impact on public investment. As infrastructure is a determinant of FDI aforementioned, FDI may induce host governments to invest in infrastructure. If this investment is in poor areas it may benefit the local poor.

2.2 Foreign Direct Investment and its Impact on Growth in an Endogenous Model

FDI's contribution to long-term growth through its effect on the rate of technological dissemination from developed economies to less developed ones is modeled in an endogenous model by Barro and Sala-i-Martin (1995, Chapters 6 and 8). This leader-

follower model concentrates on describing technology spread from leading economies, namely country 1, to follower economies, namely country 2, and incorporates the role of FDI in the process of technology diffusion. In the model, the level of technology is assumed to correspond to the number of varieties of intermediate products that are invented by country 1, N_1 . Entrepreneurs in country 1 are assumed to be innovators and first users of intermediate goods while entrepreneurs in country 2 are assumed not to invent but to imitate or adapt the intermediate goods that are discovered by country 1. N_2 is thus supposed to be a subset of N_1 . Assuming that the number of varieties of intermediate goods in country 2, N_2 , is much smaller than N_1 , imitation can last for a rather long time. The model assumes the production function of the follower (country 2) as:

$$Y_2 = A_2 \cdot K_2^\alpha \cdot (u_2 L_2 h_2)^\beta = A_2 \cdot \sum_{j=1}^{N_2} (X_{2j})^\alpha \cdot (u_2 L_2 h_2)^\beta \quad (2.1)$$

where $0 < \alpha, \beta < 1$; Y_1 and Y_2 are the production output in country 1 and 2; A_1 and A_2 are productivity parameters denoting the government policies in country 1 and 2; L represents the number of workers. h denotes the human capital stock of a worker. u implies the fraction of the worker's time allocated to production. $(1-u)$ is the fraction of the worker's time allocated to human capital accumulation.

Assuming that the production of human capital requires no physical capital, the transitional dynamics of physical and human capital is then governed by the following constraints:

$$\frac{\partial \left(\sum_{j=1}^{N_2} X_{2j} \right)}{\partial t} = A_2 \cdot \sum_{j=1}^{N_2} (X_{2j})^\alpha \cdot (u_2 L_2 h_2)^\beta \cdot \delta \cdot \left(\sum_{j=1}^{N_2} X_{2j} \right) - C$$

$$\dot{H}_2 = B \cdot (1-u) \cdot H_2 \cdot \delta \cdot H_2$$

Let m_{2j} denote the marginal product of X_{2j} then:

$$m_{2j} = \frac{dY_2}{dX_{2j}} = A_2 \cdot \alpha \cdot (u_2 L_2 h_2)^\beta \cdot X_{2j}^{\alpha-1} \quad (2.2)$$

Assuming for simplicity that prices of capital goods are equal and equal to 1, then the flow of profit, Π , to the firms in country 2 from sales of production using X_{2j} is:

$$\Pi_2 = -\nu + \int_t^\infty (m_{2j} X_{2j} - X_{2j})^{1-\alpha} \cdot e^{-r(s-t)} ds, \quad (2.3)$$

where ν is a setup cost when a new type of capital can be utilized in production. If the new capital comes from foreign countries, ν represents the cost of imitating, or adapting the new capital of the country 1 into the country 2. ν is hence assumed to relate to the number of varieties of intermediate goods, i.e. N_1 and N_2 , but not the number of intermediate goods themselves.

In addition, ν is assumed to be adversely related to the amount of FDI in country 2. There are many explanations for this relationship. Firstly, this may be because foreign investors

are more familiar to their inventions and hence may be better suited than local investors in adapting their inventions in foreign countries given the advantages of local entrepreneurs in terms of language, customs (Barro and Sala-i-Martin, 1995, p. 277). Secondly, the negative impact of FDI on v may occur through direct linkages between foreign investors and local suppliers and/or buyers. Thirdly, the impact may come into effect through spillover aforementioned.

Maximizing (2.3) gives:

$$\frac{\partial \Pi_2}{\partial X_{2j}} = \frac{m_{2j} - 1 + X_{2j} \cdot m'_{2j}}{e^{r(s-t)}} = 0$$

Subjecting this to (2.2) yields:

$$m_{2j} - 1 + X_{2j} \cdot \frac{(\alpha - 1) \cdot m_{2j}}{X_{2j}} = 0$$

Rearranging this results in:

$$m_{2j} = \frac{1}{\alpha} \quad (2.4)$$

Free entry in the country 2 implies that $\Pi_2=0$, hence:

$$v = (m_{2j} X_{2j} - X_{2j}) \cdot \int_t^{\infty} e^{-r(s-t)} ds = \frac{(m_{2j} X_{2j} - X_{2j})}{r} \quad (2.5)$$

Substituting (2.4) into (2.5) gives:

$$v = \frac{((1/\alpha) - 1) \cdot X_{2j}}{r}$$

$$\text{or } r_2 = \frac{1}{v} \cdot \left(\frac{1}{\alpha} - 1 \right) \cdot X_{2j} = \frac{1}{v} \cdot \alpha^{2/(1-\alpha)} \cdot \left(\frac{1-\alpha}{\alpha} \right) \cdot A_2^{1/(1-\alpha)} \cdot (u_2 \cdot L_2 \cdot h_2)^{\beta/(1-\alpha)} \quad (2.6)$$

Assuming that individuals maximize the following intertemporal utility function:

$$U_t = \int_t^{\infty} \frac{C_s^{1-\sigma}}{1-\sigma} e^{-\rho(s-t)} ds$$

The optimal consumption path is

$$g(C) = \frac{\dot{C}_t}{C_t} = \frac{1}{\sigma} \cdot (r - \rho)$$

In a steady state equilibrium, $g(C)=g(Y)$ then

$$g(Y) = \frac{1}{\sigma} \cdot \left[\left(\frac{1-\alpha}{\alpha} \right) \cdot \frac{1}{v} \cdot A_2^{1/(1-\alpha)} \cdot \alpha^{2/(1-\alpha)} \cdot (u_2 \cdot L_2 \cdot h_2)^{\beta/(1-\alpha)} - \rho \right] \quad (2.7)$$

The result shows that the growth rate is positively related to human capital and labour force and is negatively related to the setup cost v . The setup cost v is argued to be negatively related to the amount of FDI aforementioned. The theoretical positive impact of FDI on economic growth in equation (2.7) can be explained in the way that FDI help reduce the cost of introducing new capital goods in the host country thereby increasing the rate at which new capital goods are introduced and the growth rate of the host

country. If we consider the production function (2.1) at the (provincial or) country level, the growth rate of (provincial) GDP in country 2 $g(Y_2)$ depends upon relative value of (provincial) FDI and domestic investment, on FDI, domestic investment, human capital and labour force.

In equation (2.7), the effect of FDI on economic growth is positively associated with the level of local human capital in the sense that the higher the level of local human capital the higher the impact of FDI on economic growth.

2.3 Growth, FDI and Poverty Reduction in a Simple Model

Regarding model specification, there has been so far no standard framework for modeling influences on poverty and poverty reduction. This may be due to the lack of clear theoretical guidance on the choice of regressors resulting in a wide set of possible specifications. Estimating effects on poverty of influential factors is commonly conducted in the following form:

$$yP_{ct} = \alpha_0 + \alpha_1 \cdot y_{ct} + \alpha_2 \cdot G_{ct} + \alpha_3 \cdot Z_{ct} + \eta_c + \gamma_t + \varepsilon \quad (2.8)$$

(Source: Dollar and Kraay 2001, Ghura *et al.* 2002, Ravallion and Datt 1999)

where t and c imply, respectively, time and country; yP_{ct} and y_{ct} are the (natural logarithm of) average income of the poor and the population, respectively. G denotes the Gini coefficient, Z_{ct} represents a vector of other determinants of income of the poor, $\eta_c + \gamma_t + \varepsilon$ is a composite error term consisting of country specific and time specific effects.

