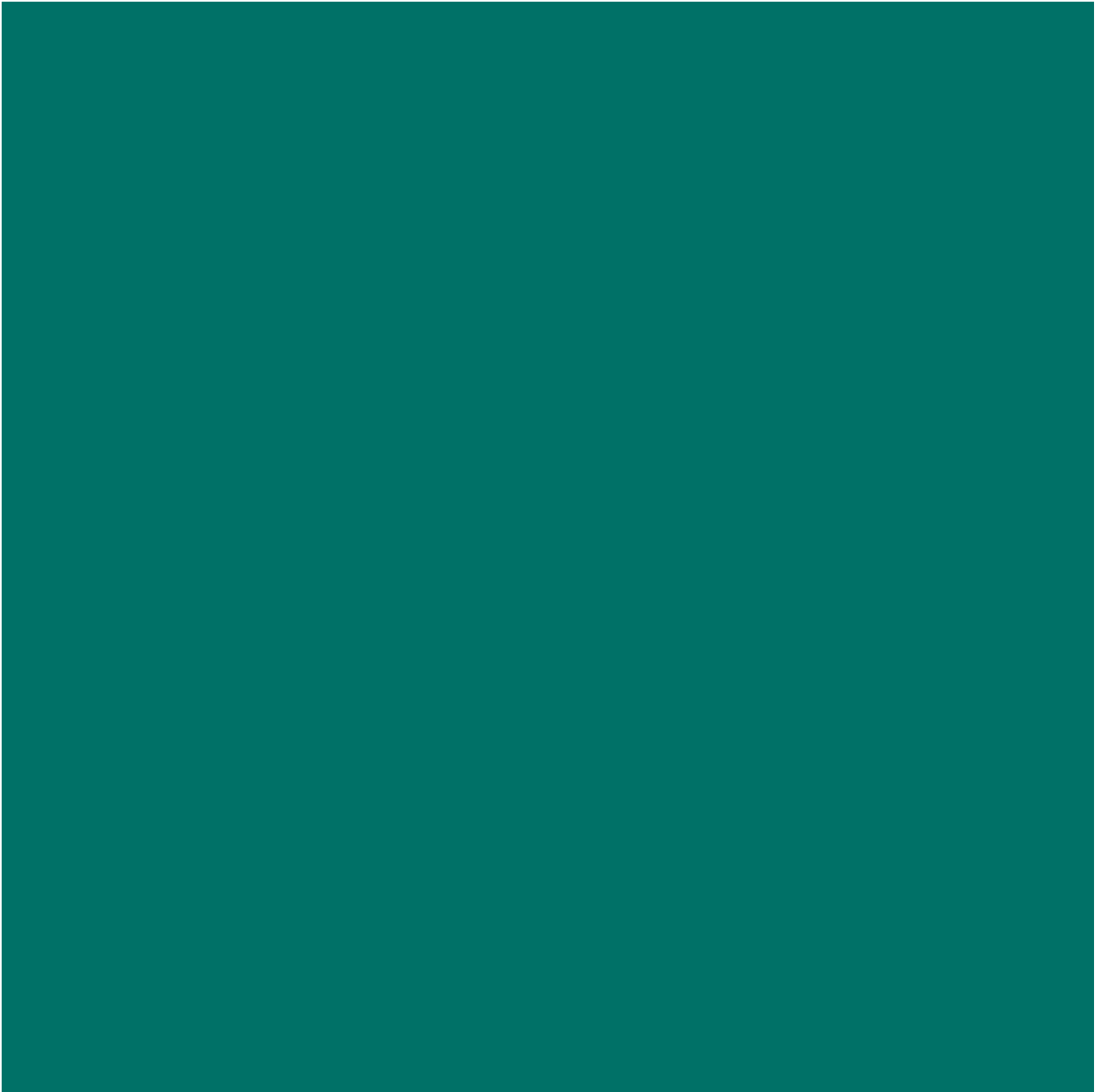


Regional Development and Government Support to SMEs in Vietnam



Foreword

This country economic report on Vietnam is part of a series of studies, undertaken by various Swedish universities and academic research institutes in collaboration with Sida. The main purpose of these studies is to enhance our knowledge and understanding of current economic development processes and challenges in Sweden's main partner countries for development co-operation. It is also hoped that they will have a broader academic interest and that the collaboration will serve to strengthen the Swedish academic resource base in the field of development economics.

This report examines the pattern of regional development in Vietnam and explores the effects of various government policies that may be used to promote provincial growth and development, against the backdrop of a concern about increasing regional disparities and income inequality. The study has been undertaken by Ari Kokko and Patrik Gustavsson Tingvall at the European Institute of Japanese Studies at Stockholm School of Economics.



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Executive Summary

Although Vietnam's economic performance in recent years has been impressive, with average GDP growth rates exceeding 7 percent, there are worries regarding macroeconomic stability and sustainability. Apart from inflation, sluggish reforms of state-owned enterprises, and commodity trade and current account deficits, the most serious concern are related to the emerging regional income and development gaps in the country. Inequality is increasing as growth seems to be concentrated to Hanoi and Ho Chi Minh City with surrounding provinces, while other parts of the country are lagging behind. This is obviously a social problem, but also a political challenge. To maintain political stability, it is necessary that a majority of the population supports the existing policies: most of Vietnam's 82 million inhabitants live outside the growth centers.

The purpose of this report is to examine the pattern of regional development in Vietnam, and to explore the effects of various government policies that may be used to promote provincial growth and development. The first part of the report sets the stage by providing a brief summary of the macroeconomic developments in recent years. The second part examines the provincial growth pattern through econometric analysis of a data set on provincial growth during the period 1996-2001. The main conclusions of the analysis of regional growth are as follows.

- The provincial income gaps in Vietnam are substantial.
- There are no clear signs of convergence between richer and poorer provinces. On the contrary, unconditional growth regressions suggest that provinces with initially higher income levels tend to grow faster.
- Although the poorer provinces seem to be falling behind in income comparisons, they do benefit from the growth that occurs in the more successful regions. There is a positive spatial spillover effect suggesting that a province's growth performance is positively affected by growth in neighboring provinces.
- The spatial spillovers are significant in the southern part of Vietnam, but not in the northern parts.

These results may serve to dispel some of the concerns regarding regional income and development gaps, particularly for the southern provinces, but it is likely that stronger convergence is a political necessity. Even though the income levels and living standards of poor provinces are

rising, they may be rising too slowly to satisfy the expectations and demands of citizens who know that other regions are growing faster. Hence, active policies to promote regional growth in the lagging provinces may be necessary.

The third part of the report therefore examines the effects of provincial policy on private sector performance. The focus on private sector performance is arguably necessary, since neither state-led industry nor overseas development assistance are likely to generate sustainable development. Earlier studies of private sector development in Vietnam have largely emphasized the importance of macro policies at the provincial level. The term macro policy refers to the provincial authorities' overall attitudes towards private enterprise and the general business environment in the provinces, as reflected in the degree of transparency in policy making, the availability of information, the efficiency of public administration, and so forth. Few earlier studies have examined the effects of micro interventions, like credit support, technical advice, and marketing and legal advice, in great detail. Using firm level data from comprehensive surveys of Vietnamese SMEs operations in 1996 and 2004, we therefore tried to analyze the effects of these types of government support on employment and wage growth in SMEs. Our results did not reveal any systematic effect of direct government support on firm performance. The most likely reason for the lack of effects is that the allocation of government support is not systematically based on any performance criteria. Instead, it seems that the recipients of support were selected in a more random process, where one objective may even be to distribute support in a "fair" manner. These results underline the role and importance of the macro policies that determine the overall business environment for private firms. Moreover, to the extent that direct government support is used, there is a need to establish clear and transparent criteria for the allocation of supports. These conclusions do not only apply for Vietnamese government policy, but also for the aid programs of foreign donors: the impact of programs aiming to affect the overall business environment appear to be significantly stronger than the effect of projects focusing on support to individual enterprises.

Tóm tắt

Regional Development and Government Support to SMEs in Vietnam – Phát triển vùng và Hỗ trợ từ Chính phủ cho Doanh nghiệp vừa và nhỏ Việt Nam.

Trong những năm qua, nền kinh tế Việt Nam đã có được những thành quả tương đối ấn tượng với tốc độ tăng GDP luôn đạt khoảng 7%/năm, tuy nhiên vẫn còn những lo ngại về sự ổn định và bền vững của nền kinh tế. Bên cạnh lạm phát, sự chậm chạp trong sắp xếp lại các doanh nghiệp nhà nước và thâm hụt cán cân thanh toán, khoảng cách trong thu nhập và phát triển giữa các vùng của đất nước được coi là vấn đề cần quan tâm nhất. Sự mất cân bằng trong tăng trưởng và phát triển giữa Hà Nội, thành phố Hồ Chí Minh với các tỉnh lân cận đang trở thành những vấn đề xã hội và cũng là một thách thức chính trị. Để duy trì sự ổn định chính trị, đa số dân chúng phải ủng hộ chế độ chính trị hiện hành, nhưng phần lớn trong số 82 triệu dân Việt Nam sống tại khu vực nông thôn, bên ngoài các trung tâm phát triển.

Mục tiêu của báo cáo là nghiên cứu những mô hình phát triển ở các vùng miền của Việt Nam để tìm ra những chính sách đã phát huy hiệu quả và tác động của những chính sách này với phát triển vùng là gì. Ở phần đầu, báo cáo sẽ tóm tắt lại những thành tựu phát triển của kinh tế vĩ mô trong những năm gần đây. Phần thứ 2 của báo cáo, là những phân tích về các mô hình tăng trưởng kinh tế ở các tỉnh trong suốt thời kỳ 1996 – 2001. Những kết luận rút ra từ những phân tích:

- Khoảng cách về thu nhập giữa các tỉnh thành là rất lớn.
- Không có tín hiệu cho thấy có sự hội tụ của các tỉnh giàu và nghèo. Ngược lại, phân tích chỉ ra rằng có khả năng các tỉnh có khởi điểm ban đầu cao hơn sẽ có khả năng phát triển nhanh hơn.
- Mức thu nhập ở những tỉnh nghèo chưa cao những họ vẫn có thể nhận được lợi ích từ sự phát triển ở những tỉnh lân cận. Rõ ràng có sự tồn tại của hiệu ứng lan tràn theo không gian, đồng nghĩa với việc sự phát triển của một vùng có sự ảnh hưởng tích cực tới sự phát triển của các vùng lân cận và ngược lại.
- Hiệu ứng lan tràn theo không gian thể hiện rõ rệt ở Miền Nam, nhưng không thật rõ ràng ở Miền Bắc.

Những kết quả nghiên cứu này đã xua tan những nghi ngờ cho rằng có sự chênh lệch trong khoảng cách thu nhập, phát triển giữa các vùng, đặc biệt là ở các tỉnh ở phía Nam và nhấn mạnh đến sự cần thiết của những chính sách hội tụ. Trong những năm qua, mặc dù mức thu nhập, mức sống của những tỉnh nghèo đã cao hơn so với trước, nhưng tốc độ đó chưa đúng như những kỳ vọng, mong đợi của người dân, nhất là khi so sánh với tốc độ tăng trưởng ở những vùng khác. Vì vậy, sự ra đời của những chính sách năng động, đẩy mạnh sự phát triển vùng ở những khu vực đi sau này là hết sức cần thiết.

Phần thứ 3 của báo cáo sẽ khảo sát tác động của những chính sách địa phương tới khu vực kinh tế tư nhân. Sự tập trung vào khu vực kinh tế tư nhân có thể coi là rất cần thiết, vì nếu chỉ phát triển khu vực kinh tế nhà nước hay dựa vào đầu tư nước ngoài thì sẽ khó có thể tạo ra sự

phát triển bền vững. Những nghiên cứu trước đây về sự phát triển ở khu vực kinh tế tư nhân cho thấy những chính sách vĩ mô ở cấp tỉnh có vai trò hết sức to lớn. Những chính sách vĩ mô được đề cập đến ở đây chính là quan điểm của chính quyền tỉnh đối với khu vực kinh tế tư nhân và về môi trường kinh doanh nói chung. Nó được phản ánh qua độ minh bạch trong việc lập chính sách, sự sẵn sàng cung cấp thông tin, độ hiệu quả của hệ thống hành chính công.... Một vài nghiên cứu khác cũng đã đề cập tới sự can thiệp của những chính sách vĩ mô, như hỗ trợ tín dụng, công nghệ, về thị trường, pháp luật một cách rất chi tiết. Sử dụng những số liệu từ các cuộc điều tra về hoạt động của các DNVVN vào các năm 1996 và 2004, nhóm nghiên cứu đã cố gắng phân tích tác động của những hỗ trợ từ nhà nước đối với việc làm và tiền lương tại các DNVVN. Kết quả cho thấy những hỗ trợ từ phía nhà nước không tạo ra một tác động nào có hệ thống lên sự hoạt động của các DNVVN. Nhiều khả năng nguyên nhân của sự thiếu hệ thống trong tác động là do những hỗ trợ của chính phủ không theo bất kỳ một tiêu chuẩn nào về hoạt động của doanh nghiệp. Thay vào đó, sự hỗ trợ được phân bổ qua một quá trình lựa chọn ngẫu nhiên, với một trong những tiêu chuẩn được đặt ra là lựa chọn một cách “công bằng”. Những kết luận này nhấn mạnh vai trò và sự quan trọng của những chính sách vĩ mô giúp tạo ra môi trường kinh doanh cho các doanh nghiệp tư nhân. Hơn nữa, khi sự hỗ trợ trực tiếp của chính phủ là cần thiết, điều quan trọng là phải thiết lập những chỉ tiêu rõ ràng và minh bạch để phân bổ hỗ trợ. Những kết luận trên không áp dụng cho những chính sách của chính phủ Việt Nam, nhưng cũng hỗ trợ phần nào cho chương trình của các nhà tài trợ nước ngoài: tác động của các chương trình hỗ trợ đối với toàn bộ môi trường kinh doanh đã thể hiện có vai trò quan trọng hơn tác động của các dự án tập trung vào những doanh nghiệp riêng biệt.

1. Introduction

Although Vietnam's macroeconomic performance during the last few years has been very good – in fact, China is the only economy with a better growth record – there are some worries regarding macroeconomic stability and sustainability. One of the main macroeconomic achievements during the first decade of market oriented reforms was price stabilization. The inflation rate was reduced from several hundred percent per year in the late 1980s to well below 10 percent around the turn of the millennium. However, in 2004, inflation bounced back to 10 percent and is expected to remain high also in 2005: with increasing oil prices, the rate of inflation may even accelerate, forcing the government to curtail growth through contractionary monetary policy. The state enterprise sector remains vulnerable, but the reform of state-owned enterprises (SOEs) is sluggish and the equitization program has consistently fallen short of its annual targets. The trade deficit remains very large, and although financing does not appear to be any problem – the sum of foreign direct investment (FDI) inflows, overseas development assistance (ODA), and remittances from overseas Vietnamese exceeds 10 percent of GDP – there are worries about what these capital flows actually finance. Well over half of aggregate investment is controlled by the state, and concerns about investment efficiency and sustainability are common.

The most serious concern, however, may be related to the income and development gaps that have emerged during the past decades. The remarkably egalitarian income distribution characterizing Vietnam a couple of decades ago was a mixed blessing – in principle, everybody was equally poor – and the economic development recorded during the *Doi Moi* period has raised the living standard of the great majority of Vietnamese. For instance, average per capita incomes are nearly three times higher than in the early 1990s, and the poverty rate has fallen by more than half since that time. It is easy to argue that increasing income inequality was necessary to generate this development: to stimulate entrepreneurship and effort, it was necessary that the most resourceful people were able to earn more money and grow richer than others. Yet, the deteriorating income distribution is still a problem, in particular from a political perspective. People often assess their own well-being in a comparative perspective, and there is a risk that the population groups that fall behind will voice their disgruntlement if the income and welfare gaps grow too large or too fast. This could result in both social and

political instability. Large geographic income differences may be especially troublesome, since they will cause problems for both the sluggish and the rapidly growing regions. The regions and provinces that grow slower may be burdened by unemployment and poverty, and will probably not be able to provide public services of the same quantity and quality as the more dynamic parts of the country. This is likely to result in internal migration, which may cause problems also in the richer part of the country: it may be difficult to provide housing and other services to the rapidly increasing urban populations, and various social problems are common among migrant groups that are unable to find permanent employment. Hence, one consequence of the successful macroeconomic development in recent decades is the need to pay attention to regional development.

The purpose of this report is to examine the pattern of regional development in Vietnam, and to explore the effects of various government policies that may be used to promote provincial growth and development. Section 2 of the report sets the stage by providing a brief summary of the macroeconomic developments in recent years. Section 3 turns to an analysis of the provincial growth pattern, where two main issues are examined. Firstly, are the average income levels in Vietnamese provinces converging or diverging? Secondly, how does growth in the more successful regions affect growth in neighboring provinces? To answer these questions, we make a detailed econometric analysis of a data set on provincial economic development during the period 1996-2001. Section 4 looks at the effects of various government policies to promote provincial growth. The focus is on policies for private sector development: we assume that neither SOE-led growth nor reliance on ODA provides a sustainable alternative to private-sector driven growth. In this section, the empirical analysis is based on a detailed data set for Vietnamese SMEs operating in five different provinces during the period 1996-2002. Section 5 provides some concluding comments.

2. Macroeconomic development

Vietnam's macroeconomic development during the past few years has been remarkably successful, with high growth rates and reasonably stable prices. Real annual GDP growth has averaged over 7 percent since 2000, with an official growth rate of 7.7 percent reported for 2004. In real terms, this corresponds to a 30 percent increase in average per capita income over the 5-year period. The inflation rate stayed below 5 percent until 2004, although prices have risen at a faster pace during the last year – this applies both for products like oil and steel, where the international price level has increased steeply, as well as domestic food products, where prices did not recede after the customary pre-*Tet* price increases. Growth has been fuelled mainly by high investment rates – in 2004, about 36 percent of GDP was devoted to investment – and rapid export expansion. Vietnam's export volume has nearly doubled since 2004. In 2004 alone, export revenue increased by almost 30 percent, reaching a total value of USD 26 billion or 56 percent of GDP. Table 1 summarizes the data on these achievements, together with some additional information about the structure of the Vietnamese economy.

Foreign investors have been important both for investments and export growth. The inflows of FDI recovered after a slump following the Asia crisis, and actual investments grew from around USD 3 billion in 2000 to nearly USD 4 billion in 2004 (Nguyen et al. 2005).¹ Foreign-invested enterprises account for some 15 percent of GDP, nearly one-fifth of total investment, and more than half of total exports including crude oil (excluding crude oil, the FDI share of exports is about one-third). The development of the private sector has also been encouraging. More than 150,000 new private enterprises have been registered since the introduction of a new Enterprise Law in 2000 (CIEM 2005). Although many of these were probably active in the informal sector already before their formal registration, it is clear that the growth rate of the modern private sector has accelerated during this period. One indication is that the non-state sector is accounting for an increasing share of gross investment, as shown in Table 1. Yet, the state sector still dominates, controlling 56 percent of total investment and nearly 40 percent of GDP. In fact, the state's share of GDP has increased somewhat since 2000, which may be appear contradictory taking into account the progress of the

¹ The data on implemented FDI from the Ministry of Planning and Investment are systematically higher than the data on FDI disbursements from the State Bank of Vietnam. One reason is that the MPI figures include the local capital shares, but the difference is still disturbingly large. In 2004, the SBV reported FDI disbursements of USD 1.6 billion.

private sector. However, the GDP share of the non-state sector includes agriculture, where growth rates are substantially lower than the average – the private sector’s shares of industrial output and employment are growing steadily.

Table 1 Macroeconomic development in Vietnam 2000-2004

	2000	2001	2002	2003	2004
GDP (billion USD)	31	33	35	39	46
Real GDP growth (%)	6.8	6.9	7.1	7.3	7.7
GDP per capita (current USD)	402	415	440	483	556
Inflation rate	3.4	2.0	4.0	5.4	10.0
Merchandise exports					
(billion USD)	14	15	17	20	26
Merchandise imports					
(billion USD)	16	16	20	25	32
Current account balance					
(% of GDP)	3.6	2.1	-1.7	-4.8	-4.0
External debt					
(% of GDP)	41.1	38.5	38.1	38.4	36.4
GDP composition by economic sector (% of GDP)					
Agriculture	24.5	23.2	23.0	22.5	21.8
Industry and construction	36.7	38.1	38.5	39.5	40.1
Services	38.8	38.6	38.5	38.0	38.1
GDP composition by ownership (% of GDP)					
State	39.0	38.4	38.4	39.1	39.2
Non-state	47.8	47.8	47.9	46.5	45.6
FDI	13.2	13.8	13.8	14.5	15.2
Structure of investment by ownership (% of total investment)					
State investment	57.5	58.1	55.0	56.0	56.0
Non-state investment	23.8	23.5	27.0	26.5	26.9
FDI	18.7	18.4	18.0	17.5	17.1

Sources: East Asian Economic Perspectives (2005), Vol. 16, No. 1; CIEM (2005); Nguyen et al. (2005).

However, in spite of Vietnam’s overall success, there are also macroeconomic issues that may cause some concern for the future. Price stability is one example. The high GDP growth rate reflects high aggregate demand, and there is a risk that bottlenecks in the domestic economy will generate inflationary pressures. The increase in the inflation rate in 2004 is partly a reflection of this process. While the Vietnamese authorities have demonstrated that they are able to control domestic demand reasonably well, there is a worry that simultaneous external price shocks might complicate macroeconomic management severely. In particular, these fears are related to the development of the international oil price: Vietnam is a major exporter of crude oil, but also a substantial importer of refined oil products. Rapid increases in oil and gas prices might have severe effects, both directly and indirectly. Higher energy prices leave a strong direct imprint on the consumer price index, and contribute to the general problems related to high inflation: increasing uncertainty, higher nominal interest rates, and redistribution of wealth from current income earners to holders of real assets are all likely to reduce the growth rate of the economy. At the same time, there may be significant effects on public

finances. In particular, rapid increases in oil and gasoline prices may create public pressure for subsidization of energy costs, putting pressure on the government budget. It may be politically tempting to yield to these demands, since the rising oil price boosts public revenue and creates a margin that could be used for subsidization. However, such an intervention would constitute an undesirable precedent for public policy at a time when the general direction of Vietnamese policy-making should be in the direction of increasing market orientation. The subsidization of energy costs would cause problems whether or not the increase in the oil price is permanent. If the oil price remains at a high level, subsidies will obstruct or retard the adjustment to the new cost structure. If the price increase is temporary, it may still be difficult to withdraw the subsidies: all interventions create interest groups that tend to lobby for their specific cause even if it is not in the public interest. The development of the international oil price is of course beyond the control of Vietnamese authorities, but it poses a substantial challenge regarding the flexibility and responsiveness of macroeconomic policy.

The continuing dominance of the state sector is another example. Although the state sector controls most of the country's investment resources, there are worries that the investments are not efficient. The direct employment generated through state investment is small – the total employment in the state sector amounts to about 10 percent of the labor force, and has barely increased during the past decade – and there are frequent complaints about problems at all stages in the public investment process, ranging from planning to implementation (CIEM 2005). One of the long-term responses to these weaknesses is the *equitization* of state-owned enterprises, which is intended to establish harder budget constraints and more efficient and business-oriented management practices in the state sector. However, the equitization targets have been missed each year, and there are numerous problems slowing down the process. The most important ones appear to be resistance from SOE managers, problems regarding the valuation of state assets, and legal uncertainties connected to the restructuring and equitization of General Corporations. Although some 1,500 SOEs had gone through the equitization process by the end of 2004, they accounted for only 6–7 percent of the total state capital in the SOE sector (CIEM 2005). To maintain high growth rates, it will be necessary to accelerate the pace of SOE reform in coming years: one consequence of Vietnam's impending WTO membership is that it will be more difficult to discriminate other enterprise types in order to protect inefficient SOEs.

Another potential problem is related to the country's external balance. In 2004, Vietnam's merchandise trade balance recorded a deficit on nearly USD 6 billion, or 13 percent of GDP. Adding other current account transactions (services and transfers, e.g. overseas remittances and ODA), the deficit is reduced to about 4 percent of GDP, as shown in Table 1. While Vietnam does not appear to have any problems in covering this deficit in the short run – the inflows of FDI and foreign credits are more than sufficient to cover the current account balance, and external debt is not alarmingly high – it is essential that the import surplus is used to raise the country's long term competitiveness. The concerns in this area are related to the efficiency of investment, including state investment. Much of the deficit is probably directed to investments in SOEs and public infrastructure, which are expected to raise future production capacity. However, this assumes that the investment resources are used for projects that yield a sufficiently high social return. For

investments in industry, a key question is whether the enterprise will be able to survive in the more competitive climate that is expected as Vietnam joins the WTO in the near future. For infrastructure projects, the requirements are related to how well public investments are able to “crowd in” private investments. The fact that the capital inflows to Vietnam are presently at a high level – roughly comparable to those in China² – does not reduce these concerns. On the contrary, the availability of large amounts of capital makes it important to invest these funds efficiently, since there are often important lock-in effects of investments. Once large amounts of funds are committed to specific projects, they create interest groups that benefit from these investments and that are likely to try to maintain *status quo* even when it would be socially beneficial to change the direction of policies. Some of the difficulties in the negotiations about Vietnam’s WTO membership in recent years may, for instance, stem from investment decisions made in the state sector in the mid-1990s (see Kokko 1997).

Yet another area of concern is related to the emerging income and welfare gaps in Vietnam. Although the overall growth performance of the economy has been laudable – and although Vietnam has managed to cut the incidence of poverty by more than half since the introduction of market oriented economic reforms in the late 1980s – there are still worries about the distribution of income and wealth. High economic growth is a strong priority for the Vietnamese leadership, for several reasons. A high economic growth rate provides some degree of legitimacy to Vietnam’s one-party Communist rule: it may be argued that alternative political systems might be less efficient, consuming more resources for the political struggle between parties and interest groups and leaving less for productive investments. Even more importantly, a high growth rate is considered as a precondition for social stability. Given that initial wealth, human skills, and opportunities are not perfectly equally distributed in any society, and that economic development is a process where relative prices are in constant change, it can be argued that a certain minimum growth rate is necessary to ensure that all (or almost all) social groups benefit from economic development. Growth rates lower than this minimum might leave some groups worse off, which would cause discontent and might result in political protests and opposition against a system that is not perceived as “fair”: hence the need to generate sufficiently high growth. However, it is clear that income inequality has been rising in Vietnam over the past decade (see Glewwe et al. 2004). This is true both in a geographical and a social dimension – some regions are growing substantially faster than others, at the same time as some social groups fare much better than others. Geographically, it is obvious that growth is centered on Vietnam’s two urban centers – Hanoi and Ho Chi Minh City. The so called *socialization* of health and education, which entails moving a larger part of the financing burden from the state budget to the users of the services (i.e. the social groups), is an example of a policy that may have contributed to increasing social gaps. There is no doubt that some of these gaps will need to be addressed by policy makers to ensure continued smooth macroeconomic development.

² The capital inflows to Vietnam in 2004 included FDI valued at between USD 1.5 billion (according to SBV) and USD 4 billion (according to MPI), officially recorded overseas remittances of USD 2.4 billion, and ODA inflows of about USD 2 billion (in 2003). To reach an equally large inflow of foreign capital per capita, China would require between USD 85 billion and USD 115 billion per year, which is roughly in line with the capital account balance of the Chinese balance of payments in recent years (Prasad and Wei 2005, Table 6).

3. Patterns of regional development

Looking more closely at the geographical pattern of income and poverty in Vietnam, it is easy to see the income and development gaps discussed above. Figure 1 illustrates how poverty is both a regional and social phenomenon. Figure 1a outlines the incidence of poverty across Vietnam's 61 provinces in 1998, when the country's second large living standard survey (VLSS 2) was undertaken. Overall, some 37 percent of the population was estimated to live below the poverty line: poverty rates were highest in the mountainous Northern and Central provinces, where over half of the population was classified as poor. The only regions with poverty rates below 20 percent were Hanoi and Ho Chi Minh City with surrounding provinces. By 2002, when the third living standard survey was taken, the overall poverty rate had fallen to 29 percent, but the regional differences remained significant.

Figure 1b focuses on poverty density: each dot in the figure corresponds to 1,000 people below the poverty line. Even though the mountainous areas have the highest poverty incidence, they are relatively sparsely populated. The largest numbers of poor people are therefore found in the far south and the Red River delta southeast of Hanoi, where average incomes are relatively high and the overall poverty incidence is much lower than in the peripheral provinces. This reflects the large social gaps that exist even in the more prosperous parts of the country.

Given that the conditions for economic activity differ between locations, it is not surprising that income gaps emerge, particularly in the early stages of development. However, if these gaps continue growing over time – and in particular if the less advantaged provinces stagnate – it is likely that they will result in social as well as political problems. These may be particularly troublesome for a socialist state that promotes equality and balanced growth as some of the main development objectives. It is therefore relevant to examine the pattern of regional development and to discuss some of the possible determinants of regional growth.

The pattern of regional development in Vietnam (as in other countries) is determined by a multitude of different variables that can roughly be classified into three categories: geography, history, and policy. Geography refers to natural conditions, such as supply of natural resources, soil fertility, and location with respect to transportation routes and major markets. History largely accounts for the existing distribution of population and man-made resources affecting production capacity, including

any cluster or agglomeration effects. Policy refers to the political decisions (or the absence of decisions) that define the current conditions for economic activity. In addition, growth and

Figure 1a Poverty incidence in Vietnam 1998.