In order to examine the changing poverty in terms of poverty measures, Wodon (1999) suggested to run the following regression:

$$\log \theta_{kt} = \alpha_0 + \alpha_1 \cdot \log W_{kt} + \alpha_2 \cdot \log G_{kt} + \eta_c + \gamma_t + \varepsilon \quad (2.9)$$

(Wodon, equation (11), p. 12)

where θ denotes the poverty index, W is the mean level of consumption for area k in period t. α_1 represents gross impact of growth on poverty when Gini coefficients are incorporated and net impact when Gini coefficients are excluded.

Though this kind of specification allows estimation of long-term effects of growth and inequality on poverty, its limitation is that growth elasticity of poverty was treated constant across cross sections. Ravallion (1997, 2001) and Bruno *et al.* (1996) demonstrated that growth elasticity of poverty depended strongly upon the degree of initial inequality and the initial level of development. Hence, the distribution corrected rate of growth was suggested to be estimated from:

$$\frac{d\theta}{\theta} = \alpha_0 + \alpha_1 \cdot (1 - G_t) \cdot \frac{dy}{y} + \text{residual} \quad (2.10)$$

(Ravallion, 1997 and 2001)

3. FDI in Vietnam and Empirical Results on its Impacts on Local Poverty

3.1 Overview of FDI in Vietnam in the 1990s.

After the issuance of the Law on Foreign Direct Investment in 1987, inward investment in Vietnam increased significantly. By the end of 2001, there have been 3802 foreign investment projects accounting for USD 41128 million, of which there are 778 terminated and dissolved projects amounting to USD 8713 million. There are about 3000 foreign investment projects under operation with registered capital of USD32415 million in total. In relative terms, FDI contributes up to 30% of the country's investment, 10.5% of GDP in 1999, 21% of export turnover, creating 300,000 direct jobs (the Vietnam Ministry of Planning and Investment, 2000). Among other factors, the rapidly increasing FDI since 1988 has been considered an engine of economic growth and a key component of the Government industrialization and modernization as well as financing plans (World Bank, 1997). So far, FDI has come to almost all the industries that are opened to foreign investors and to almost all the provinces of Vietnam.

The reasons for FDI to come to Vietnam include, beside the consistent and sustained efforts to reform and the continuously opened and liberalized legal framework aforementioned, economic and political stability (Dinh, 2000, p. 5), the normalization of relations between Vietnam and the United States, an untouched large market, a potentially growing economy, hard and competent workers, low-wage labour costs (FIAS, 1999, p. ii). These factors are attractive to both investors aiming at the domestic market or at exporting.

Though registered FDI flows increased significantly in the 1990s it displayed a rather unstable through time. Registered FDI increased sharply in 1990-1995 in terms of number of projects as well as invested capital (Table 3.1, columns (3) and (5)). Then FDI inflow to Vietnam declined significantly. This was because of several factors. Firstly, the Asian financial crisis since 1997 induced Asian foreign investors who accounted for two thirds of FDI to Vietnam (Appendix B) to delay investment activities and/or to withdraw from their investment intention. Secondly, foreign investors realised that the reform to open up the Vietnamese economy was slower than they expected. There existed many difficulties with the administrative mechanism especially after licensing and at the local government levels. Facing this fact, efforts of Vietnamese authorities to improve investment climate were enhanced significantly. Typically, annual meetings between the Prime Minister and foreign investors as well as between Ministries and foreign investors have been held in order to solve existing problems; conferences and workshops on the way to increase attractiveness and competitiveness for Vietnam's investment environment have also been organized. Since 1999 FDI has shown a signal of improvement.

Table 3.1: FDI in Vietnam (1988-2001)⁴

Year	Number of projects		Registered capital			Implemented capital as % of		Size of a project (1000 USD)
	No.	Growth rate (%)	USD 1000	Growth rate (%)	as % of GDP	total investment	registered capital ⁵	
(1)	(a)	(3)	(a)	(5)	(6)	(b)	(b)	(9) =(4):(2)
1988	37	-	366,610	-	1.6	-	-	9,908
1989	69	86.5	580,886	58.5	9.2	-	-	8,419
1990	108	56.6	635,148	9.4	9.8	-	-	5,881
1991	151	39.8	1,274,522	100.7	13.3	-	-	8,440
1992	197	30.5	2,027,407	59.1	20.5	23.8	14.9	10,291
1993	274	39.1	2,588,879	27.7	20.2	28.7	20.2	9,448
1994	367	33.9	3,746,033	44.7	24.2	45.6	28.1	10,207
1995	408	11.2	6,607,543	76.4	32.7	45.2	38.7	16,195
1996	365	-10.5	8,640,197	30.8	37.0	40.4	40.1	23,672
1997	348	-4.7	4,654,119	-46.1	17.7	40.0	37.9	13,374
1998	275	-20.9	3,896,998	-16.3	14.3	34.8	42.4	14,171
1999	311	13.1	1,568,040	-59.8	5.5	30.3	44.7	5,042
2000	374	20.3	2,013,080	28.4	6.4	27.7	48.8	5,383
2001	518	38.5	2529101	25.63	7.7		53.9	4,882
Total	3802		41128563					

(Source: (a) MPI, Department of Foreign Investment and Department of Monitoring Foreign Investment Projects; (b) own calculations based on data on total investment of the Vietnamese General Statistics Office and data on exchange rate in International Financial Statistics: Yearbooks 1994-2001, IMF).

As shown in column (9), the size of projects increased up to 1998 despite the significant decline in FDI inflows since 1996. Hence, though the 1996-1998 period marked an unsuccessful duration in attracting FDI, it was the time big projects came to Vietnam implying that Vietnamese environment was still attractive from long-term consideration. Since 1999, the size of investment projects has declined because of the widened authorization to the Management Board of Industrial Zones and Export Processing Zones in giving investment license to small projects. With regard to implementation of FDI, disbursed capital as percentage of registered capital (column (8)) reflects that the implementation is not so poor, compared with the ratio of 36% in China and 31% in the Philippines in the initial 10 years of attracting FDI (Tran, 1999). This may lessen the widely reporting criticisms that implementation of FDI in Vietnam is really difficult.

⁴ FDI inflows to Vietnam began in 1988 after the Law on Foreign Investment was launched in December 1987. For the time period 1988-1990, only registered capital was recorded. Since 1991, implemented capital has been monitored. Hence implemented capital in 1991 is the cumulative implemented capital in the time period 1988-1991.

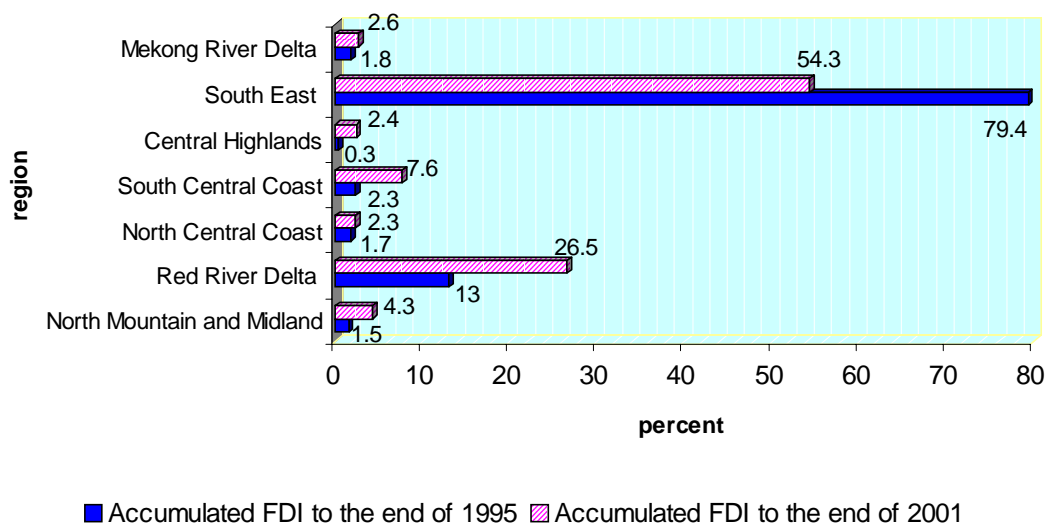
⁵ Implemented FDI as percentage of registered FDI here is calculated by dividing stock values of implemented FDI by stock values of registered FDI at the end of the year.