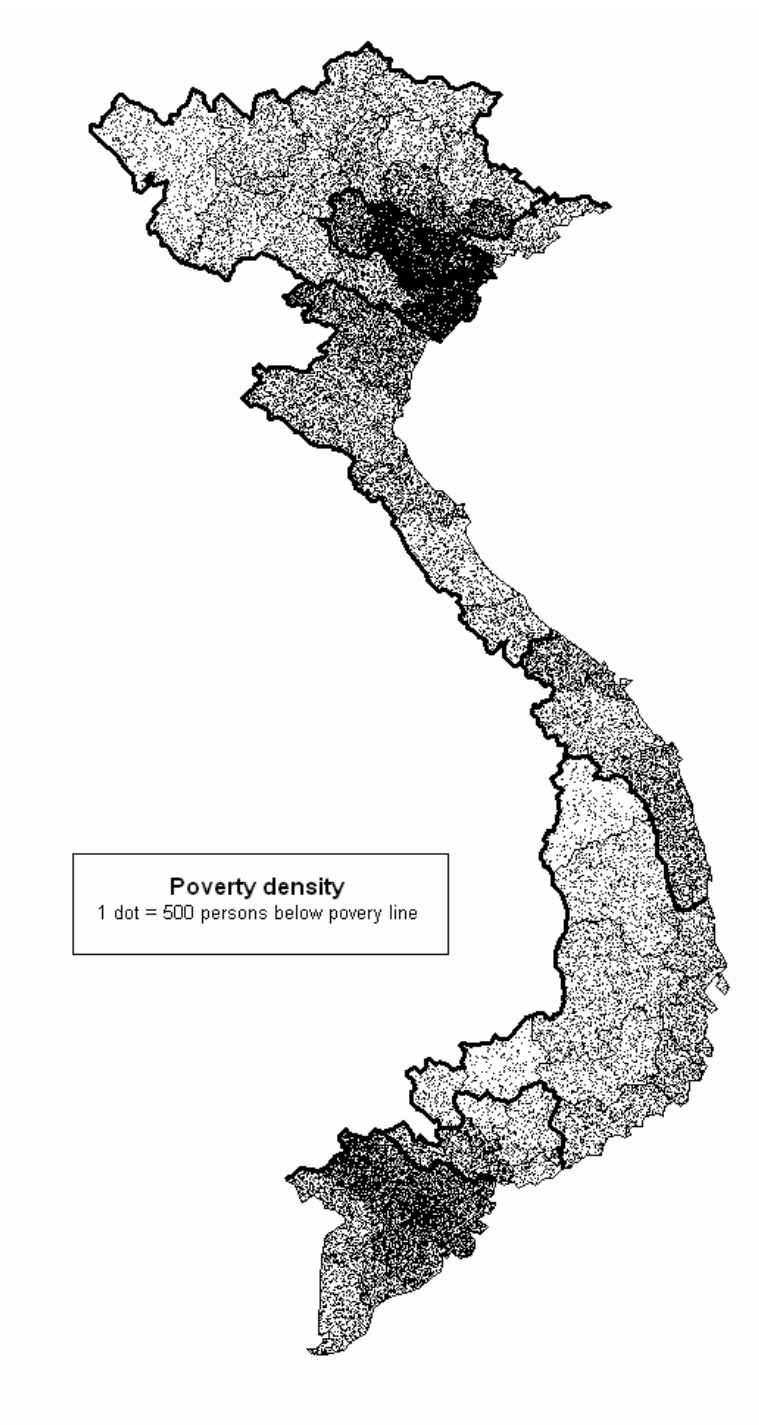
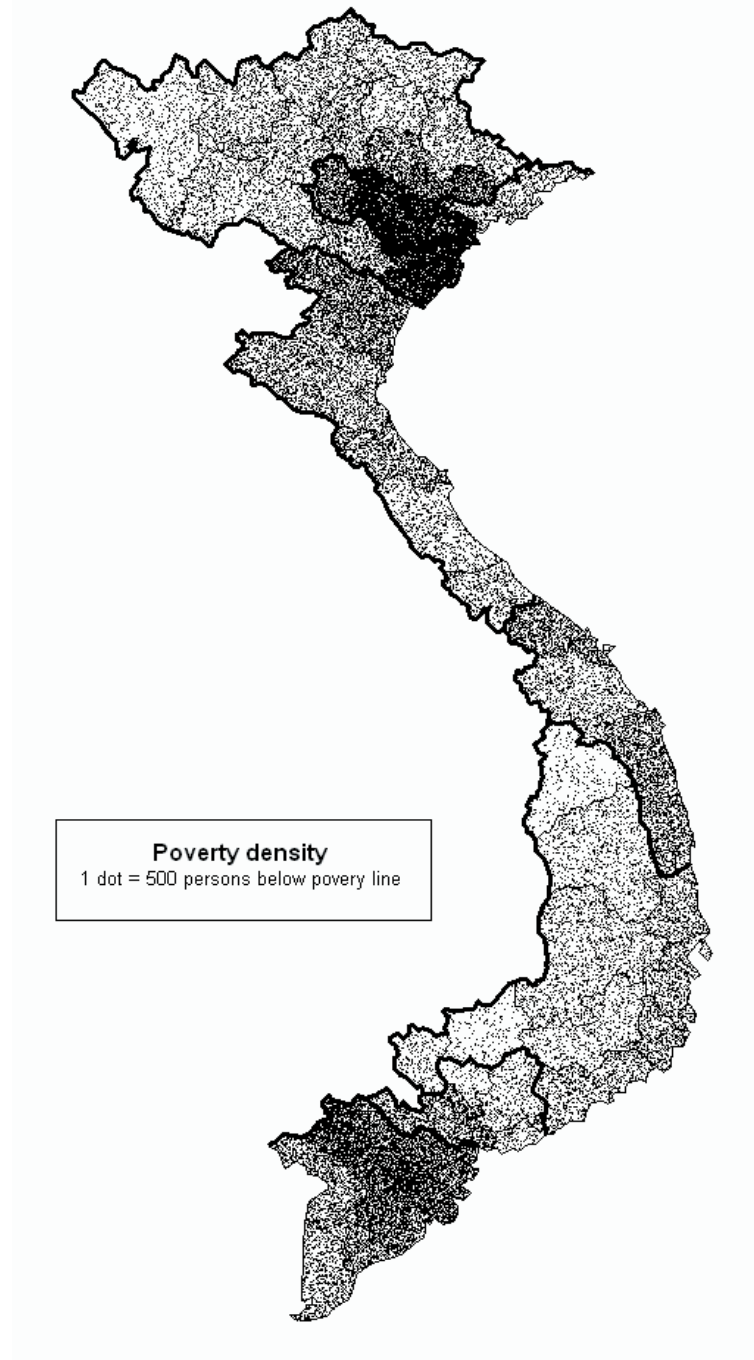


Figure 1b Poverty density in Vietnam 1998.

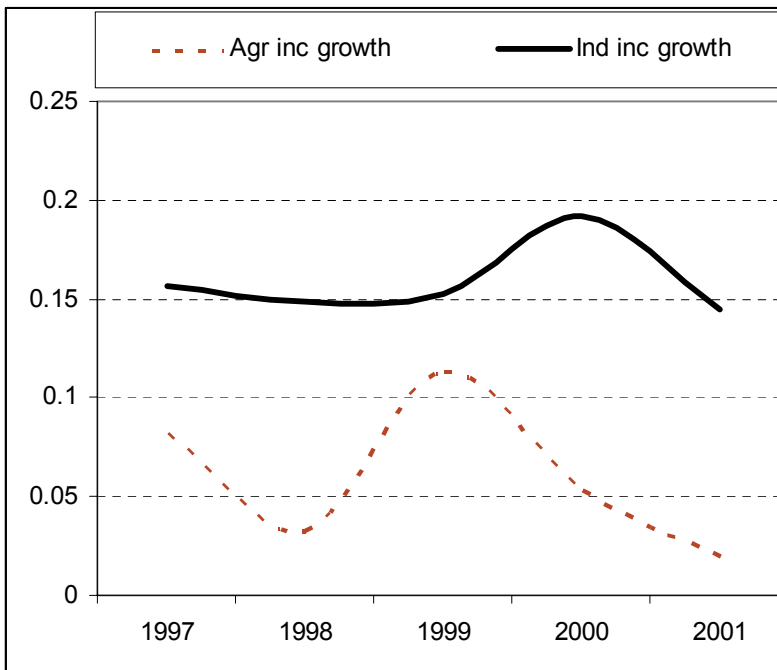


development in any specific province may depend on events in neighboring provinces or other parts of the country. These categories of determinants are not independent – for instance, the existing pattern of production capacity is determined partly by geographic conditions and past policy decisions, and current policies depend on the geographical and historical characteristics of each location – but they are useful as classification tools. Identifying the relative importance of the different groups of determinants is essential, because it reveals the scope for change: it is mainly the policy variables that can be used to influence the pattern of growth and development.

In the Vietnamese case, it is clear that the geographical and historical factors give a bias in favor of the two metropolitan centers: Ho Chi Minh

City and Hanoi with surrounding provinces. Both these urban centers benefit from a concentration of population and economic activity, which is likely to generate further growth in a process of cumulative causality of the kind described by Myrdal (1968, 1970). The initial location advantages of these two centers – related to the rich agricultural potential of the Mekong delta and the Red River delta – are largely irrelevant for today’s economic decisions, but the fact that infrastructure, knowledge, skilled labor, and purchasing power are concentrated to these regions provides strong arguments to direct new investment there. As a result of these agglomeration effects (Marshall 1920), most of Vietnam’s modern manufacturing industry can be found in the vicinity of Hanoi and HCMC. This provides an added advantage to the centers, since the growth rate of the agricultural sector is lower and more volatile than that of industry, as seen in Figure 2. The reasons are that the rate of technical progress is slower and output is more sensitive to natural variations in weather conditions in agriculture than in industry.

Figure 2 Income growth rates by sector, 1997–2001.



It is equally clear that geography constitutes a significant handicap for many of the poorest provinces in the mountainous central and northern parts of Vietnam. Exploring the determinants of poverty in Vietnam, Minot et al. (2003:72) conclude that “three-quarters of the variation in rural poverty at the district level can be explained by a small number of agro-climatic and market access variables.” These include primarily steep slopes and various measures of soil quality, together with distance to a town of at least 10,000 inhabitants.

At the same time, there are also forces that may benefit the more peripheral regions. For instance, there are costs of congestion that will eventually make the most central locations less attractive as production sites. High land prices, environmental degradation, and traffic congestion are some examples of factors generating such centrifugal effects. Spread effects (or spillovers) from the growth centers may also benefit development in outlying regions and provinces. The demand for raw

materials, food, and other products generated in the urban centers will provide opportunities for suppliers located elsewhere, and the knowledge and skills developed in the cities may gradually spread to other parts of the country. In addition, policy may be tailored to act as a centrifugal force, encouraging the diffusion of economic activity from the center to the periphery, e.g. through focused infrastructure projects and other public investments or tax rebates for private investments in outlying regions. The regional development pattern of the country is the sum of these two sets of effects. If the agglomeration effects dominate, regional disparities will gradually become more troublesome. If spillovers and centrifugal forces are significant, the situation is less severe since the peripheral areas can benefit from the good performance of the center.

Figure 3 provides a snapshot of regional growth in Vietnam in 2001. While some relatively poor provinces record high growth rates – for instance, some of the central highland provinces are among the best performers – there is no clear pattern of convergence. Instead, growth rates are high also in the relatively wealthy areas around Hanoi and Ho Chi Minh City, and lowest in some of the poorest northern provinces as well as in the far south, where overall poverty incidence is relatively low but the absolute number of poor people is high. The annual provincial growth rates are relatively volatile, but the same mixed picture applies also for most other years during the past decade.

Figures 4 and 5 therefore turn to some proxies for regional investment, which underlie the regional growth performance: these may contribute to explaining the mixed growth pattern. Figure 4 begins by looking at some measures for private investment. Figure 4a shows the provincial inflow of FDI per capita in 1998: the picture for other years is roughly similar. Figure 4b shows the number of newly registered private enterprises per 1,000 inhabitants in 2001, after the introduction of the new Enterprise Law. Both indicators show a clear concentration of investment to provinces that are already relatively prosperous, in particular around Hanoi and HCMC – private investment evidently acts as a centripetal force, favoring the areas that are already prosperous.

Figure 3 Provincial growth rates in Vietnam 2001.

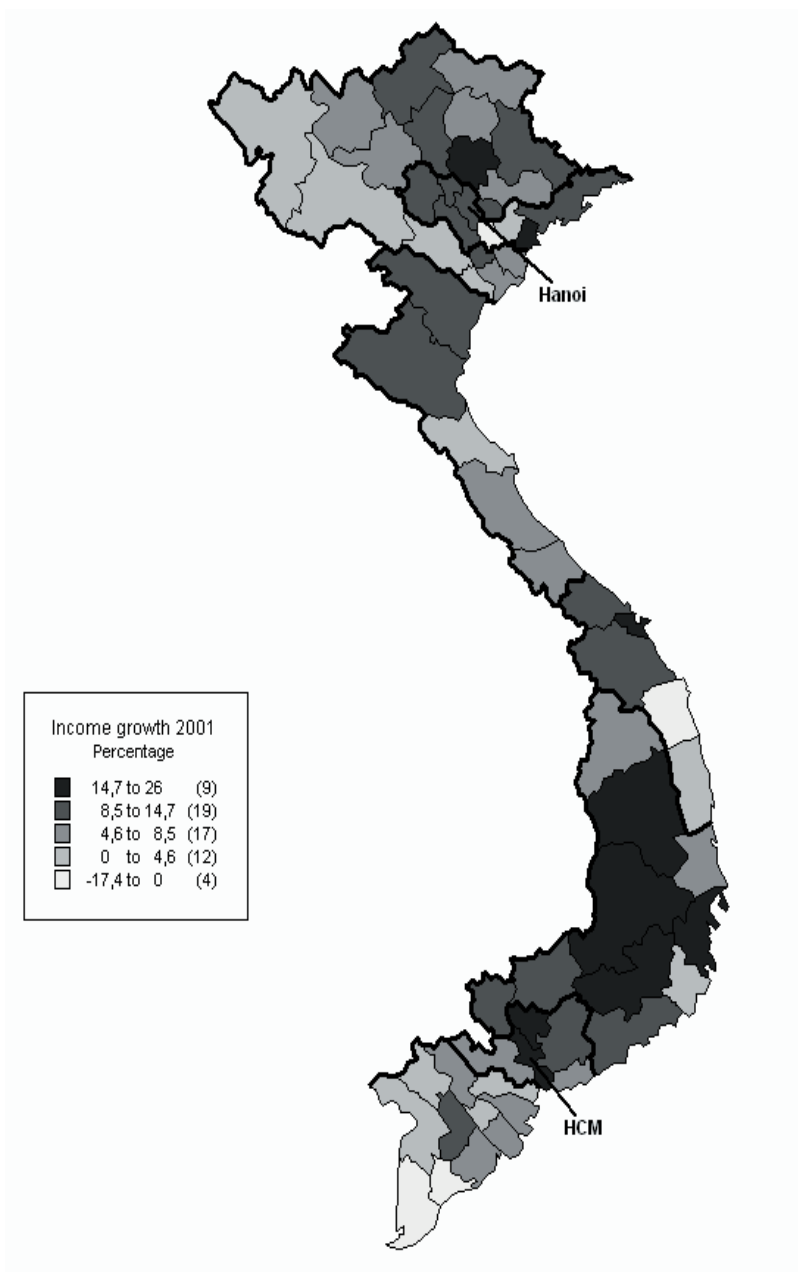


Figure 4a FDI capital per capita 1998.

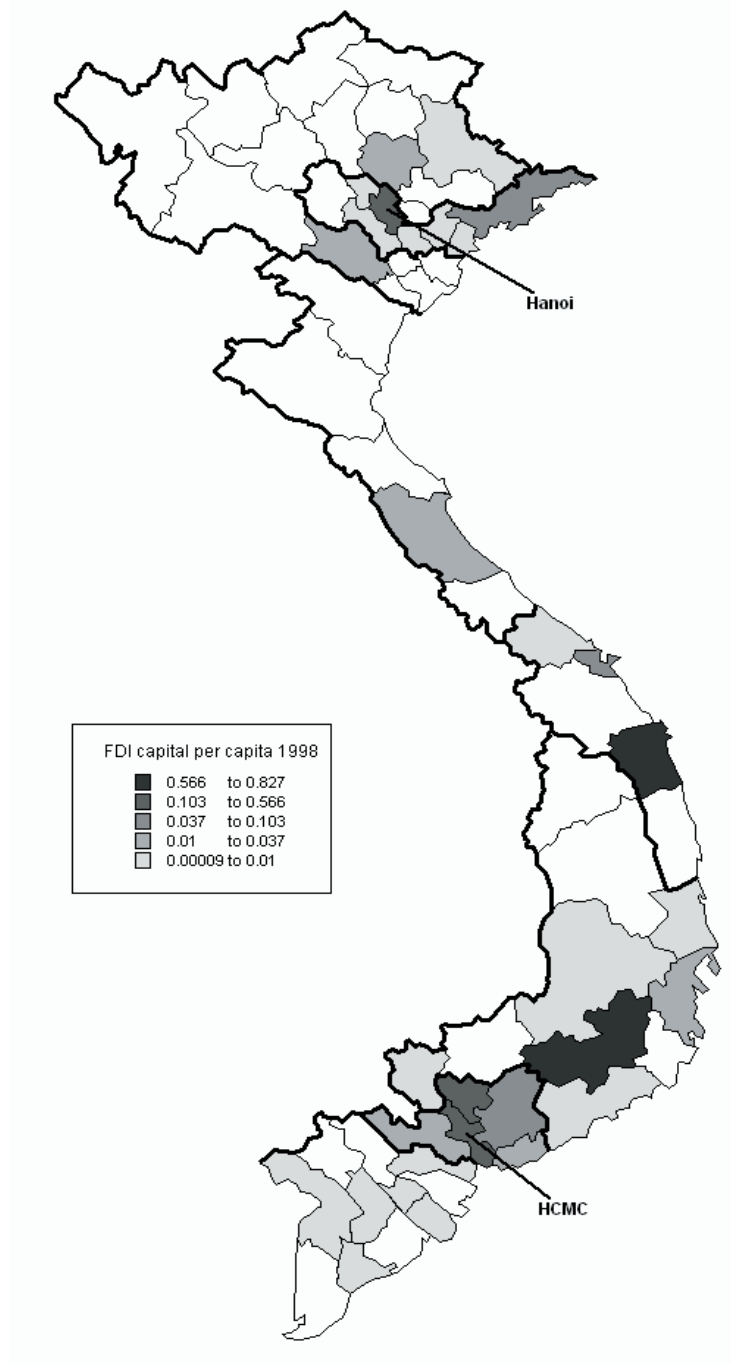


Figure 4b Establishment of new private enterprises 2001.