FDI by Province

Recent FDI in Vietnam has diversified to all the provinces. In terms of registered investment, all the 61 provinces of Vietnam host foreign investment projects at the end of 2001 (Appendix A). This result is largely because the Vietnam's Ministry of Planning and Investment (MPI) in compliance with the Vietnamese State's commitment on eradication of poverty by 2010, increasingly encourages FDI to come to poor, remote and hard up areas. The incentives provided to foreign investors are basically tax incentives. Recently, a list of promoted areas (including poor and remote ones) is issued formally in the Decree 24/2000/ND-CP that guides the implementation of the Foreign Investment Law. More strongly, in some special cases like oil refinery investment, the Vietnamese Government stipulated the location of foreign investment activities in order to develop the local areas.

Therefore, the distribution of registered, or approved, FDI in Vietnam becomes less uneven in 2001 than that in 1995 (Figure 3.1). Though registered FDI continues going strongly to the SouthEast region, the share of accumulated FDI of the SouthEast in total accumulated FDI of the whole country reduced considerably from 79.4% in 1995 to 54.3% in 2001. Meanwhile, the shares of accumulated FDI of the other regions all increased. Typically, the share of the South Central Coast tripled from 2.3% to 7.6%, the share of the Red River Delta doubled from 13% to 26.5%.

Figure 3.1: Shares of Accumulated Values of Registered FDI in Regions of Vietnam

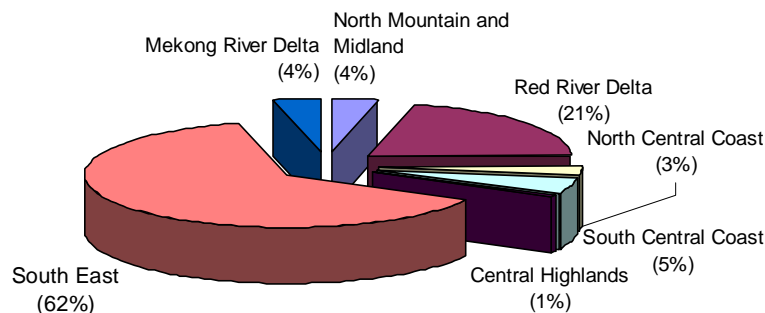


(Source: MPI, Department for Foreign Investment)

Nevertheless, the distribution of FDI among regions and provinces of Vietnam remains rather uneven. This holds for both registered FDI (Figure 3.1) and implemented FDI (Figure 3.2). Most of the foreign investment projects still concentrate on provinces in the SouthEast region and the Red River Delta like HoChiMinhCity, Hanoi, Dong-nai, Binh-

duong, Baria-Vungtau where infrastructure is in good condition. Investment in poor, remote and hard up areas like the North Mountain and Midlands, Central Highlands, North Central Coast remains sparse despite the economic potential of these regions. Practically, the Central Highlands are endowed with different industrial trees like coffee, tea, pepper, rubber while rice, tropical agricultural and aquatic products come mainly from the Mekong River Delta. Hence developing these areas also means developing the input base for sustained growth of other richer regions. In terms of percentage of total investment projects, projects in areas with difficult and especially difficult socio-economic conditions account for just about 20%. This may imply that offering tax incentives without other supportive measures, say investing in infrastructure, may not be sufficient to attract foreign investors.

Figure 3.2: Shares of Accumulated Implemented FDI in Vietnam to the End of 2001 by Region

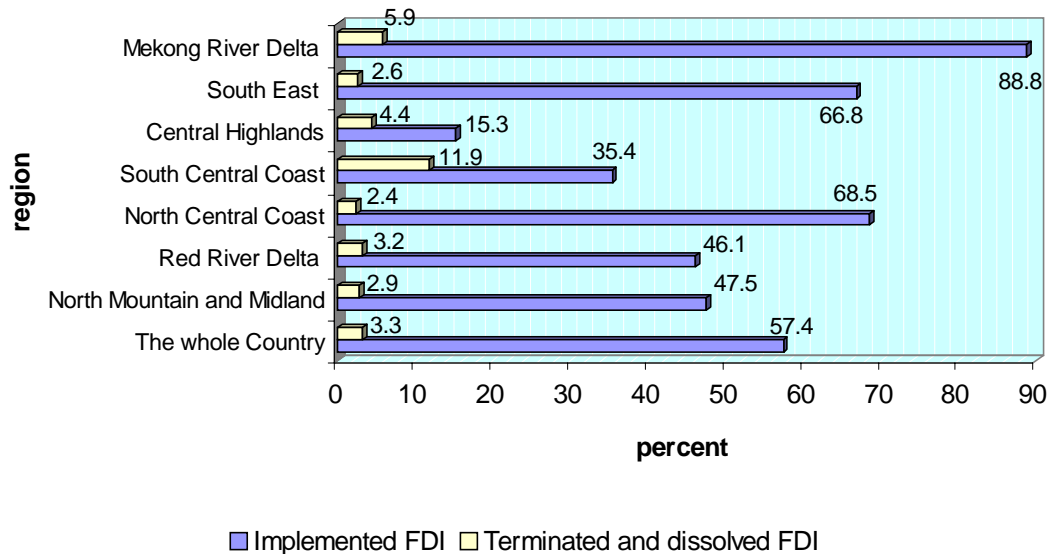


(Source: MPI, Department for Monitoring Foreign Investment Projects)

Moreover, the implementation of foreign invested projects in the poor areas seems to be worse than that in the rest. Implemented FDI by the end of 2001 (Figure 3.2) skews more towards the SouthEast region than approved FDI at that time (Figure 3.1). This implies that the diversification of approved FDI among regions and provinces of Vietnam is not well realised in practice. The poor provinces tend to have a lower rate of FDI implementation and a higher share of terminated and dissolved foreign projects than other provinces. Typically, the rates of FDI implementation in the Central Highlands and the South Central Coast are 15.3% and 35.4%, respectively (Figure 3.3) which are rather low compared with that of the other regions or with the average level of the whole country (57.4%). Meanwhile, the terminated and dissolved foreign projects in these regions (4.4% and 11.9%, respectively) account for a greater share in implemented FDI than that in the other regions or the country as a whole (3.3%). These illustrate the fragility of FDI activities there. The North Mountain and Midland has a slightly small rate of FDI termination and dissolution (2.9%) but FDI's implementation (47.5%) is poorer than the country on average. Similarly, while the implementation rate in the Mekong River

Delta (88.8%) is far higher than the national level, the ratio of FDI termination and dissolution (5.9%) is also higher than the national level. These all illustrate practical difficulties in promoting FDI into poor areas. Hence FDI's direct impact on poverty reduction in Vietnam might be limited. Its considerable impact may work through its impact on economic growth.