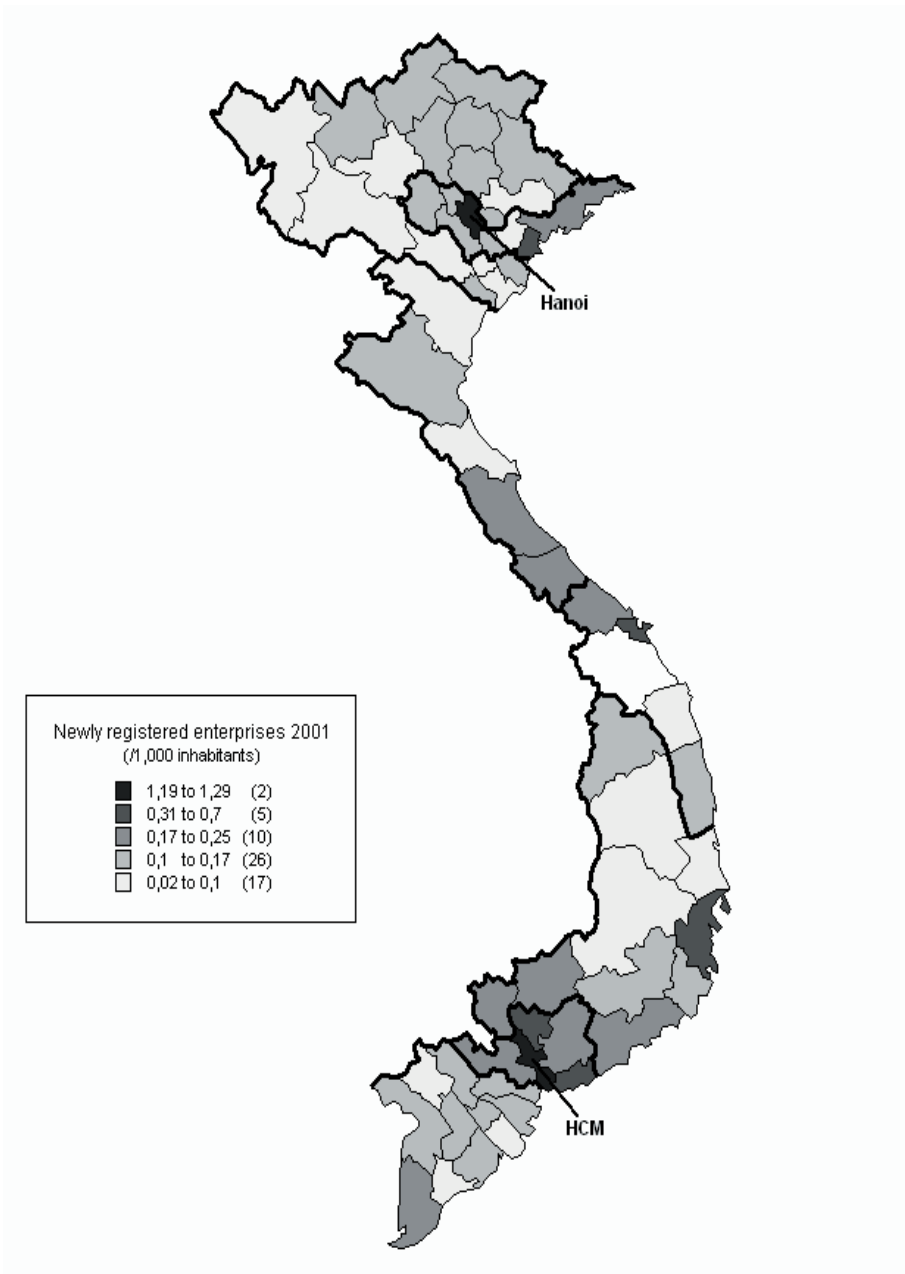


Figure 5 presents a rough estimate of the distribution of ODA across provinces and the share of local SOEs in provincial industrial output in 2001. Here, the pattern is distinctly different from the previous figure. ODA is largely concentrated to some of the central and northern highland provinces that record the highest poverty incidence.³ This is clearly in line with the regional policies objectives of both donors and the Vietnamese government: aid is a potentially important instrument for reducing the regional disparities in the country.

³ The ODA measure has been calculated from UNDP (2003), and proxies the aggregate amount of ODA loans and grants per capita in projects that were ongoing in 2001. Only projects with an explicit geographic destination are included.

However, it is appropriate to note that ODA flows are not strictly proportional to provincial income levels, and that the current geographical distribution of ODA is not necessarily the one that maximizes the impact on poverty. One reason is that several provinces in the southern part of the country seem to receive less ODA than what could be expected by their income levels; another reason is that the majority of poor people are not found in the poorest provinces, which are relatively sparsely populated. Instead, most of the poor people are found in the Red River delta and the Mekong delta, in provinces where the overall incidence of poverty is not remarkably high. The relative importance of local SOEs is also largest in the poorer provinces.⁴ One interpretation is that local authorities step in to substitute for the scarcity of private investment. Another possibility is that the heavier reliance on SOEs distinguishes provinces where local policies are less favorable to private investment, which could partly explain their low private investment rate and weaker economic performance.

Growth and convergence regressions

While Figures 3–5 give some indications of how the regional income gaps in Vietnam are developing, it is hard to capture the simultaneous interactions between the different determinants in a visual form. It is therefore necessary to also look at some econometric evidence regarding regional growth and convergence (or the lack of it).

A commonly asked question concerns the relation between growth and initial incomes. Do richer provinces systematically grow faster, or are there advantages of backwardness – e.g. related to the possibility to absorb knowledge and technology that are developed and tested in more advanced locations – that allow initially poorer provinces or countries to grow faster (Abramowitz 1986)? Table 2 explores this question in some detail for the period 1996–2001.

⁴ The output share of centrally controlled SOEs is more unevenly distributed. In general, centrally controlled SOEs hold a much larger share of industrial output in the northern parts of the country, promoting a more equal distribution of regional income in the north but not in the south.

Figure 5 Distribution of ODA 2001.

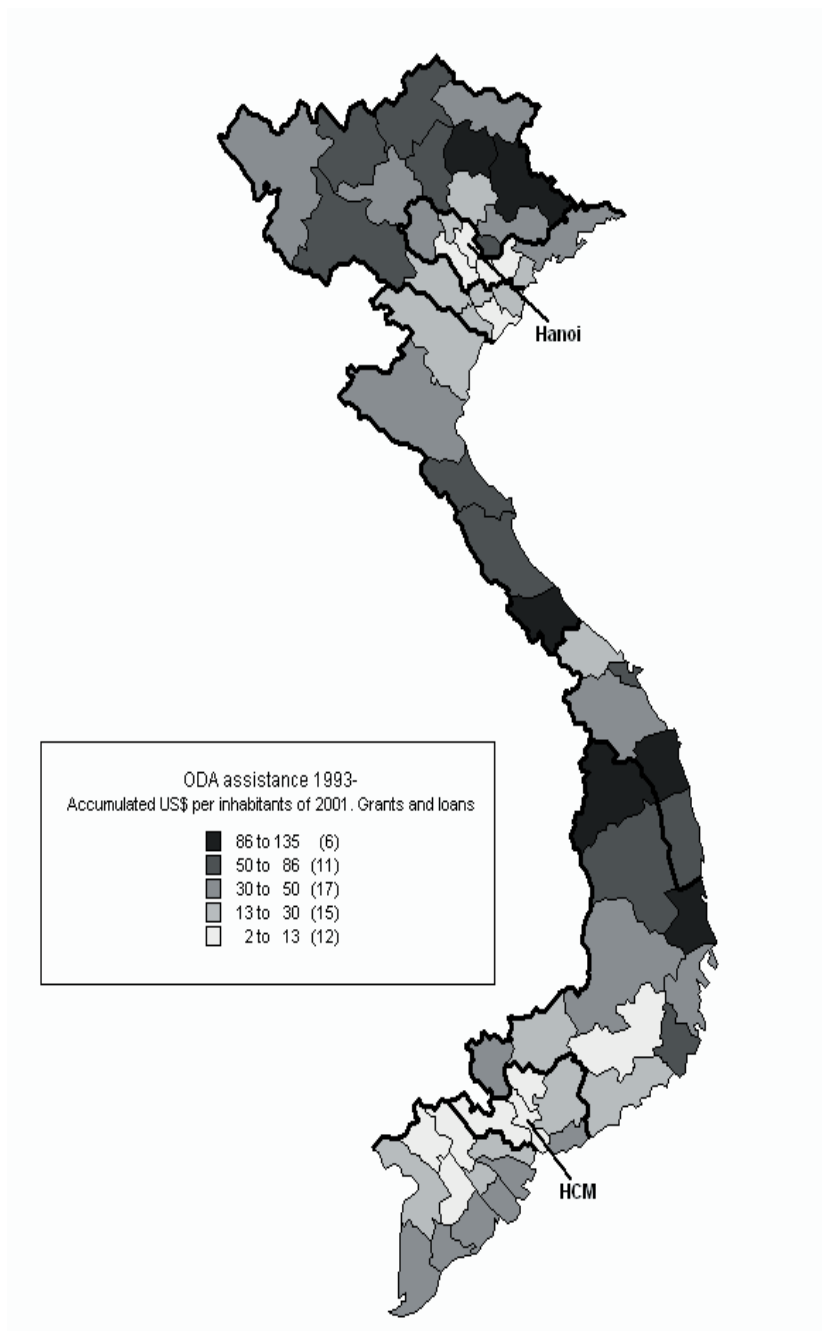


Table 2 Determinants of provincial growth in Vietnam.

	2.1	2.2	2.3	2.4
Dependent variable	Inc/ capita	Inc/ capita	Inc/ capita	Inc/ capita
Estimator	BE	OLS	BE	OLS
lnct-1 (convergence)	0.018 (0.09)*	0.014 (0.04)**	0.003 (0.86)	-0.010 (0.34)
ln(pop)t	-0.004 (0.73)	-0.002 (0.76)	-0.007 (0.56)	-0.009 (0.35)
Agr population t			-0.029 (0.59)	-0.061 (0.13)

Land productivity t	-0.001 (0.94)	0.010 (0.09)*
Local SOEs t	-0.085 (0.05)**	-0.102 (0.00)***
FDI-penetration t	2.055 (0.30)	3.453 (0.02)**
Education t-1	0.005 (0.11)	0.003 (0.05)**
Education quality t-1	1.517 (0.39)	1.144 (0.15)
Edu*Edu-quality t-1	-0.093 (0.25)	-0.064 (0.12)
Period dummies	Yes	Yes
Fixed effect	No	No
R2	0.05	0.08
Obs.	305	305
	244	244

Notes: ***, **, * indicate significance at the 1, 5, and 10 percent level, respectively.

p-values within parentheses. BE indicates the between estimator.

For variable definitions, see Appendix Table 1.

The first two columns of the table (2.1 and 2.2) report the results of a simple regression where the provincial income level at time t is a function of only two variables, the income level at time $t-1$ and the size of the population at time t . This tests whether there is absolute or unconditional convergence. The last two columns (2.3 and 2.4) focus on a more complex model that adds a number of variables to control for production structure and absorptive capacity, to test for conditional convergence. The control variables include the share of the population living in rural areas, proxies for land productivity (to control for the geographic characteristics of the province), the role of local SOEs, FDI penetration, and various measures of human capital and education (see Appendix 1 for a list of variable definitions and data sources).

Looking first at regression equations 2.1 and 2.2, there are no signs of convergence: on the contrary, the coefficient of the initial income level is positive and statistically significant in both of our estimations alternatives (OLS and BE). This suggests divergence, i.e. that initially rich provinces also grow faster. There are no signs of convergence in equations 2.3 and 2.4 either: initial income does not have any significant impact on growth. In fact, there are indirect signs of divergence in these two equations as well. Land productivity, FDI penetration, and education record have positive effects on growth, and it is the provinces that are already relatively prosperous that record the highest values for these factors. Hence, looking at these results, it appears that the income gaps between Vietnamese provinces are not shrinking, but may instead be growing over time. The conclusion that there is no evidence of convergence confirms the results in Anh and Klump (2004), who explore provincial growth in Vietnam using a different data set. They also find that initial income (measured as gross regional product per capita) does not have any statistically significant impact on growth.

While the finding that regional income gaps seem to be growing may be worrying, it should be noted that it does not necessarily mean that the strong performance of the growth centers is detrimental to the surrounding provinces. The gap between richer and poorer provinces is appar-

ently not shrinking, but the growth of the richer provinces may still spill over to the surrounding areas, albeit at lower rates than at the center. One indication is the clustering of growth seen in Figure 3: the growth rates are high not only in Hanoi and HCMC (and Danang) but also in the neighboring provinces. It may therefore be necessary to consider econometric models where the observations (provinces) are not treated as independent events, but where spatial dependence or spatial spillovers are explicitly taken into account (Temple, 1999).⁵

To examine the spatial dependence between the growth rate of income in a province (g) and the average growth rate of neighboring province, we define a so-called spatial lag (Wg). W is a square, block diagonal matrix, with the number of rows and columns in each block equal to the number geographical units. The element w_{ij} reflects the assumed spatial dependence between locations i and j . Thus, the values of the matrix are assumed a priori. To simplify as far as possible, we let W be a first order contiguity matrix, which means that $w_{ij} = 1$ if county i and j share a common border and $w_{ij} = 0$ otherwise.

Spatial dependence is typically measured by the Moran I statistic⁶, which is found to be statistically significant (p-value = 0.0001)⁷ with a value of 0.21. Thus, provinces with high (low) growth rates tend to be located near other provinces with high (low) growth rates, to a greater extent than would be expected due to randomness. The corresponding value for Swedish counties for the period 1991–1993 is 0.24.⁸ Hence, the degree of spatial interdependence among the Vietnamese provinces is similar to what has been found in Sweden. In Sweden, the degree of spatial interdependence has been growing over time. This suggests that as the Vietnamese economy develops and the infrastructure improves over time, input-output linkages are likely to grow stronger and contribute to a higher degree of spatial interdependence.

To examine Vietnamese spatial interdependence in some closer detail, we first look at how the phenomenon varies across time and to what extent it fades out with respect to distance. This is illustrated in Figure 6. In the left-hand panel, it can be seen that there is no increasing trend in spatial interdependence during the 1996–2001 period – instead the degree of spatial interdependence seems to vary quite strongly from year to year. The degree of spatial interdependence in 1997 and 2001 was more than twice as strong than 1999. This pattern is most likely a pro-cyclical phenomenon. These results do not change much if we income weight the elements w_{ij} reflecting the assumed spatial dependence between locations (shown by the dotted line in Figure 6). The geographical dimension of spatial interdependence is shown in the right-hand panel. The degree of spatial interdependence fades out relatively rapidly as we look at provinces that are further apart. In fact, the spatial spillover effect is statistically significant for the first order neighbor only, indicating spatial growth independence among provinces that not share a common border.

⁵ Most growth studies assume independent observations. For some notable exceptions, see e.g. Moreno and Trehan (1997) which is a country study and Montouri and Rey (1999), who examine relations between US states. Further, Armstrong (1995) and Chatreerji and Dewhurst (1996) take geography into account when analysing Great Britain and López et al (1999) apply a spatial approach when studying convergence dynamics across European regions.

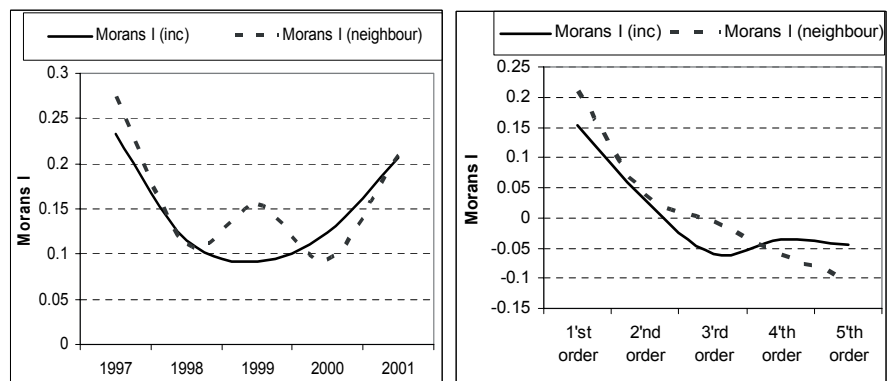
⁶ For details, see e.g. Cliff and Ord (1972, 1973, 1981).