Figure 3.3: Implementation of FDI in Regions of Vietnam



(Source: as Table 3.2)

Theoretically, Industrial Zones (IZs) and Export Processing Zones (EPZs) can be a measure to help overcome drawbacks of poor infrastructure of some regions in attracting FDI. Nevertheless, this has been criticised not to be exploited very well in Vietnam. Early in 1991, the Vietnamese government approved the operation of IZs and EPZs and since then the authorities have advocated IZs, EPZs in hard up provinces in order to promote development there. There have been 61 IZs and EPZs approved so far but the number of built zones is smaller since the implementation of projects that build IZs and EPZs is slow. In addition, most of these zones are located in more developed areas: 15 zones in the North (mainly in Hanoi and Hai-phong), 8 zones in the Central Region and 38 zones in the South (mostly in HoChiMinh City, Dong-nai, Binh-duong). Furthermore, the operation of these zones is an issue. Though investing in IZs and EPZs are encouraged, through simple administrative procedures, tax incentives, renting areas in built zones account for a relatively small share in total areas of built zones, especially in hard up provinces. Hence, FDI's impact on poverty through IZs, EPZs seems to be limited.

Given the characteristics of FDI to Vietnam in the 1990s, whether FDI really contributed to the country's growth and whether it benefited the poor will be examined quantitatively in the next sub-sections.

3.2 Impacts of FDI on Economic Growth of Vietnamese Provinces

On the basis of the framework of the leader-follower model aforementioned and following Borenstein *et al.* (1995, 1998), the tested model is specified as follows:

$$g_{it} = \alpha + \beta \cdot \text{Pubinvest}_{it} + \phi \cdot \text{FDI}_{it} + \psi \cdot \text{H}_{it} + \phi \cdot (\text{FDI}_{it} \cdot \text{H}_{it}) + v \cdot \text{GL}_{it} + \theta \cdot \text{S} + \gamma \cdot \text{DVR}_{it} + \varepsilon_{it} \quad (3.1)$$

where g is the annual growth rate of provincial GDP measured at constant 1994 prices, Pubinvest and FDI denote domestic public investment and foreign direct investment, respectively. H is human capital stock, and GL measures the annual growth rate of labour force. S represents a set of other variables that affect economic growth. DVR is the regional dummy variable that captures different natural conditions in different regions of Vietnam. The subscripts i and t denote province and time, respectively. ε_{it} is the random error term. It is assumed to be randomly and independently distributed with $E[\varepsilon_i] = E[\varepsilon_t] = 0$, $\text{var}(\varepsilon_{it}) = \sigma_{\varepsilon}^2$, $\text{cov}(\varepsilon_{it}, \varepsilon_{it-k}) = 0$ if $k \neq 0$ and $\text{cov}(\varepsilon_{it}, \varepsilon_{jt}) = 0$ if $i \neq j$, $\text{cov}(X_{it}, \varepsilon_{it}) = 0$ with X as regressors.

The group of variables S consists of inflation and population growth. In the follower-leader model mentioned above, prices are supposed to be unchanged. However, prices do change in practice and the change in prices makes the marginal product of capital, m_{2j} , in (2.2) decline thereby affecting the discount rate, r , in (2.6) and economic growth in (2.7). Likewise, population growth is put aside in the follower-leader model. Nevertheless, population growth affects human capital formation and participation of labourers especially females and affects the rate of time preference, ρ , thereby influencing growth in (2.7).

In the above model, the desirable variable for domestic capacity of production must be gross domestic (public and private) investment rather than domestic public investment. Nevertheless, the quality of data on private investment in Vietnam is very poor. Using these data may give a misleading result. Hence, only public investment is incorporated.

Specifications of Pubinvest and FDI are rather similar. According to Ward (1976), the flow of (domestic and foreign) capital service should be the most appropriate in explaining economic growth and examining the roles of capital and labour in production in different industries of the economy. Since the dependent variable is specified as the provincial growth rate, investment should be entered as percentages of provincial GDP (Lipse, 2000). This gives the same regressors as those in the standard equation of growth accounting. In addition, since both Pubinvest and FDI can be highly influenced by economic growth, these variables are instrumented by their lagged values in order to avoid simultaneity. Basing on the background of investment projects in Vietnam, FDI and Pubinvest lagged by 2 years are chosen.

Since the main objective is to explore the impact of FDI on economic growth at the national level, the pooled regression rather than fixed effects ones is exerted. This is because the time dimension of the panel is much smaller than the space dimension. Capturing province specific effects in this case will cause a great loss in degrees of

freedom that in turn may alter the impact of FDI. Hence following the parsimony principle in econometric modeling (Gurajati, 1992) a pooled regression is employed.

In estimating, cross section weighting is used to correct for between section heteroskedasticity and White Covariance Estimation is employed to correct for within section heteroskedasticity.

Model (3.1) is first tested with the 1996-2000 period when data for all the variables are available. The regression outcomes are introduced in Table 3.2. FDI exerts positive impacts on Vietnamese economic growth in the 1996-2000 period and the impacts are statistically significant at the 1% level. Human capital and growth of labour force also help raise economic growth. These impacts are statistically significant at the 5% level. Meanwhile, inflation, which is measured by GDP deflator, exerts a significantly negative influence on growth. Public investment and population growth have insignificant impacts on provincial growth. This may be due to the fact that the time frame is too short so that the effects may not be realised.

Empirically, there is no considerable effect of terminated and outdated FDI on implemented FDI flows during the time of Asian financial crisis. Regression (3.2.1) differs from regressions (3.2.2)-(3.2.5) in that ImplFDI in (3.2.1) is measured by annually implemented FDI while NetFDI in (3.2.2)-(3.2.5) is measured by annually implemented FDI after subtracting implemented values of outdated or terminated FDI projects in the corresponding year. Hence NetFDI gives a more appropriate measure of FDI when assessing impacts on growth and should therefore be the main factor under analysis in this paper. The use of ImplFDI in the model is just to compare if the estimation results differ significantly from the use of NetFDI. Empirically, ImplFDI in (3.2.1) has a slightly smaller impact on provincial economic growth than that of NetFDI in (3.2.2). In general, there is no considerable difference between the estimates in (3.2.1) and (3.2.2). Hence, terminated and dissolved FDI in the 1996-2000 period does not play a significant role in affecting the net FDI inflow to Vietnam.

In the regressions (3.2.3) and (3.2.5), the estimated coefficients on the Interaction variable are positive and significant at the 1% level. This implies that there exist interactions between FDI and local human capital in Vietnam during 1996-2000 in the way that the higher the level of provincial human capital, the higher the impact of FDI on provincial economic growth. Therefore, the GoV may increase benefits of FDI to the economy through policies that promote education and training.

Given the positive effect of FDI on growth and the positive interactions between FDI and human capital, human capital in Vietnam seems to exceed the threshold level above which countries can benefit from FDI (Borenzstein *et al.* 1995, 1998). The positive interaction between FDI and local human capital in Vietnam during 1996-2000 can be partly due to the fact that technology brought in by foreign investors is more modern than that used in Vietnamese enterprises (Nguyen, Trong Xuan 2001, p. 101; Bui, Anh Tuan 2000, p. 63). The higher the level of local human capital the higher the production efficiency then. This is also reflected in labour and employment fairs in 2002 in some

provinces, where demands for skilled workers were not fully met. Typically, in Dong-Nai province foreign investors intended to recruit 7,000 skilled workers but could find only 3,000 ones⁶.