⁷ All spatial tests and regressions were obtained using SpaceStat, Anselin (1995). The p-value is based on 10 000 permutations. The permutation approach allows us to relax distributional assumptions on the data.

⁸ See Gustavsson and Persson (2003).

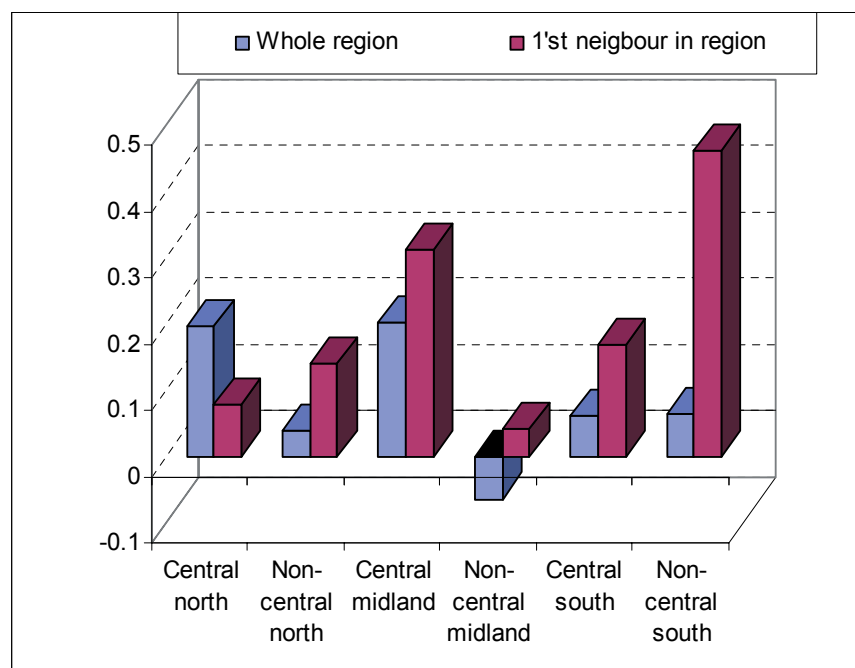
We have also divided Vietnam into six regions in order to examine whether the degree of spatial interdependence varies between the different parts of the country. The six regions are central north (including Hanoi), central midland (including Danang), central south (with HCMC), non-central north, non-central midland (including the central mountain region) and non-central south (mainly the Mekong delta). The results, shown in Figure 7, suggest that the degree of spatial interdependence is not highest in the most developed areas. Instead, the degree of growth-interdependence is strongest in the central midlands and the Mekong delta. The likely reason is that these provinces share a similar economic structure with heavy reliance on agriculture – this may mean that they also share the sensitivity to variations in the weather and in agricultural prices. It is possible that the linkages between the provinces in the central north and the central south are still relatively weak because of large differences in industrial structure.

Figure 6 Spatial interdependence across time and higher order spatial interdependence.



Note. Only the first order spatial lag is significant at the 10 percent level.

Figure 7 Spatial interdependence by region.



Another interesting result is that the central north differs from all other regions when it comes to the relative importance of spatial interdependence with the first order neighbors and with the whole region jointly. In the central north, the relation with the whole region jointly is stronger than that with the nearest neighbor. One interpretation is that Hanoi may have weaker linkages to its immediate neighbors than what is the case for Ho Chi Minh City. It is also possible that there is a stronger link between Hanoi and the coastal provinces (Haiphong) than between Hanoi and its immediate neighbors, and that the spillovers may occur along the Hanoi-Haiphong corridor rather than around Hanoi.

Spatial growth regressions

The next step is to include spatial interdependence into a growth regression, to examine explicitly what is the role and significance of spatial linkages controlling for other growth determinants. The theoretical basis for our analysis is the neoclassical growth model⁹ and we estimate the following empirical equation:

$$\ln(y_{it} / y_{it-1}) = c + \beta \ln y_{it-1} + \rho(W * \ln y_{it}) + \gamma X_{it} + \alpha_t + \mu_i + \varepsilon_{it} \quad (1)$$

where y is regional income, X is a vector of explanatory variables, γ is a vector of coefficients, α is a period dummy, μ is fixed provincial effects, ε is the classical error term and β is a convergence parameter. We allow for spatial interdependency by including the log of the income level in contiguous provinces, $W \ln y$ where ρ measures the degree of spatial interdependence.¹⁰

Income growth is a sluggish process and long time series are therefore advantageous. Using panel data allows us to control for initial differences in levels across provinces and to handle the endogeneity problem that arises when we introduce income in both sides of the regression equation. The price we have to pay for solving the endogeneity problem is that we disregard income differences between provinces. Instead we include a variable reflecting the speed at which each province converges toward its own steady state (i.e. the “expected” income level for a province with the same values for the different explanatory variables). To be precise, this approach disregards cross-sectional income differences and focuses on the flexibility of the province’s growth. In addition and maybe more importantly, we analyze the impact of e.g. FDIs, SOEs, education, and income growth in nearby provinces on income growth.

A comment on data is also necessary. The availability and reliability of data is a major problem for empirical studies on Vietnam. In particular, the income variable is of central importance for our analysis. Unfortunately, we do not have access to provincial GDP data: instead, we construct an income measure from data on the total population together with information about industrial and agricultural income. Dividing industrial and agriculture income with the number of citizens generates a measurement error (the relative size of the economy outside the manufacturing and agricultural sectors differs across provinces). However, in the (GMM) estimations we focus on the time dimension of the data, which

⁹ See e.g. Temple (1999).

¹⁰ We apply the Arellano Bond GMM-estimator where, because of endogeneity, initial income and the spatial lag are instrumented. We instrument the spatial lag ($W \ln y$) with the exogenous variables, spatial lagged exogenous variables and income lagged two years or more. W is a row standardized first order contiguity matrix. Row standardizing implies that each row sums to one which means that the coefficient of spatial dependence, ρ , is bounded from above by one. For details, see Anselin (1988).

reduces the size of the error. Moreover taking (changes) in the population or population-density into account allow us to control for provincial differences in population growth (net of migration). Given the data limitations, using data along these lines minimizes the measurement error problem.

Equations 3.1 and 3.2 in Table 3 reveal that income growth in contiguous provinces has a strong positive impact on provincial growth. The estimated coefficient on the degree of spatial interdependence is typically in the interval 0.5-0.70. The interpretation of an estimated spatial lag parameter of 0.5 for the income in surrounding provinces is as follows: if income grows by one percent in neighboring locations we expect it to boost income growth by 0.5 percentage points. That is, income growth and not changes in the growth rate in contingent provinces is found to be important.

Table 3 Spatial growth regressions, Vietnam.

	3.1	3.2	3.3
Dependent variable	Provincial growth	Provincial growth	Provincial growth
Inct-1 (convergence)	-0.443 (0.00)***	-0.390 (0.00)***	-0.399
W*ln(inc)t (spatial interdependence)	0.979 (0.00)***	0.589 (0.01)***	0.528 (0.04)***
ln(popdens)t	0.979 (0.00)***	0.540 (0.20)	0.720 (0.12)
Agr population t		-0.744 (0.46)	-0.140 (0.89)
Land productivity t		0.052 (0.00)***	0.053 (0.00)***
Local SOEs t		-0.132 (0.33)	-0.171 (0.20)
FDI-penetration		5.750 (0.08)*	6.085 (0.06)*
Education-t1			0.002 (0.46)
Education quality t-1			1.294 (0.10)*
Edu*Edu-quality t-1			-0.039 (0.54)
Period dummies	Yes	Yes	Yes
Fixed effect	Yes	Yes	Yes
2'nd res corr	0.94	0.59	0.58
Sargan test	0.14	0.31	0.30
Obs.	183	183	183

Notes: The dependent variable is provincial growth. ***,**,* indicates significance at the 1, 5, and 10 percent level respectively. p-values in parentheses (). Estimated using the Arreleano Bond GMM estimator.

Why do we observe spatial growth interdependence? As mentioned above, spatial interdependence is partially related to the flow of goods and workers. If we were able to capture these kinds of provincial links directly, the size of the estimated spatial lag parameter would probably

diminish. Therefore, the estimated spatial interdependence partially reflects omitted variables. The strength of inter-provincial growth links is expected to grow stronger as trade and input-output links grow stronger.

The degree of FDI penetration is found to be strongly beneficial for income growth, as in the earlier cross-section analysis.¹¹ The estimates in Table 3 suggest that a one percent increase in the share of foreign-invested firms raises income growth by roughly six percentage points. However, this probably overestimates the direct impact of FDI. The variable is likely to capture not only the presence of FDI, but may also reflect the attractiveness of the province as a location for foreign investment. This, in turn, depends on market potential, the quality of policy, geographic conditions, and other factors that are not captured by the explanatory variables included in the model. Moreover, it is possible that there are effects of FDI on both local enterprises and local policy. Kokko and Tran Toan Thang (2005) report that the presence of FDI seems to raise productivity of local privately owned firms in the same industry, while Malesky (2004) argues that the presence of foreign investors may act as a catalyst for institutional change and reform at the provincial level. Although the industrial dependence on local SOEs was found to be correlated with relatively low incomes levels in Figure 5, it does not appear to have any significant impact on growth.

The province's agricultural dependence, population density, and land productivity (output of rice per square meter paddy field) reveals a great deal of the province's industrial structure. For example, a high population density indicates a potential for agglomeration and a large number of customers within a relatively short distance. We find only (increasing) land productivity to be significantly correlated with income growth, while increasing population density or share of agriculture population has no significant impact on growth.¹²

The estimate convergence coefficient β also suggests that Vietnamese provinces adjust remarkably fast toward their own steady state. In one year, a province closes roughly 40 percent of the income gap with respect to its steady state, which is defined by the structural characteristics of the provinces (such as population density, land productivity, FDI, and education). There are at least two interpretations for this finding. Firstly, it is consistent with non-sluggish changes in provincial growth rates. Hence, a province that records high growth one year might be a low growth province the next year. This volatility may partly be driven by a relatively high level of agricultural dependence. Secondly, the results suggest that the provinces will rapidly accommodate to changes in policy or endowments. It is plausible that both lines of reasoning play a role explaining the results. The Vietnamese economy can safely be characterized as both an agriculture-dependent economy and as an economy in a fast transition.

North and South regressions

From an economic policy perspective, it is reasonable to expect structural differences in economic behavior and dynamics between the northern and southern parts of the country. Even if the economic policies have converged, experiences from the past may leave footprints for many years. It is therefore interesting to analyze if the impact of our variables differs between North and South Vietnam.

¹¹ We treat FDI-penetration not as strictly exogenous but predetermined. This allows unexpectedly high/low growth rates to have a feedback on subsequent changes in FDI-flows.

¹² High income growth may promote migration from rural to urban areas: we therefore treat the share of agriculture population not as strictly exogenous but predetermined.

Comparing the North and South, two findings are of particular interest. First, in both the unconditional and conditional growth regressions in Table 4, we only find evidence for a significant spatial interdependence in South Vietnam. In North Vietnam, the spatial growth links are not significant. This suggests deeper cross-provincial integration – including trade and other economic links – in the South. To some extent this may partly be explained by more developed infrastructure in the South. Other reasons may be that the Northern provinces are more inward-looking than provinces in the South. It is also likely that some of the spatial correlations in the South are related to stronger policy competition than in the North. Successful provincial policies are quickly imitated in neighboring southern provinces, but there does not appear to be any similar effect in the North. A question for further research is whether the geographic pattern of growth might also explain some of the differences in spatial effects. While growth in the South seems to occur in circles around Ho Chi Minh City, much of the growth in the North is driven by developments in and around the Hanoi-Haiphong corridor.

Table 4 Spatial growth regressions, South vs. North Vietnam.

	4.1	4.2	4.3	4.4
	UNCONDITIONAL		CONDITIONAL	
	SOUTH	NORTH	SOUTH	NORTH
lnct-1 (convergence)	-0.954 (0.00)***	-0.347 (0.02)**	-0.453 (0.00)***	-0.357 (0.00)***
W*ln(inc)t (spatial inter- dep)	0.488 (0.00)***	0.255 (0.30)	0.316 (0.10)*	0.145 (0.66)
ln(pop)t	1.761 (0.00)***	-0.611 (0.56)	1.040 (0.03)**	1.182 (0.26)
Agr population t			-0.762 (0.41)	-1.693 (0.47)
Land productiv- ity t			0.102 (0.00)***	0.049 (0.02)**
Local SOEs t			0.059 (0.67)	-0.389 (0.15)
FDI-penetra- tion t			8.964 (0.00)***	28.298 (0.51)
Education t-1			-0.001 (0.61)	0.004 (0.39)
Period dummies	Yes	Yes	Yes	Yes
Fixed effect	Yes	Yes	Yes	Yes
2'nd res corr	0.83	0.82	0.76	0.55
Sargan test	0.61	0.04	0.99	0.95
Obs.	99	84	99	84

Notes: ***, **, * indicates significance at the 1, 5, and 10 percent level respectively. p-values within parenthesis (). Estimated using the Arreleano Bond GMM estimator.

In addition to the differences regarding spatial interdependence we only find a positive significant impact of FDIs in the South. A brief look at the geographical distribution of FDIs suggests that the majority of foreign firms are located in the South. Foreign-owned firms are on average

larger than Vietnamese firms, and their larger scale of operations may contribute to the spatial links: they may interact with suppliers and customers not only in the home-province, but also in neighboring provinces. Once an inter-provincial trade link is established, local firms may make use of the channel which further strengthens the link. Hence, the results focusing on the North-South distinction suggest that the South is more open, outward looking, and attractive for (foreign) investment than provinces in the North. These differences may be due to policy differences among the North and South but may also reflect differences in infrastructure and development.

Focusing on similarities, we find that (changes in) the share of agriculture population, population in upper secondary education and the degree of dependence on local SOE in the manufacturing sector have no significant impact of provincial growth rates while (increasing) land productivity has a positive impact on growth rates in both the North and the South. At large, this is what we also found for the whole Vietnam.

Summary: regional growth patterns

Summarizing the evidence discussed above regarding the patterns of growth and development in Vietnam, there appear to be at least four tentative conclusions from the analysis.

- Firstly, the provincial income gaps in Vietnam are substantial, and they are not only related to per capita incomes and poverty incidence. There are also substantial provincial differences regarding some of the determinants of growth, like FDI inflows and entrepreneurship (or rather the creation of new firms). There are also variables that could serve to balance regional development: ODA is the most obvious one. However, although there is a tendency for ODA resources to flow primarily to poorer provinces, there is no direct relation between provincial income level and provincial ODA inflow. In particular, the share of development assistance directed to the relatively poor provinces in the far South is surprisingly low.
- Secondly, as a result of these differences in growth determinants, there are no clear signs of convergence between richer and poorer provinces. On the contrary, unconditional growth regressions suggest that provinces with initially higher income levels tend to grow faster.
- Thirdly, although the poorer provinces seem to be falling behind in income comparisons, they do benefit from the growth that occurs in the more successful regions. There is a positive spatial spillover effect suggesting that a provinces growth performance is positively affected by growth in neighboring provinces.
- Fourthly, the results regarding the spatial spillover effects are driven by interactions between the provinces in the southern parts of the country. There are no clear signs of similar effects in North Vietnam. A challenging question for future study is to what extent this finding is related to differences in the geographic growth patterns in the two parts of the country, and to what extent it is the outcome of differences in economic structure and policy.

While these results may serve to dispel some of the concerns regarding regional income and development gaps – poorer provinces benefit from the growth in richer provinces – it should be noted that it is not only the absolute growth performance that matters. In many cases, the assessments of performance are based on how well a province or group of

people does in relation to others. Thus, even though the income levels and living standards of poor provinces are rising, they may be rising too slowly to satisfy the expectations and demands of citizens who know that other regions are growing faster. Convergence can therefore eventually become a political necessity.

The discussion above has indicated some ways to improve the growth performance of poor provinces. In particular, it has been noted that ODA resources can be used to promote the development of lagging regions. The regression results have also highlighted the role of FDI inflows, or more generally, the importance of a good investment environment with economic policies supporting the development of foreign as well as domestic enterprises. This brings up questions about what kinds of policy are efficient in supporting enterprise growth. The next section will therefore discuss provincial policy and explore the growth effects of direct government support to small and medium sized enterprises in Vietnam.