Table 3.2: Effects of FDI on Provincial Economic Growth (1996-2000)
(pooled regressions)

Explanatory variable	Regression number				
	(3.2.1)	(3.2.2)	(3.2.3)	(3.2.4)	(3.2.5)
Pubinvest	0.019 (1.560)	0.020 (1.630)	0.017 (1.379)	0.0196 (1.634)	0.017 (1.418)
ImplFDI	0.034*** (6.639)				
NetFDI		0.036*** (6.639)	-0.069** (-2.499)	0.036*** (6.625)	-0.069** (-2.524)
H	0.254** (2.496)	0.262** (2.594)	0.186* (1.844)	0.263*** (2.620)	0.186* (1.844)
GL	0.044** (2.581)	0.043** (2.556)	0.052*** (2.997)	0.043** (2.564)	0.051*** (2.972)
Interaction (FDI*H)			0.017*** (4.164)		0.017*** (4.215)
Inflation	-0.113*** (-5.295)	-0.110*** (-5.184)	-0.107*** (-4.818)	-0.110*** (-5.192)	-0.108*** (-4.832)
Population growth	-1.056 (-0.132)	-0.991 (-0.124)	-0.035 (-0.005)		
DV Region1	-1.397*** (-2.979)	-1.395*** (-2.931)	-1.384*** (-2.695)	-1.382*** (-3.014)	-1.396*** (-2.741)
DV Region2	-2.514*** (-6.680)	-2.539*** (-6.597)	-2.698*** (-5.966)	-2.529*** (-6.653)	-2.704*** (-5.979)
DV Region 3	-2.723*** (-5.376)	-2.725*** (-5.325)	-2.653*** (-4.805)	-2.710*** (-5.514)	-2.661*** (-4.933)
DV Region 4	-1.152*** (-2.724)	-1.122** (-2.588)	-1.144** (-2.384)	-1.112*** (-2.627)	-1.151** (-2.400)
DV Region 5	2.368** (2.184)	2.383** (2.185)	2.296** (2.015)	2.356** (2.201)	2.293** (2.082)
DV Region 7	-1.966*** (-3.950)	-1.935*** (-3.830)	-2.021*** (-3.851)	-1.920*** (-3.935)	-2.031*** (-3.857)
Adjusted R ²	0.851	0.848	0.827	0.849	0.827
Durbin-Watson statistic	1.787	1.791	1.827	1.791	1.828
Number of observations	212	212	212	212	212

Notes: ***, **, * represents the significance at the 1%, 5%, 10% level, respectively. t-statistics are in the parentheses. Estimated intercepts are not shown in the table. H is the average number of schooling years of provincial workers.

The positive interaction of FDI and local human capital in affecting growth may also work through labour turnover and spillover. If there exist labour turnover and spillover, the higher the level of human capital the greater the technology diffusion from FIEs. Labour turnover, especially at the management level, may be considerably in some

⁶ Information released by Mr. Vo Minh Quang, Director of the Department for Labour, Invalids and Social Affairs of Dong-Nai Province, Vietnam.

industries in Vietnam like production of animal foods⁷ where production does not require very high technology and selling products entails knowledge about customers. After some years working in FIEs, Vietnamese workers may learn the way to produce, get in touch with customers and they can establish their own business when they leave FIEs. In my survey in 2001 which covered 26 foreign investors in Vietnam, labour turnover was confirmed by foreign investors in the auditing, automobile production and textile sectors. It is also affirmed in Bui's survey of 102 Vietnamese workers in FIEs. According to his results, only 32.4% of interviewees wanted to continue working in FIEs while 31.4% intended to move to state-owned enterprises and 22.5% planned to established their own business (Bui, Anh Tuan 2000, p. 98). As such, labour turnover may be of considerable significance in Vietnam. The higher the human capital the greater the technology diffused through labour turnover and the greater the total impact of FDI on growth.

Another channel for FDI and human capital interacting positively in affecting growth may be through spillover or demonstration effect in particular. Empirically, there exist significantly positive spillover from FIEs in manufacturing to Vietnamese counterparts on the basis of data in Enterprise Censuses in 1995, 1998 and 2001 conducted by the General Statistics Office of Vietnam (my forthcoming paper). Moreover, the spillover is estimated to be stronger than that in other countries. Qualitatively, there were complaints of foreign investors in that Vietnamese investors illegally imitated the style of FIEs' products⁸. Hence, the high level of local human capital may help increase the total factor of productivity of local enterprises.

Since economic growth and FDI increase occurred significantly in the late 1980s and early 1990s, model (3.1) is tried with the period 1990-2000. As the Asian financial crisis occurred in the second half of this time period, a dummy variable, DV, that represents impact of the Asian financial crisis on growth is included in the model as follows:

$$g_{it} = \alpha + \beta \cdot \text{Pubinvest}_{it} + \phi \cdot \text{FDI}_{it} + \psi \cdot \text{H}_{it} + \phi \cdot (\text{FDI}_{it} \cdot \text{H}_{it}) + \nu \cdot \text{GL}_{it} + \theta \cdot \text{S} + \gamma \cdot \text{DVR}_{it} + \text{DV}_t + \varepsilon_{it} \quad (3.2)$$

The estimation results are presented in Table 3.3. Public investment has a positive and significant impact at the 1% level on provincial growth in all specifications. FDI also have positive and significant effects, be it ImplFDI or NetFDI. NetFDI has a slightly smaller effect on provincial growth than ImplFDI. However, the results of using ImplFDI (in (3.3.1)) and NetFDI (in (3.3.2)) are similar to each other. This affirms that in the longer period 1990-2000 terminated and outdated values of implemented FDI projects are insignificant compared with total implemented values of FDI projects.

The estimates for the period 1990-2000 are similar to that for the 1996-2000 period. FDI and human capital in the 1990-2000 period interacts positively in affecting economic growth and the interaction is statistically significant at the 1% level.

⁷ Comment by Mr. Pham Hoang Ha, Researcher of the Department for Research on Macroeconomic Policy, Central Institute for Economic Management (CIEM), Hanoi, Vietnam.

⁸ Complaints of Mr. Nak Kil Sung, General Director of LG-MECA Electronics Inc.; Mr. Takeshi Ohara, General Director of Everton (Vietnam) Co., Ltd.; Mr. David Chen, Vice General Director, Vietnam Caesar Sanitary Wares Co., Ltd.

Table 3.3: FDI's Impact on Provincial Economic Growth (1990-2000)
(pooled regressions)

Explanatory variable	Regression number				
	(3.3.1)	(3.3.2)	(3.3.3)	(3.3.4)	(3.3.5)
Pubinvest	0.046*** (3.532)	0.046*** (3.462)	0.045*** (3.377)	0.048*** (3.648)	0.047*** (3.542)
ImplFDI	0.070*** (6.731)				
NetFDI		0.063*** (6.310)	-0.019 (-0.640)	0.063*** (6.279)	-0.027 (-1.033)
H	0.155 (1.554)	0.169* (1.696)	0.115 (1.125)	0.177* (1.784)	0.118 (1.161)
GL	0.033** (1.015)	0.029 (0.877)	0.030 (0.885)	0.020 (0.897)	0.025 (1.139)
Interaction (FDI*H)			0.013*** (3.264)		0.014*** (4.085)
Inflation	-0.010*** (-3.513)	-0.010*** (-3.832)	-0.010*** (-3.770)	-0.010*** (-3.639)	-0.010*** (-3.665)
Population growth	-6.612 (-0.625)	-6.249 (-0.531)	-4.577 (-0.393)		
DV Region1	-1.781*** (-4.561)	-1.939*** (-4.748)	-2.056*** (-4.786)	-1.925*** (-4.618)	-2.065*** (-4.753)
DV Region2	-2.34*** (-5.651)	-2.450*** (-5.878)	-2.729*** (-6.256)	-2.335*** (-5.341)	-2.653*** (-5.789)
DV Region 3	-2.224*** (-4.643)	-2.397*** (-4.906)	-2.434*** (-4.848)	-2.330*** (-4.618)	-2.391*** (-4.626)
DV Region 4	-0.972** (-2.541)	-1.083** (-2.754)	-1.191** (-2.895)	-1.009** (-2.438)	-1.148*** (-2.669)
DV Region 5	0.841** (0.787)	0.692 (0.641)	0.530 (0.474)	0.613 (0.588)	0.456** (0.423)
DV Region 7	-1.958*** (-4.395)	-2.080*** (-4.628)	-2.223*** (-4.779)	-1.954*** (-4.169)	-2.143*** (-4.420)
DV	-1.382*** (-7.867)	-1.344*** (-7.621)	-1.267*** (-7.008)	-1.330*** (-7.868)	-1.255*** (-7.323)
Adjusted R ²	0.770	0.775	0.766	0.777	0.771
Durbin-Watson statistic	1.588	1.592	1.605	1.600	1.616
Number of observations	396	396	396	396	396

Note: estimated intercepts are not reported in the table. Other points are similar to that in Notes in Table 5.2.

3.3 Impacts of Economic Growth and FDI on Poverty Reduction in Vietnamese Provinces

Given the positive effect of FDI on economic growth in Vietnamese provinces, and given the theoretical and empirical arguments on growth's impact on poverty, the concern now is to what extent poverty reduction in Vietnam is affected by economic growth and by FDI directly.

Following Ravallion (1997), the tested model is specified as follows:

$$\frac{d\theta_i}{\theta_i} = \alpha_0 + \alpha_1 \cdot (1 - G_{i,96}) \cdot \frac{dy_i}{y_i} + G_{i,96} + \text{residual}$$

where $\frac{d\theta_i}{\theta_i}$ is the percentage of the change in the head-count index of province i of Vietnam in 2000 compared with that in 1996. $G_{i,96}$ denotes the Gini coefficient of province i of Vietnam in 1996. $\frac{dy_i}{y_i}$ measures the percentage of the change in GDP of province i in 2000 (measured in 1994 prices) compared with that in 1996 (measured in 1994 prices also). The reason for choosing the 1996-2000 period is because data on poverty before 1996 are not available for all Vietnamese provinces and a new poverty line has been applied since 2001 making data on poverty in 2001 incompatible with that in previous years.

Estimated results are presented in Table 3.4. In (3.4.1), real growth of provincial GDP has a negative effect on the rate of poverty change. As economic growth increases by 1%, the headcount index will decline by 0.835%, other things being the same. The impact is significant at the 10% level. Inequality at the beginning of the period under consideration affects positively but insignificantly poverty reduction. Hence, it can be said that inequality in 1996 in Vietnam has no role in explaining results of poverty reduction in the period 1996-2000.

Table 3.4: Impacts on Poverty Reduction in Vietnamese Provinces (1996-2000)

Explanatory variable	Regression number				
	(3.4.1)	(3.4.2)	(3.4.3)	(3.4.4)	(3.4.5)
Rgrowth9600	-0.835* (0.429)	-0.677* (0.380)	-0.762** (0.358)	-0.728* (0.380)	-0.709* (0.385)
Poverty96		-1.075*** (0.283)	-1.024*** (0.272)	-1.047*** (0.286)	-1.017*** (0.293)
Qualilabour		-2.638*** (0.761)	-2.505*** (0.733)	-2.444*** (0.771)	-2.398*** (0.781)
Gini96	-0.569 (0.793)	0.496 (0.731)			
FDI9700				-0.0026 (0.0096)	-0.0026 (0.0096)
Hepr					-0.205 (0.387)
Adjusted R ²	0.029	0.262	0.269	0.257	0.247
Number of observations	61	61	61	61	61

One deficiency of (3.4.1) is that adjusted R² is very low, implying that some influential factors, except growth and initial inequality, might not be incorporated. As a matter of fact, the rate of poverty reduction in Vietnam in the 1996-2000 period may depend considerably on the poverty level at the beginning of the period under consideration. This is because the Hunger Eradication and Poverty Reduction (HEPR) program of the GoV has been targeted at the poor, and funds and banks' credits have been allocated to the provinces following their severity of poverty. In addition to the initial poverty state, local

human capital may be another factor of relevance. One explanation may be that the higher the level of human capital, the higher the possibility that local people can participate in a growing economy.

Inclusion of these two variables into regression gives results in (3.4.2)-(3.4.5). Both the provincial poverty in 1996 and qualified labour force of Vietnamese provinces exert significantly negative impacts (at the 1%) on the rate of change in poverty. Real economic growth during 1996-2000 period still exerts negative and significant impact (at the 10% level) on the rate of poverty change. The higher the economic growth, the faster poverty is reduced.

As FDI has positive effects on provincial growth and growth in turn helps reduce poverty, FDI in Vietnam in the 1996-2000 period indirectly reduces local poverty. In order to examine total FDI's impact on poverty, FDI, measured by implemented FDI per worker in 1997-2000, is included in the model as a regressor. The coefficient on FDI then represents FDI's direct impact on poverty, over and above growth's impact. The result is given in regression (3.4.4) where FDI is estimated to raise the magnitude of poverty reduction in the 1996-2000 period. The estimated impact is, however, insignificant even at the 10% level.

The estimated negative direct effect of FDI on poverty may come from different channels. Firstly, FDI in Vietnam as stipulated by the Foreign Investment Law is green-field investment, hence 379,000 employments in FIEs (to the end of 2001) are basically newly created. Many skilled workers who were poor in the closed regime before 1986 and children of poor households in the closed regime have found jobs in FIEs and their incomes help their families overcome poverty directly. Secondly, FIEs may create a large number of indirect employment in forwardly linked entities (Bui, 2000, pp. 71-72). According to my survey of 26 foreign investors, most FIEs used Vietnamese services for selling, advertising, marketing. Thirdly, FDI in Vietnam has diversified to almost all the provinces of the country thereby contributing directly to the local development process. This is illustrated well with some big investment projects in remote areas like Morning Star Cement Co., Ltd., in Kien-Giang province; Phu-My-Hung Corp. in the South of Ho-Chi-Minh City. Morning Star Cement Co., Ltd. is a big joint venture between Switzerland's Holderbank Financiere Glaris Ltd. and Ha Tien 1 Cement Company of Vietnam. The 5.6 squared km site where the joint venture is located was very swampy and deserted before but was re-filled; and local roads, a local port and a power plant were built making the area become crowded recently. Similarly, Phu-My-Hung Corp. is conducting a project of building a new city center in the south of Ho-Chi-Minh City that was very deserted and swampy in the past. In terms of registered investment, all the 61 provinces of Vietnam host foreign investment at the end of 2001 (Appendix A).

Given this practically positive direct impact of FDI on local poverty, this impact might be small on average and the coefficient on the FDI variable in (3.4.4) is thus estimated to be insignificant. Regarding direct employment, workers in FIEs account for only 0.99% of the labour force. Hence, FIEs are not a main actor in attracting local workers. In addition, the number of indirect employment seems small since the linkage between FIEs and

backwardly linked enterprises remains rather weak. Practically, a large part of FIEs' inputs come from imports resulting in a limited number of employees in backwardly linked entities. According to my surveys of 26 foreign investors in different industries in 2001, up to 80-90% of FIEs' inputs come from imports. The reason is because there is no domestic supply of FIEs' inputs, and if there is, quantity and quality of supply do not meet FIEs' criteria. With regard to horizontally indirect employment, FDI's impacts are more complicated and not really clear-cut. In some industries, say production of soft drinks, detergents, cosmetics, FIEs successfully outcompeted Vietnamese enterprises⁹. This may partly be due to intensive marketing programs of FIEs that make domestic counterparts unable to compete. In other industries, say textile, footwear production, food processing, FDI may have positive effects in the sense that it puts competitive pressures on domestic enterprises and displays a model from that domestic enterprises can learn. But given the feature of the Vietnamese economy that private enterprises are still discriminated compared with state-owned enterprises, the horizontally indirect impact of FDI may not be considerable and FDI's impact on poverty reduction may thus be insignificant as estimated.