4 Effects of provincial policy on growth

A number of recent studies have discussed the reasons for differences in regional and provincial growth in Vietnam. Apart from underlining the importance of geographic conditions like soil quality, land slopes, distance to major cities (Minot et al. 2003) and various ethnic and demographic variables (Glewwe et al. 2004), they have also discussed the role of various local government policies. Although the overall policy environment is largely defined at the national level, there is still substantial scope for regional diversification in policy making. This concerns in particular the policies to promote private sector development, where many decisions can be made at the provincial or local level. The exceptions, at least in theory, are tax policy and land policy. The company income tax rates are specified by the central government, and range from 10 percent to 25 percent depending on the location of investment and the industry in question: the lowest tax rates are applied for investments in poor provinces and projects focusing on strategically important industries. Similarly, the range of land lease prices is centrally determined, and depends on the location, type of land, and intended use.

The area where the provincial governments seem to have most room for local policy making is public administration. For instance, even though business licensing procedures were simplified with the new Enterprise Law in 2000, entrepreneurs still need to go through several steps of registration at the local level. Investment feasibility studies are required, as well as land lease registrations, environmental licenses, tax and custom code registrations, and so forth. The central government has provided guidelines for how these registration processes should be managed, but actual implementation is decided by local authorities. Many provinces have recognized that cumbersome administration may be an obstacle for private enterprises, and established “one-stop shops” where investors can submit all the necessary documentation: in most cases, this has greatly reduced the time required for the registration process. In addition, several provinces are actively promoting investments through the establishment of local investment and business promotion centers – often focusing on domestic as well as foreign investors – together with various kinds of programs to support local industry. These include support for land clearance and infrastructure investment, often in industrial zones,

credit assistance, training, and technical advice.¹³ The main determinant of how these policies are designed is probably the attitude to private enterprise, which varies much across the country. A rough generalization might be that provinces in the southern parts of Vietnam are more favorably inclined to private business than the northern provinces, although there are exceptions.¹⁴ Other important determinants are the budget strength of the province (which clearly favors the relatively wealthy provinces around Ho Chi Minh City), its land resources, as well as the human capital and planning capacity of the provincial administration: these variables determine how well local authorities are able to help private firms with access to land and credits, which are commonly seen as the most important challenges for private business development in Vietnam.

Table 5 Malesky Classification on Province Types

Province Type	Description	Behavior	Examples
1. Reformers	Good initial conditions with low state sector dependence	Fence breaker or sanctioned experimenter	HCM City, Binh Duong, Dong Nai, Da Nang (from late 1990s)
2. Spillover Recipients	Near Type 1 provinces. Attracted FDI in late 1990s	Late fence breaker, maybe sanctioned experimenter	Long An, Vinh Phuc, Kien Giang
3. Wafflers	High FDI but in JVs with state, highly state dependent	Cautious fence breaker likely to reverse course	Haiphong, Hai Duong, Bac Ninh, Da Nang (in early 1990s)
4. Greenfield Private	Low state sector shares and weak initial conditions	Encourages private sector, but with very little experimentation	An Giang, Tay Ninh, Lam Dong, perhaps Dac Lac
5. State Captured	Weak initial conditions and large state sector (central and/or local)	Depends on formal state transfers or indirect subsidies	Quang Ninh, Phu Tho, Ha Tinh, Nge An, Nam Dinh
6. Poor & Struggling	Poor initial conditions, minority population, small but dominant state sector	Little fence breaking as province relies on state transfers	Northwest Vietnam, Hoa Binh, Son La, Lang Son, Bac Lieu

Source: Malesky (2004), quoted by Nguyen Dinh Cung et al. (2004).

One of the general conclusions from studies about provincial economic performance and private sector development seems to be that the most important policy measures are found at the macro level and concern the attitudes towards private enterprise. For instance, examining the role of FDI for institutional development at the provincial level, Malesky (2004) classifies provinces into 6 different groups depending on their economic performance, initial conditions, and attitudes to economic reform and private sector development. Table 5 presents this classification, with

¹³ Interviews with Vietnamese government officials have also indicated that provincial authorities sometimes offer lower tax rates and land rents and longer tax exemption periods as instruments to attract investment, thus exceeding their formal authority. In some instances, it has also been reported that the policy competition between provinces has resulted in direct subsidization of new investment projects, which is formally in conflict with the budget law (see CIEM 2003).

¹⁴ Interviews suggest that Ca Mau, the southernmost province, may be such an exception: in 2004 it had reportedly not even formalized any policy for promoting private sector development.

special emphasis on how the most successful provinces have been progressive with regard to “fence breaking”, i.e. implementing reforms and new policies ahead of consensus decisions at the central level.

Studying the determinants of the relatively weak economic performance of seven northern provinces, Nguyen Dinh Cung et al. (2004) also note that the best results were found in provinces where the local government exhibited a “positive and supportive ‘problem solving’ attitude”. In addition, they emphasize the provincial differences regarding land policy. Several northern provinces appeared unwilling to convert agricultural land into non-farm uses, thus restricting the supply of land and raising its price to a level that is comparable to that in highly developed, densely populated countries like Japan. Consequently, finding suitable premises for production and even service operations was reported to be one of the main obstacles to the development of new firms and the expansion of older companies. Similarly, in his study of private enterprise development in peripheral provinces, Malesky (2003) stresses the role of transparency and efficiency in local administration, and notes that transactions costs related to customs regulations, inspections, and waiting periods were among the most severe obstacles to growth.

Two other recent studies focusing on private sector development are Carlier and Son Thanh Tran (2004) and CIEM (2003). Although they analyze different data sets and regions – in the former case, Hanoi and three surrounding provinces; in the latter case, nine provinces from across the country – the results are fairly similar to those discussed above. Carlier and Son Thanh Tran (2004) note that state management in some provinces is still more intent on controlling rather than facilitating private sector activities, which adds unnecessary costs to business. In particular, interactions with tax authorities tend to be time-consuming and costly. Access to investment capital and land is also reported to be a major obstacle. CIEM (2003) states that although most provinces are beginning to display a more pro-business attitude, some provincial authorities are more supportive than others, which explains much of the provincial differences in growth. Summarizing some of the conclusions from case studies and interviews, the report goes on to classify provincial strategies and policies according to their impact on private sector development. Among strategies that are considered largely or mostly positive, it emphasizes the attitudes towards private business: commitment to private sector development, efficient administration and information, investment promotion, “one-door” centers, and public-private partnerships are some of the key words for successful policy. Strategies with mixed outcome include decentralization (since capacity at the local level is sometimes weak), industrial zones (that are not always well managed), and the establishment of development funds (because many do not lend to private firms). The problematic strategies are targeted investment concessions and state directed business development, because these interventions replace market signals with administrative decisions.

Apart from the findings in CIEM (2003), few other studies have examined the impact of direct government interventions in detail – the emphasis has instead been on policy at the macro level.¹⁵ The remainder of this section will therefore explore the effects of micro-level interventions in an econometric analysis of employment and wage growth in Vietnamese small and medium-sized enterprises (SMEs).

¹⁵ One exception is Nguyen Thi Canh et al. (2004), who analyze the effects of corporate income tax incentives on the investment decisions of domestic companies. In an empirical analysis of 140 firms in three southern provinces, they find that only few had made any changes to their investment plans as a result of the tax incentives. Some 85 percent of the firms stated that they would have made the same investments even without the tax incentives.

Data on Vietnamese SMEs

The data set used here to analyze the impact of government policy on firm performance is based on enterprise surveys conducted in 1997 and 2003 (focusing on operations in 1996 and 2002) by the Institute of Labor Sciences and Social Affairs (ILSSA) at the Vietnamese Ministry of Labor, Invalids, and Social Affairs in collaboration with the Stockholm School of Economics (SSE) and the University of Copenhagen (for the 2003 survey). It allows us to examine in detail how local conditions and various kinds of government interventions influence company operations. Since the focus in this study is on income growth and development, we will look in particular at the determinants of wages and employment: these are arguably more directly linked to income and poverty alleviation than measures of aggregate output. The following section will briefly present the data set, while the subsequent sections examine the determinants of employment and wage changes.

The ILSSA/SSE surveys of Vietnamese SMEs were undertaken in May 1997 and July 2003, and were based on detailed personal interviews with individual company owners or managers. The target population for the surveys included private firms with fewer than 100 employees. The 1997 survey covered 736 firms in five provinces: Hanoi, Ho Chi Minh City, Haiphong, Ha Tay, and Long An. The 2003 survey covered all the surviving firms from the 1997 survey plus a large number of new sample companies, resulting in a total sample of around than 1,400 firms. The geographic coverage of the survey was also expanded to include two additional provinces, Quang Nam and Phu To. Both surveys were stratified to include a sufficient number of firms from each of four distinct ownership categories – household enterprises, private enterprises, collectives and cooperatives, and limited liability and shareholding enterprises. Household enterprises operate in the semi-formal sector, while the three other ownership categories belong to the formal sector: we will refer to limited liability and shareholding companies as modern ownership forms. Additional details on the survey design can be found in Ronnås and Ramamurthy (2001).

The data set contains information on a large number of variables describing the characteristics and operations of the sample companies. In addition to standard statistics, such as production, factor inputs, and investment, there is also information about what growth constraints the firms perceived in their immediate business environment, as well as data on what kinds of assistance they received from the central or local government.

Since the econometric analysis is mainly concerned with wage and employment growth, we balance the data set so that it only includes those firms that appear in both the 1997 and the 2003 surveys (which means that the provinces Quang Nam and Phu To drop out of the sample). Of the 736 firms surveyed in 1997, 461 firms (or 63 percent) were still in operation in 2002, as shown in Table 6. The highest survival rate, 68 percent, was found among household firms, while modern firms (limited liability and shareholding firms) had the lowest survival rate (49 percent). These survival rates are quite high in comparison with more developed economies. The main reason is probably the high general growth rate of the Vietnamese economy: the average annual GDP growth between 1996 and 2002 exceeded 6 percent, which generated sufficient demand to allow most companies to survive. Many firms also moved from their old industry into new activities without changing the identity of the company. In more

developed countries, this type of transition would typically be connected with the closure of one enterprise and the establishment of a new firm. Yet another explanation for the high survival rates, especially for household firms, is the lack of alternatives for the owners. Since there is no general unemployment insurance in Vietnam and the likelihood of finding an external job may be low, companies may be kept alive even when they do not yield any notable profits. Moreover, since Vietnam's bankruptcy laws are weak, it is very difficult to liquidate ailing firms and to transfer their assets to more profitable uses.

Table 6 Sampling and survival rates, by ownership form.

Firm type	No of firms 1996*	No of firms 2002	No of survivals 1996–2002	Survival rate 1996–2002
Household	328 (45 %)	987 (71 %)	223 (48 %)	67.99 %
Private	153 (21 %)	140 (10 %)	94 (20 %)	61.44 %
Collectives & Cooperatives	165 (22 %)	107 (8 %)	99 (21 %)	60.00 %
Limited liability & Shareholding	92 (12 %)	147 (11 %)	45 (10 %)	48.91 %
Total	736	1381	461	62.64 %

Source: ILSSA-SSE surveys.

Note: * below 100 employees 1996.

Household enterprises are typically smaller than the other ownership categories, whereas limited liability and shareholding firms are larger. As shown in Table 7, the average household enterprise only had 4 employees in 2002, while the shareholding firms averaged 42. There are also regional differences in firm size, with HCM City recording the highest average employment and Long An nurturing the smallest firms. Some of this difference is related to regional differences in the distribution of companies across the different ownership forms – for instance, HCMC has a higher share of limited liability and shareholding firms than other provinces – but the development level and population density are also important. Urban areas provide a larger demand base, as well as better infrastructure and a more developed labor market, all of which contribute to the emergence of larger firms. Hence, all enterprise types are on average larger in the cities (HCMC, Hanoi, and Haiphong) than in the rural areas (Ha Tay and Long An). The table also shows that the average size of the surviving firms grew from 13 to 20 employees between 1996 and 2002, which corresponds to an increase of 54 %. Most of this growth took place in the modern enterprise forms. Hence, these firms did not only survive, but they also expanded and created new jobs.

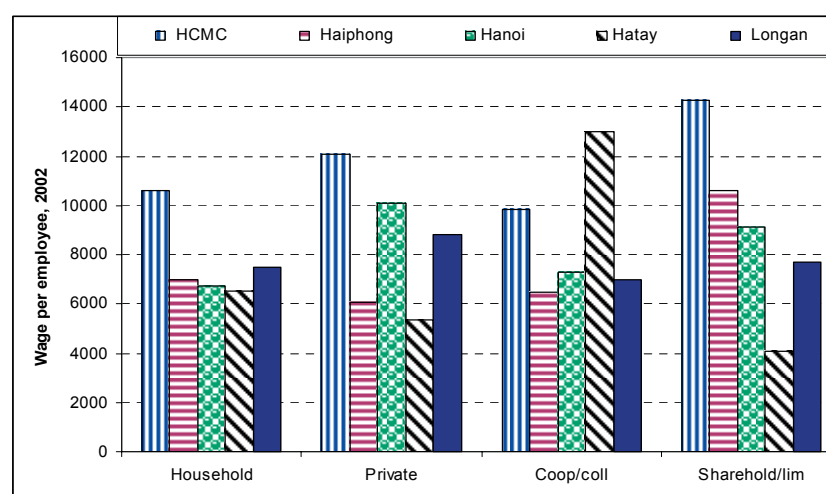
Table 7 The structure of firm employment.

Year	No. of employees	Ownership category (2002)	No. of employees	Province (2002)	No. of employees
1996	13	Household	4	HCMC	30
2002	20	Private	25	Haiphong	15
		Collective & Cooperative	29	Hanoi	20
		Limited liability & Shareholding	42	Ha Tay	11
				Long An	6

Source: ILSSA-SSE surveys.

Wages also differ between provinces. The same variables that promote enterprise growth tend to promote growth in productivity and wages as well. Figure 8 shows the average wage per employee across the different provinces and ownership forms in 2002. HCMC records the highest wage levels in all ownership categories except collectives and cooperatives, while rural Ha Tay often has the lowest wage levels.

Figure 8 Wage level, by region and ownership form, 2002.



Note: Includes only surviving firms.

Source: ILSSA-SSE surveys.

It is reasonable to assume that both employment and wages are influenced by local government policy, so that firms in more progressive regions and provinces grow faster. However, isolating the effects of policy is a complex task. Firstly, policy is an abstract concept that is not readily amenable to quantification. Secondly, even when policy can be quantified or measured, it may be difficult to isolate the total impact on employment and wages. In addition to any direct effects, there are probably important indirect effects that may be hard to trace: for instance, policy may influence interest rates, competition, infrastructure and other variables that determine employment and wages. This notwithstanding, the surveys cover unique information about some policy related variables that can be used to explore the impact of government intervention at the firm level. More specifically, the survey reports whether firms have

received various forms of government assistance. These data allow us to define the following four categories of government intervention:

- Advice – indicates whether the firm received legal or marketing assistance from the government.
- Tech – reveals if the firm received technical assistance or support for skill training from the government.
- Credit – indicates if the firm received government help in securing credit.
- Hire – shows if the firm received support from the government for hiring workers or managers.

All these variables take the value one if the firm received that particular type of support from the government, and if it also considers that type of support to be important for its own operations. In addition, the variable “No assistance” identifies those firms that did not receive any government support at all in the survey years.

Table 8 illustrates the distribution of government assistance across regions. There does not seem to be any clear urban-rural pattern in the provision of government assistance, but there may be a north-south distinction: firms located in HCMC and the southern province Long An were less likely to receive support in 2002. Another notable feature is that the share of firms receiving government support is increasing. Aggregating all types of government assistance, the share of sample firms receiving support increased from roughly 25 percent 1996 to 44 percent 2002. This is interesting, considering that all firms in the 2003 survey had at least six years of experience of operations: the scope for “infant enterprise” arguments is therefore limited. One reason for the seemingly closer contacts between private firms and government could be that the official views on private enterprise changed significantly between the two surveys. While private firms were allowed but not strongly encouraged in the mid-1990, their position and role for national development had been strengthened by 2002. The fact that the government and the Vietnamese Communist Party have recognized the importance of private business has not only led to stronger promotion of private firms, but also reduced the worries that some private companies might have had regarding collaboration with the government.¹⁶

Looking more closely at the different categories of government support, it can be noted that the most rapid increases are found for the groups Advice and Credit. One explanation is the increasing sophistication and internationalization of the Vietnamese market. As the Vietnamese economy develops, the result is not only an increase in market size but also a more complex legal environment, with new laws and regulations introduced more or less continuously. Some of the new laws follow from domestic economic reforms, but many are also related to internationalization and regional integration, e.g. Vietnam’s membership in ASEAN’s free trade area AFTA. One consequence is that the knowledge requirements are becoming higher, which might motivate more firms to seek assistance of the type we have labeled Advice.