Regarding FDI's distribution across Vietnamese provinces, most of the foreign investment projects still concentrate on provinces in the SouthEast and Red River Delta like Ho-Chi-Minh City, Hanoi, Dong-nai, Binh-duong, Baria-Vungtau where infrastructure is in good condition. Investment in poor, remote and hard up areas like the North Mountain and Midlands, Central Highlands, North Central Coast remains sparse despite the economic potential of these regions. Recent literature suggests that Industrial Zones (IZs) and Export Processing Zones (EPZs) may be a measure to overcome drawbacks of poor infrastructure of some regions in attracting FDI, this has not been exploited very well in Vietnam. Most of these zones are located in more developed areas: 15 zones in the North (mainly in Hanoi and Hai-phong), 8 zones in the Central Region and 38 zones in the South (mostly in HoChiMinh City, Dong-nai, Binh-duong). Furthermore, the operation of these zones remains rather poor, the rate of renting areas in built zones is relatively low especially in hard up provinces.

These all demonstrate that FDI's direct impact on poverty reduction in Vietnam seems limited.

Regarding indirect impact of FDI on poverty through its contribution to the host's budget, this influence may be negligible. Contributions of FIEs to the host budget include contributions to the provincial budget and to the state budget. According to the Vietnamese Law on Budget, FIEs contribute a part of their taxes on repatriated profits, on profits, personal income, natural resource usage and all their import and export taxes to the state budget. This contribution which is presented in Table 3.5 is increasing over time but remains small. This is partly because many foreign investment projects are still in the time of tax holidays and partly because many FIEs are suffering losses. The latter is largely due to an increasingly prominent fact of 'over pricing' of technology transferred from parents to FIEs in Vietnam (Manh Hung, 2001). FIEs contribute the rest of their

⁹Comment of Mr. Tran Du Lich, Director of the Institute for Economics, Ho-Chi-Minh City, Vietnam (Interview in July 2002).

taxes on repatriated profits, on profits, personal income, natural resource usage to the provincial budget. In addition, FIEs may participate in local charity programs and donate funds to the local budget. In some provinces where many foreign investment projects concentrate like Dong-Nai, Binh-Duong FIEs participate considerably in local programs on poverty reduction through charity contribution. To examine if this local spending has any effect on poverty, provincial spendings on poverty reduction which are measured by per worker spendings on poverty in 1997-2000 from provincial budgets are included in the model. Estimated results are shown in (3.4.5). Local spendings on poverty helps reduce poverty but this impact is statistically insignificant even at the 10%.

Table 3. 5: Foreign Invested Enterprises' Contribution to the State Budget

FIEs' contribution	1993	1994	1995	1996	1997	1998	1999	2000	2001
in Mill. USD		128	195	263	315	317	271	280	373
in % of total budget revenue	1.5	2.8	4.2	5.1	6.2	6.3	5.5	6.2	6.4

(Source: General Department for Taxation, Vietnam)

Similarly, FDI's effect on local poverty through affecting public investment may be rather weak. In my surveys, most foreign investors said that they had not required the GoV to invest in infrastructures of the place where they intended to invest in. The reasons were that some foreign investors worked in industrial zones so local infrastructures were in good conditions; other foreign investors thought that the local authorities might not help and if there was a help necessary procedures would be very complicated and time consuming. Only one foreign investor¹⁰ said that he made request to the local government to improve local infrastructures but the response did not satisfy him.

4. Conclusions and Policy Recommendations

In short, FDI in Vietnam contributes significantly to economic growth and economic growth is an influential factor of poverty reduction of the country. The direct impact of FDI on poverty is however insignificant. Therefore, in general, *integration into the world economy through FDI, benefits the poor in Vietnam*. The question raised is how to increase FDI's contributions and through which channels this promotion can be implemented.

Regarding the direct impact of FDI on poverty, it may be affected through policies that continue promoting FDI into high-technology industries as well as labour-intensive industries. This is because countries that have just opened usually want to concentrate and give priorities to high technology industries in the hope of developing rapidly. Therefore, traditional sectors might be neglected and this may quite possibly lead to poverty increase. In addition, policies that encourage development of related industries rather than local content requirements may be a suitable measure to get a strong linkage between FIEs and domestic counterparts. This may be quite relevant to Vietnam since the local content requirements have been met poorly in practice, basically due to the weak

¹⁰ Mr. Nak Kil Sung, General Director of MECA Electronics Inc.

capability of the Vietnamese enterprises. There exist many obstacles, typically in credit, to private enterprises so that they become unable to develop fully and get in touch with FIEs.

Relating to FDI's distribution and the way to affect it in order to make FDI work more for the poor, a test of determinants of FDI's distribution across Vietnamese provinces which is similar to that of Broadman and Sun (1997), Chen Chunlai (1997), Klingspor *et al.* (1999) is conducted. Given the generous tax policy applied to FIEs working in poor and remote areas, the fact that few FIEs working there implies that this policy must practically be ineffective. Hence it is not taken into account here. The estimation results are shown in Table 4.1 where the market size (represented by provincial GDP), technical workers and industrial zones are the most important determinants of distribution of both registered and implemented FDI. Electricity and economic development (measured by GDPPC) are significant in influencing implemented FDI but not registered FDI. Road density on the contrary does not have any significant impact on FDI's distribution. Therefore, in order to motivate FDI to come to poor and remote areas, appropriate policies include enhancing human capital of local workers, upgrading electricity supply in terms of quantity and quality and building industrial zones.

Table 4.1: Determinants of FDI's Distribution across Provinces of Vietnam

Explanatory variable	Regression (4.1.1) Dependent variable: AccRegFDI	Regression (4.1.2) Dependent variable: AccImpFDI
GDP	0.121*** (0.022)	0.019** (0.009)
GDPPC	-0.745** (0.322)	1.060*** (0.137)
Humancapital	76180*** (13270)	15727*** (5659)
Roaddensity	4501 (78126)	-8812 (33312)
Electricity	-0.535 (0.670)	0.499* (0.286)
Industrialzone	211851*** (48530)	92559*** (20693)
Adjusted R ²	0.935	0.959
Number of observations	61	61

Notes: estimated intercepts are not reported in the Table; AccImpFDI and AccRegFDI are accumulated values of implemented and registered FDI to December 31, 2000, respectively. GDP denotes GDP of provinces of Vietnam in 1998. GDPPC represents provincial GDP per capita in 1998. Humancapital is measured by the percentage of skilled workers having certificates in total labour force. Electricity represents electricity supplied in 1998 for business and management activities of Vietnamese provinces. Roaddensity is measured by the length of asphalted roads in each province in 1998, normalized by the area of the corresponding province. Industrialzone means the number of industrial zones in each province in 1998.

Regarding FDI's indirect impact on poverty through economic growth, policies to be followed can be ones that help attract FDI into Vietnam, policies that raise implementation of registered foreign investment projects and policies that motivate upgrading local human capital. Policies to attract FDI into Vietnam within the current context of increasing regionalisation and globalisation must take into account the competition of neighbours which have many features similar to Vietnam. This might be overcome through measures that improve the domestic competitive environment. In this regard, a specification of the sequence of opening the economy may be of great importance. Allowing FDI to come into different sectors and under different forms, say, merge and acquisition of moribund state-owned enterprises, may benefit the country. A level playing field together with officials' activities to introduce and invite foreign investors to come may then be quite useful.