¹⁶ It can be noted that the correlation between receiving assistance in 1996 and 2002 is -0.02, which indicates that the odds of receiving support in 2002 were independent of whether the firm had received support in 1996.

Table 8 Government assistance

	Advice 1996 %	Advice 2002 %	Change %	Credit 1996 %	Credit 2002 %	Change %	Tech 1996 %	Tech 2002 %	Change %
HCMC	12	13	8	9	9	11	3	1	-67
Haiphong	5	38	610	12	22	80	1	5	307
Hanoi	18	32	75	4	13	197	2	4	98
Ha Tay	3	9	233	17	35	100	2	4	101
Long An	1	13	1099	14	18	23	0	5	-

Notes: Based on firms included in both the 1997 and 2003 surveys.

Table 8 Government assistance, continued

	Hire 1996 %	Hire 2002 %	Change %	No assistance 1996 %	No assistance 2002 %	Change %
HCMC	16	8	-47	73	67	-8
Haiphong	5	11	103	83	43	-48
Hanoi	15	14	-8	65	52	-21
Ha Tay	2	0	-100	77	45	-42
Long An	2	0	-100	80	62	-23

Source: ILSSA-SSE surveys

Simultaneously, traditional sources of finance – village moneylenders, friends, and relatives – are giving way to a more modern financial system, where banks and other formal institutions are becoming increasingly important as sources of finance. Few SMEs are able to fulfill all of the formal requirements from the commercial banking systems (regarding e.g. business plans and collateral) which may account for the increasing frequency of Credit assistance. The only form of government support that has decreased over time is assistance for hiring labor and/or managers (Hire). This kind of labor oriented support is arguably most critical in the early stages of a company's life, and it is likely that the demand for this kind of assistance decreases as firms grow older.

While the data set includes a wealth of firm-specific information, there is only limited information about the local or regional business environment in which the firms operate. The only detailed information about the business environment refers to what growth constraints the sample firms consider most severe. Although these perceptions are subjective, it can be assumed that they reflect some of the characteristics of the local economy. There are seven different categories of constraints related to shortages of power and fuel, capital, skilled labor, land, raw materials and other inputs, as well as constraints caused by tough competition and cumbersome rules and regulations. In addition, we have complemented the data set with information on the share of SOEs in provincial output and measures of FDI penetration at the provincial level. These variables provide rough controls for reform orientation and internationalization at the provincial level: more reform oriented provinces are likely to have low, or at least falling, SOE shares, as well as higher levels of FDI penetration. In the wage analysis, we also control for the average provincial wage in SOEs and private firms.

Employment regressions

As a first step, we will analyze the determinants of employment and the impact of government assistance and policy on firm employment. To estimate labor demand we follow the most common approach in this literature and consider an output constrained firm with quadratic adjustment cost facing a Cobb-Douglas technology. The resulting equation (2) specifies labor demand in firm i as a dynamic function of factor prices and output.

$$l_{it} = \alpha + \beta_1 l_{it-1} + \beta_2 \ln(w/r)_{it} + \beta_3 \ln(w/r)_{it-1} + \beta_4 \ln(q)_{it} + \beta_5 \ln(q)_{it-1} + \varepsilon_{it} \quad (2)$$

where l is $\ln(\text{employment})$, w and r are labor and capital cost respectively and q is value added.¹⁷ Equation (2) is our baseline specification.¹⁸ Estimation of equation (2) is made possible by access to firm-specific wage data as well as information about capital costs at the firm level. The rental price of capital is derived from detailed information about each firm's credits: we have data on interest rates and loan amounts for each firm across different types of lenders. This distinguishes our data set and analysis from the broad mass of papers on this topic. For firms with no loans, we assume that the cost of capital is equal to the average interest rate charged by modern credit institutes.¹⁹ The average monthly interest rate charged by modern credit institutes, family and friends, private money lenders, and other money varies between 1.2 percent and 3.6 percent, with modern credit institutes (credit funds, private and government banks) offering the lowest interest rates.

In addition to the effects of output and factor costs, we are also interested in the impact of regional characteristics and government policy. We therefore extend the baseline model by incorporating these factors. To evaluate the robustness of results, we compare regression results for firms in different size categories and different educational levels of the labor force. Differences in these characteristics may influence the firms' responses to changes in their environment. For example, if a very small firm encounters a fall in demand there may be little or no room to reduce the labor force, while larger firms may downsize more easily. Similarly, differences in labor quality may result in different responses to changes in labor costs. In particular, firms with more skilled labor may have better opportunities to adjust by raising labor productivity rather than reducing employment.

The regression results are summarized in Table 9. (Appendix 2 provides variable descriptions.) The baseline model, which is shown in equation 9.1, suggests that factor prices and production volume to a large extent explain labor demand. The estimated elasticity of labor demand with respect to relative factor prices is roughly 0.5, which is well in line with findings from other studies.²⁰ Hence, if the relative price of labor to capital increases with one percent, labor demand decreases with on average 0.5 percent. If firm output increases, labor demand increases as well. Typically, a one percent increase in output is associated with an expansion of the labor force of 0.6 percent.

¹⁷ See e.g. Conyon et al. (2000), Fabbri et al. (2003) and Nickell (1984) for the derivation of the model. For a survey of the labor demand literature, see Hamermesh (1993).

¹⁸ We estimate labor demand for 2002. Employment in 1996 is not included as a left hand variable and there is no endogeneity problem using lagged employment on the right hand side of the equation. Hence, OLS estimates are consistent.

¹⁹ For those firms that do not provide any information about capital costs, we use the average interest rate divided by year, ownership, province and industry.

²⁰ See e.g. Hamermesh (1993) and Conyon et al. (2000).

The Vietnamese labor market – at least outside Hanoi and Ho Chi Minh City – is characterized by relatively low labor turnover. Job switching as a vehicle for career development is not as common as in many developed countries. Yet, the correlation between current and lagged employment is only 0.4. This is an indication of the variation in employment growth among the sample firms: average employment grew on average by 40 percent between 1996 and 2002, but the differences between firms were large.

Equation 9.2 augments the baseline model by adding a set of variables reflecting the competitive environment, the constraints perceived by SMEs, and government interventions.

The variables focusing on the competitive environment are changes in the SOEs' share of provincial output and in the degree of FDI penetration (measured as the ratio of legal FDI capital to industrial output), as well as an export dummy, distinguishing firms engaged in direct exports in 2002. These first two variables may be seen as very rough indicators of the reform orientation of the provincial authorities: more reform oriented provinces could be expected to have a lower SOE share and higher FDI penetration. The export dummy distinguishes firms that are directly confronted by international competition. The results for the SOE and FDI variables are weak and inconclusive. The regression does not show any systematic impact of the SOE variable, while the FDI penetration variable actually records a negative and significant coefficient, which is contrary to the general results discussed in Section 3 above. The reason for the weak results is probably that only five provinces are covered by the data in our sample: broader provincial coverage would probably give more distinct results. The export dummy records a positive and significant coefficient, suggesting that exporting is not only positive for the firm's productivity but also beneficial for employment. This is a reasonable finding considering that Vietnam's comparative advantages are found in labor intensive industries (see further Kokko and Sjöholm 2005).

Table 9 Employment regressions, 2002

Variable	9.1	9.2	Variable	9.2 continued
	Baseline model	Full model		Full model
	Robust regression	Robust regression		Robust regression
n(L)t-1	0.414 (8.75)***	0.298 (5.02)***	Regional Support -96 Advice, HCMC	-0.288 (-1.67) *
(ln(w)-ln(r))t	-0.501 (-11.98)***	-0.478 (-10.28)***	Regional Support -96 Advice, Haiphong	-0.346 (-0.90)
(ln(w)-ln(r))t-5	0.014 (0.27)	-0.036 (-0.57)	Regional Support -96 Advice, Hanoi	-0.204 (-1.22)
Long run elasticity	-0.487	-0.514	Regional Support -96 Advice, Ha Tay	0.717 (2.41) **
ln(q)t	0.711 (22.79)***	0.673 (19.15)***	Regional Support -96 Advice, Longan	-0.238 (-0.45)
ln(q)t-5	-0.119 (-2.60)***	-0.058 (-1.03)	F-test, adv: p-val A	0.05
Long run elasticity	0.592	0.615		
Growth SoE		0.002 (0.06)	Regional Support -96 Credit, HCMC	0.082 (0.42)
Growth FDI-penetration		-0.202 (-1.97) **	Regional Support -96 Credit, Haiphong	-0.139 (-0.64)
Export		0.004 (3.68)***	Regional Support -96 Credit, Hanoi	0.405 (1.42)
		Regional Support -96 Credit, Ha Tay	-0.162 (-1.04)	
Constraint Power/fuel	0.061 (0.51)	Regional Support -96 Credit, Longan	0.051 (0.26)	
Constraint Capital		0.063 (0.77)	F-test, credit: p-value A	0.45
Constraint Skilled labor	0.097 (0.50)	Private firm	0.008 (0.07)	
Constraint Competition	-0.036 (-0.43)	Cooperative/Collective	0.233 (2.44) **	
Constraint Land	0.050 (0.39)	Shareholding/Limited liability	0.139 (1.27)	
Constraint Rules	0.213 (0.83)			
Constraint Raw material/input	-0.032 (-0.19)			
No. obs.	321		288	
R2 B	0.8256		0.8536	

Notes: Robust regressions down-weight outliers and apply the White estimator. Only firms included in both the 1997 and 2003 surveys are covered. ***, **, * indicate significance at the 1, 5 and 10 percent significance level respectively. A Tests if regions are significantly different from each other.

A p-value below 0.10 indicates that the differences between regions are significant at the 10 percent level or better.

B Robust regression does not return any R2 : the presented R2 is therefore based on OLS estimations on the same specification.

Turning to the constraint and policy variables, which should arguably reflect the firm's competitive environment more precisely than the province-level variables for SOEs and FDI, the results are largely disappointing. None of the constraint variables have any significant relation to employment growth, nor is there any general impact of the support variables (only Credit and Advice are shown in Table 9: none of the other variables have any significant effects). It is particularly remarkable that neither the Capital constraint nor the Land constraint appears to have any influence on employment, although these are often reported to be the main obstacles to the growth of private industry. The support variables have no significant effects in the overall sample: it is only when we allow the impact of government support to differ between provinces that there are some significant effects. Specifically, Ho Chi Minh City firms receiving public support in the form of technical advice tended to have lower employment growth, whereas Ha Tay SMEs receiving similar support experienced faster employment growth.

These differences are probably related to the mechanisms for selecting which firms are to be supported. It is likely that differences in local conditions determine what kinds of firms apply for and are chosen to receive support. In a relatively well developed location like Ho Chi Minh City, where markets are more developed than in other parts of the country, it is likely that the relatively successful SMEs are able to develop without much support from the authorities. Those firms that seek support are therefore likely to suffer from some type of unfavorable conditions, e.g. weak demand or unusually severe competition. This could account for the negative relation between support (Advice) and employment growth in Ho Chi Minh City. In provinces with less developed markets, by contrast, even relatively successful firms may be forced to seek support: this might explain the positive relation between support and employment in Ha Tay. However, the explanatory power of the equation (the R^2) does not increase much in comparison with the baseline model is a strong indicator that these environmental variables have a very small effect.

Checking the robustness of the results by running separate regressions for firms of different size and labor quality (not shown in the tables), some additional results emerge. There are no significant differences between relatively small and large SMEs regarding factor price elasticities or output elasticities, but there seems to be somewhat of a distinction depending on the average education level of the firm's employees. In particular, the factor price elasticity is higher for firms with a more educated labor force. It can be assumed that well educated workers receive higher wages than workers with less education. A one percent increase in the relative labor cost therefore has a larger overall effect on firms with highly educated workers, which may explain the larger coefficient estimate. The output elasticity is also higher in firms with a well educated labor force than in firms with less educated workers: it is not immediately clear why this should be the case. Similar comparisons for the constraint and support variables also reveal some differences between the enterprise categories, but it is hard to see any distinct pattern.

Summarizing these findings, it is difficult to trace any strong and systematic impact of government assistance and regional characteristics on employment and employment growth. Instead, employment and employment growth are determined mainly by the firm's initial size and changes in relative prices and output. The most reasonable conclusion regarding the other variables is probably not that government interven-

tion and regional characteristics do not play any role, but rather that the mechanisms governing the allocation of public support are too complex to be captured in aggregate analyses of this type. Government support is not distributed automatically, on the basis of objective selection criteria. Instead, firms search actively for support, and it is clear that two kinds of firms may have rational motives to look for support: firms that face particularly tough market conditions and need help to survive, and fast-growing firms that encounter various bottlenecks and want support to maintain their high rate of growth. It is unlikely that any very distinct relation between support and firm performance can be detected until the company type is identified. In the present data set, it is not possible to distinguish systematically between the two firm types. It is also possible that the government does not act systematically when it comes to providing support. An incentive or support scheme for private business should fulfill at least five requirements, as noted by Nguyen Thi Canh et al. (2004). It should be a) relatively selective and carefully tailored, b) performance-based, c) as simple and clear as possible, d) rule-based rather than dependent on discretionary decisions, and e) implemented in an equitable and transparent manner. In the case of Vietnam, there are weaknesses in each of these areas: for instance, regressing the likelihood that a firm will receive support on the variables included in Table 9 does not yield any significant results. If the motives for providing government support are not related to economic performance, it may be futile to look for systematic economic effects of these measures.

Similarly, the constraint variables are based on the subjective assessments of company managers, and two kinds of firms can be expected to report growth constraints: firms that face particularly tough market conditions and struggle to survive, and fast-growing firms that feel constrained by various bottlenecks. In the former case, the constraints are connected to weak growth; in the latter case, to strong growth.

Wage level regressions

While there are standard models for estimating labor demand and employment, there are few corresponding models of the determinants of firm level wages. In theory, the wage is determined by the supply and demand forces in the labor market, and individual firms simply adjust the volume of employment to the wage level set by the market. Hence, the wage is not assumed to be influenced by the decisions made by individual firms. In reality, however, it is reasonable to expect that firm characteristics will affect wage determination. For instance, companies with higher profits are likely to pay higher wages in order to reduce the risk of conflicts with labor. In addition, government intervention and environmental characteristics may also have some influence on both the level and growth rate of labor income. Table 10 therefore presents some regression results for a comprehensive regression equation, where the wage level is assumed to be a function of a set of firm-specific variables as well some of the constraint and support variables used in the employment analysis. More precisely, to control for the market wage, we include the average provincial wage in the SME sector as a first determinant. Then, we control for a number of firm characteristics by including variables that capture performance (profit), type of production (capital intensity, human capital intensity and an industry dummy), market strategy (subcontracting), demand factors (hours of operation and investments), past history (wage level in 1996) and firm size (reflecting scale effects). Of the constraint variables, we include only land and skills

constraints in the table: these are the most commonly reported constraints. Similarly, of the support variables, we include only Advice and Credits. None of the other constraint or support variables have any significant effects, not do any of the other results change significantly if they are included.