Regarding policies that can help raising implemented FDI, measures to improve the administrative and management environment seem to be the most important. These include establishing a consistent and stable legal system that regulates FIEs' activities and simplifying administrative procedures. There have been many improvements made by efforts of the GoV in order to facilitate FIEs' operations (e.g., abolishment of dual pricing policies that discriminated against foreign investors and making laws and policies more transparent). However, bureaucratic red tape remains extensive and this enhances corruption and discourages investors. The periodical meetings between foreign investors and officials of the Ministry of Planning and Investment and of related ministries are opportunities for foreign investors to talk about their difficulties in practical operation. Nevertheless, correcting and removing the obstacles especially in related ministries are very slow. In addition, the meetings are basically held in the capital limiting the participation of FIEs located in other provinces.

Policies to promote human capital upgrading include raising public spending on education and training, enhancing cooperation between training centers and FIEs and targeting these activities more on the poor. This might be of great importance in Vietnam since public spending on education has been declining during the reform and education has been opened more to the private sector. The resulting fact that the poor have fewer chances to upgrade their human capital implies that contribution to growth is smaller than it would be and poverty may easily increase. Therefore, well targeted policies may be necessary to enable the poor to participate in the increasingly integrated economy. Subsidies to children of poor households in participating schools should be applied wider and applied to training centers also. Last but not least, cooperation between local training centers and FIEs in specifying learning contents should be followed, first in simple technology industries and gradually in other high technology ones. Then the positive interaction between FDI and human capital and its resulting impact on poverty reduction might be intensified.

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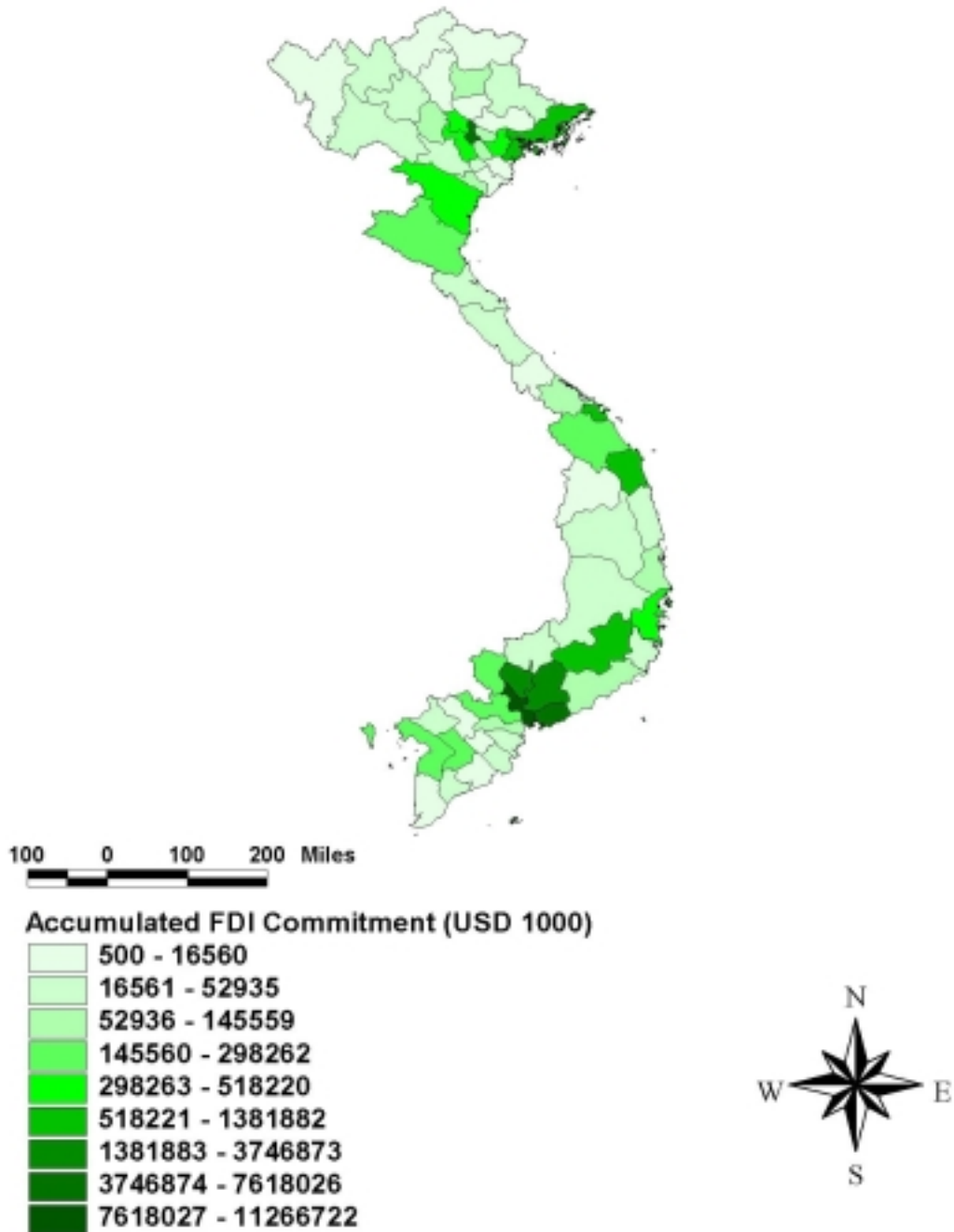
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Appendix A

Provincial Distribution of FDI Commitment at the End of 2001



Appendix B**Accumulated FDI in Vietnam by Country of Origin (December 31, 2000).**

Order Number	Country/Territory	Number of Projects	Investment Capital	Share of the Country's Investment Capital in Total Investment Capital (%)
1	Singapore	236	6,744,934	18.53
2	Taiwan	618	4,971,534	13.66
3	Japan	301	3884108	10.67
4	South Korea	260	3149661	8.65
5	Hongkong	208	2689280	7.39
6	France	108	1829042	5.02
7	British Virgin Islands	101	1765330	4.85
8	Russia	34	1607623	4.42
9	Netherlands	40	1178957	3.24
10	UK	33	1162095	3.19
11	Thailand	92	1093502	3.00
12	Malaysia	79	1011588	2.78
13	US	107	900730	2.47
14	Australia	72	745957	2.05
15	Switzerland	19	521199	1.43
16	Cayman Island	9	485688	1.33
17	Germany	32	359653	0.99
18	Sweden	8	354073	0.97
19	Bermuda	6	290136	0.80
20	Philippines	18	260970	0.72
21	British West Indies	3	219306	0.60
22	Channel Islands	11	192931	0.53
23	China	83	165061	0.45
24	Indonesia	8	113002	0.31
25	Canada	24	106728	0.29
26	Denmark	6	105586	0.29
27	Belgium	12	46803	0.13
28	New Zealand	6	40659	0.11
29	Norway	5	39151	0.11
30	India	9	37436	0.10
31	Italy	8	36104	0.10
32	Czech	4	34929	0.09
33	Panama	4	29033	0.08
34	Luxembourg	10	27985	0.08
35	Ukraine	7	25608	0.07
36	Turks & Caicos Islands	1	25000	0.07
37	Liechtenstein	2	23900	0.07
38	Poland	2	15800	0.04

39	Cuba	2	12518	0.03
40	Iraq	1	15100	0.04
41	Isle of Man	1	15000	0.04
42	Laos	3	10804	0.03
43	Mauritius	1	9000	0.02
44	Belarus	2	8539	0.02
45	Western Samoi	2	5600	0.02
46	Israrel	3	5381	0.01
47	Bahamas	5	5350	0.01
48	Austria	5	5345	0.01
49	North Korea	1	5341	0.01
50	Cambodia	2	3500	0.00
51	Belize	1	3000	0.00
52	Namtu	1	1580	0.00
53	Sri Lanka	1	1500	0.00
54	Hungari	3	1374	0.00
55	Makao	1	800	0.00
56	Sip	1	500	0.00
57	Argentina	1	120	0.00
Total		2623	36,401,434	100.00

(Source: MPI, Department for Monitoring Foreign Investment Projects)