Table 10 Wage regressions, full model, 2002, robust regression

Variable	Robust regression	Variable continued	
Wage level 1996	0.136 (2.85) ***	Regional Support –96 Advice, HCMC	0.006 (0.04)
Regional SME wage	1.023 (4.72) ***	Regional Support –96 Advice, Haiphong	-0.305 (-0.98)
Regional SOE share	-17.71 (-1.08)	Regional Support –96 Advice, Hanoi	0.0163 (0.10)
FDI penetration	14.01 (1.50)	Regional Support –96 Advice, Ha Tay	0.191 (0.68)
ln(k) capital intensity	0.078 (3.00) ***	Regional Support –96 Advice, Long An	-0.032 (-0.07)
Human capital (Average years of edu)	0.013 (0.98)	F-test Advice: p-value A	0.82
Hours of operation	-0.002 (-0.25)	Regional Support –96 Credit, HCMC	0.208 (1.18)
Large investment (Yes/No)	0.132 (2.29) **	Regional Support –96 Credit, Haiphong	0.011 (0.05)
Firm size Log no. employees	-0.049 (-1.37)	Regional Support –96 Credit, Hanoi	-0.207 (-0.68)
Log profit	0.118 (4.90) ***	Regional Support –96 Credit, Ha Tay	0.316 (2.27) **
Tax-ratio [(Tax+fees)/Sales]*100	-0.008 (-1.57)	Regional Support –96 Credit, Long An	0.123 (-0.69)
Subcontracting (Yes/No)	-0.045 (-0.43)	F-test Credit: p-value A	0.24
		Ownership	Yes
Constraint			
Land	0.075 (0.77)	F-test Owner: p-value A	0.79
Constraint			
Skilled labor	4.055 (1.39)	Industry dummies	Yes
Obs	314	R2 B	0.37

Notes: Robust regressions down-weight outliers and apply the White estimator. Only firms included in both the 1997 and 2003 surveys are covered. ***, **, * indicate significance at the 1, 5 and 10 percent significance level respectively.

A Tests if regions are significantly different from each other.

B Robust regression does not return any R2 : the presented R2 is therefore based on OLS estimations on the same specification.

A first point to note from Table 10 is that the regional SME wage rate records a positive and highly significant coefficient that is close to one. This suggests that the main determinant of the firm's wage is the regional wage level for other similar companies, as expected. Looking at the firm-specific variables, there are some other significant results as well. In the labor market literature, rent sharing or profit shifting is a well established finding. Profits will, to some extent, spill over to wages, giving

workers an incentive to increase effort. This is also born out in our data. The results suggest that a ten percent increase in profit (after controlling for tax pressure and hours of operation) raises the wage level by roughly one percent. Keeping in mind the large volatility in profits, the impact of profit on wages is non-trivial.²¹

Investments in machinery and capital equipment are essential for maintaining competitiveness. New machinery is more efficient than older, and investment will therefore bring the firm closer to the production possibility frontier. This will also increase the productivity of labor, as each worker will also have access to more capital. This line of reasoning suggests that both capital intensity and investments are expected to have a positive impact on wages. Both these hypotheses are verified in the analysis.²²

In labor economics, the Mincer equation is the most commonly estimated returns-to-education model.²³ The model predicts that an individual's wage is determined by her education, age, experience and sex. We have no data on individual education levels, but we do have some information about the average level of education among the employees. This suggests the hypothesis that firms with higher education levels should exhibit higher labor productivity and hence higher wages. However, the average years of schooling does not have any significant impact on firm wages. One explanation is that we are studying small and medium sized firms where advanced production is not very common. Including larger and more advanced firms would have given a greater variation in this variable and a better chance of tracing the impact of human capital on wages. Another possible explanation for the lack of significance is that we do not have any information about other labor characteristics, such as the experience of workers. If young workers have more formal schooling than older ones, at the same time as older workers have more experience, this might obscure the effects of formal education.

Wages are often described as sluggish – in particular, downward changes in wages are difficult to achieve. For details and a survey, see e.g. Akerlof et al. (1996), Lundborg and Agell (2003) and Ball and Romer (1990). Accordingly, the present results show that firms with a relatively high wage in the 1996 survey tended to pay a relatively high wage also in the 2002 survey. One interesting question, which we will return to shortly, is if the gap between low and high wage firms has increased or decreased.

One of the main handicaps of SMEs is related to technology and information, where substantial economies of scale give advantages to larger firms. One way of overcoming the disadvantages of small size is to enter into subcontracting agreements with larger firms: this kind of agreement may provide important knowledge spillovers that raise productivity and wage levels. However, we find no evidence that subcontracting has any impact on wages. Similarly, there does not seem to be any impact of size differences, although it should be remembered that the whole sample is limited to firms with less than 100 employees. Moreover, the tax ratio has no impact on the firm's wage level.

Summarizing the impact of the constraint and support variables is straight-forward: it is hard to find any significant impact of the policy or constraint variables. The only exception is that Ha Tay SMEs receiving

²¹ For a summary of the theory and evidence on rent sharing, see e.g. Abowd et al. (1999), Akerlof and Yellen (1986), Katz and Summers (1989), and Margolis and Salvanes (2001).

²² The investment variable has a significant impact on the total wage but not on the cash compensation.

²³ See e.g. Pereira and Martins (2002), Berndt (1991) and Mincer, (1974).

Credit support tend to pay higher wages. However, there is no clear reason why this specific case should be an exception from the general pattern, which suggests that wage levels have no significant relation with what growth constraints the firm perceives in its immediate business environment or whether it receives support from the government. The conclusions regarding the effects of our reform proxies (SOE share and FDI penetration) are equally weak: there is no impact on firm-level wages. The non-significant result for FDI penetration contrasts with the results from the employment regressions, where FDI penetration had a significant positive effect. The reason is probably that the overall policy orientation of the provincial government is already captured by the SME wage variable. In other words, it is hard to find any impact of policy at the firm level.

Wage growth regressions

If the effects of policy are hard to detect because they are captured by control variables, such as the provincial SME wage, it is possible that an analysis focusing on changes in policy and wages could be more successful. Table 11 therefore reports results from regression analysis of the determinants of wage growth. The growth regressions are performed on the same set of firms as the level regressions, with many of the same variables (of the policy variables, we only include Credit and Advice: the other variables have no significant effects). Where possible, we focus on changes also on the right-hand side of the equation, in the explanatory variables. Hence, instead of using profit or capital intensity, we use the change in profit and the change in capital intensity.

Overall, the results are very similar to the level regressions. In particular, it is notable that the constraint and support variables are equally insignificant as determinants of wage growth as of wage levels. One exception in the growth equation is that firms in Haiphong receiving Advice seem to have lower wage growth, while Haiphong firms receiving Credit assistance have higher wage growth. The reason for this pattern is probably that firms that receive credit assistance also receive advice, which creates spurious correlations with respect to wage growth. Hence, there is no robust evidence for constraints to dampen wages or government support to boost wage growth.

The most significant coefficient in the wage growth equations is the firm's initial wage level, which has a negative sign. In other words, wage growth has been lowest in those firms that initially had the highest wages: among surviving firms, there is clear convergence in wages. This could be a sign that the efficiency of the Vietnamese labor market is improving, so that the wage level is converging to some market determined value.

In the wage level regression we could see a positive relation between the firms' wage and the regional wage level in other SMEs and the province's SOEs. However, in the growth models the relation becomes fragile. We might interpret this as in the long run the regional wage level is important for the firms wage decision but in the short run there may be erratic fluctuations around the average growth rate.

Table 11. Wage growth regressions, full model, 1996-2002

Variable	Robust regression	Variable continued	
Log wage level 1996	-49.22 (-9.04) ***	Regional Support -96 Advice, HCMC	20.61 (1.24)
Regional SME wage growth	0.384 (2.14) **	Regional Support -96 Advice, Haiphong	-68.08 (-2.18) **
Growth SoE share	-12.76 (-3.22) ***	Regional Support -96 Advice, Hanoi	8.889 (0.59)
Growth FDI penetration	9.389 (0.67)	Regional Support -96 Advice, Ha Tay	-31.53 (-1.01)
Capital-intensity growth	0.013 (4.42) ***	Regional Support -96 Advice, Long An	-3.724 (-0.07)
Human capital accumulation (growth years of edu)	0.060 (0.74)	F-test Advice: p-value A	0.10
Employment growth	-0.363 (-0.30)	Regional Support -96 Credit, HCMC	24.84 (1.27)
Large investment	24.96 (4.15) ***	Regional Support -96 Credit, Haiphong	38.64 (1.79) *
Profit growth	0.000 (0.07)	Regional Support -96 Credit, Hanoi	-25.88 (-0.92)
Change in tax-ratio [(Tax+fees)/Sales]	0.000 (0.02)	Regional Support -96 Credit, Ha Tay	13.93 (0.88)
Constraint			
Skilled labor	422.3 (1.04)	Regional Support -96 Credit, Long An	4.945 (0.26)
Constraint Land	15.88 (0.26)	F-test Credit: p-value A	0.42
		Ownership	Yes
		F-test Owner: p-value A	0.55
		Industry dummies	Yes
R2 B	0.25	Obs	340

Notes: Robust regressions down-weight outliers and apply the White estimator. Only firms included in both the 1997 and 2003 surveys are covered. ***, **, * indicate significance at the 1, 5 and 10 percent significance level respectively.

A Test if regions are significantly different from each other.

B Robust regression does not return any R2 : the presented R2 is therefore based on OLS on the same specification. ***, **, * indicate significance at the 1, 5 and 10 percent significance level respectively.

Similarly, we find evidence for profits to spill over to the wage level but we can not see any short term relation between profit and wage growth. That is, in the long run, high profits tend to boost wages, while the profit growth in the short run does not have any significant impact on wage growth. Put simply, this indicates that there is rent sharing over time, but short run changes in profits do not have any significant impact on wage growth.²⁴ There is no impact of changing fees and taxes on wage growth.

New technology is to a large extent embodied in new and presumably more efficient machinery. Therefore, we expect that upgrading the machinery and expanding the capital stock makes workers produce more which leads to an increased wage level (see e.g. Stoneman, 1983). Indeed, our results strongly support the hypothesis that investments and a high

²⁴ Results do not change if we include hours worked (which is insignificant).

capital to labor ratio leads to increased wages. However, a somewhat troubling finding is that human capital formation does not appear to have any influence on the wage level. The lack of significance for the human capital variable could be due to changes in the structure of employment over time: for instance, if old experienced workers are replaced by young and inexperienced workers that have more formal schooling (or if all new employees in growing enterprises are well educated but young and inexperienced), average wages might well fall.²⁵ However, without detailed information about workers' age and experience, it is hard to trace the precise impact of higher levels of education on wage growth.

Summary: effects of government policy

Summarizing the results of our empirical analysis of the impact of government policy on employment and wages, we can confidently say that there is no clear and systematic relation between economic performance and the kinds of government intervention we have examined (i.e. the variables Advice, Tech, Credit, and Hire). There is no significant impact at the aggregate level, nor can we find any clear effects when the policy variables are defined at the provincial level. This is a disturbing result, and raises doubts about the ability of government to influence firm level performance through direct interventions. However, we have already noted that these findings must not necessarily mean that government intervention has no effect. Instead, they may reflect the complex selection processes determining who is to receive government support. On the SME side, there are two kinds of firms that may be prepared to lobby for support: weak firms that need support to survive, and relatively strong firms that face various kinds of bottlenecks that restrict their growth potential. On the government side, there are questions about how authorities select which firms to support and what are the expected results of the support measures.

Looking at the present sample of SMEs, the share of firms receiving support increased from 25 percent in 1996 to 45 percent in 2002. During the same period, the conditions for private sector activities improved significantly and employment in the average sample firm grew by 40 percent. It is hard to argue that more firms would have needed support in 2002 than in 1996, nor is there any evidence that the support provided in 1996 generated the good overall performance.

In earlier research, van de Walle (2004) has studied the effects of public policies supporting poor and disadvantaged households and communities. Looking at a variety of programs ranging from school fee exemptions, pension and disability funds, assistance from NGOs, and other types of transfers, van de Walle tries to assess their effectiveness at reducing poverty. Somewhat surprisingly, the conclusion is that the social assistance programs did not contribute much to the poverty alleviation that took place during the 1990s, and that they also failed to prevent households from falling into poverty. The main reason is arguably that the most of the programs provided low benefits to a wide range of households without any targeting of the poorest households, so that non-poor households typically received more benefits than poor households. Moreover, the funding for many programs was decentralized to the local level. The result was that the amount of resources available for redistri-

²⁵ We find a positive impact of improved education on cash payments, which may be consistent with the employment structure argument. Younger workers may have a larger share of their total compensation in cash, while older ones may have qualified for various kinds of benefits (e.g. housing) that have become less common over time..

bution was smallest in the poorest communities, which obviously limited the potential impact on poverty alleviation. The findings of van de Walle (2004) are remarkably similar to our results for government support to private SMEs, and it seems reasonable to hypothesize that the weak outcomes regarding SME support are also related to the targeting of recipients and the allocation of support. In fact, interviews with local government officials have revealed the opinion that a “fair” distribution of government support is one where all firms of a certain size category will eventually receive some support.

These results also confirm the findings of several earlier studies of private sector development in Vietnam, which have unanimously chosen to emphasize the role of macro-level policy: what matters is perhaps not the direct interventions, but rather the overall attitude towards private enterprise and the quality and efficiency of the provincial administration. The successful provinces have largely shifted from controlling the private sector to facilitating the development and growth of private industry. If direct government support is to have any role, it is clear that the design of the support measures and the principles for the allocation of support must be considered carefully.

5. Concluding remarks

This report has explored the pattern of regional development in Vietnam and discussed the role of direct government support for private sector development. The conclusions of the first part of the report, regarding the regional growth pattern, are relatively straight-forward. The conditions for economic growth vary widely between Vietnamese provinces, and provincial growth rates vary accordingly. The best economic performance is found in Hanoi and Ho Chi Minh City with surrounding provinces, while the mountainous provinces in the central and north-western parts of the country record the weakest development and the highest poverty rates. These differences mean that there is no convergence in provincial economic development: the existing gaps are not closing, but may rather be growing. However, there are no indications that the growth around the main cities takes place at the expense of more peripheral regions. Instead, we find clear signs of spatial spillovers, suggesting that good provincial performance spills over to neighboring provinces. In other words, when a province manages to generate successful economic development, it tends to benefit all of its neighbors as well. The caveat is that the signs of spatial dependence are significant only in the South: there are no systematic signs of spatial spillovers in the North. Nevertheless, the results indicate that growth in the strongest provinces will eventually filter down to more peripheral regions, contributing to poverty alleviation across the country.

However, the lack of convergence is likely to be a political problem even in the presence of strong and significant spatial spillovers. The assessments of provincial performance are typically made in a comparative perspective, and regions and population groups that see deterioration in their relative income are likely to demand support and policy advice in order to catch up. The second part of the report has therefore discussed how economic policy can be used to improve growth at the provincial level. In particular, we have focused on policies to promote private sector development. There are alternatives in the form of SOEs and ODA, but neither of these has been considered to be a sustainable alternative to private sector development. Vietnamese state-owned enterprises have not been able to create sufficient employment to absorb the new entrants into the labor market, but rather struggled to maintain their competitiveness as private firms and imports have gradually contributed to tougher competition in the Vietnamese market. While ODA

may provide the resources to improve infrastructure, education, and public administration, it is also unlikely to generate sustainable gains unless it contributes to the growth of a dynamic private sector.

Earlier studies of private sector development in Vietnam have largely emphasized the importance of macro policies at the provincial level. The term macro policy refers to the provincial authorities' overall attitudes towards private enterprise and the general business environment in the provinces, as reflected in the degree of transparency in policy making, the availability of information, the efficiency of public administration, and so forth. Few earlier studies have examined the effects of micro interventions, like credit support, technical advice, and marketing and legal advice, in great detail. Using firm level data from comprehensive surveys of Vietnamese SMEs operations in 1996 and 2004, we therefore tried to analyze the effects of government support on employment and wage growth in SMEs. Our results suggest that there is no systematic effect of direct government support on firm performance. The most likely reason for the lack of effects is that the allocation of government support is not systematically based on any performance criteria. Instead, it seems that the recipients of support are selected in a more random process, where one objective may even be to distribute support in a "fair" manner. These results underline the role and importance of the macro policies that determine the overall business environment for private firms. Moreover, to the extent that direct government support is used, there is a need to establish clear and transparent criteria for the allocation of supports. These conclusions are potentially relevant also for donor policy: programs focusing on macro level policies and the general business environment are likely to be significantly more valuable than projects focusing on support to individual firms.

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Appendix I

Variables, data sources, and descriptive statistics for regional growth regressions

Table AI.1 Variable definitions and data sources

Inc	ln(Agricultural + industrial income) per province, 1994 prices.	Source: GSO, Statistical Publishing House, Hanoi.
PCI	(Agricultural + industrial income) per capita, 1994 prices.	Source: GSO, Statistical Publishing House, Hanoi.
Income growth	ln(inct / inct-1).	Source: GSO, Statistical Publishing House, Hanoi.
ln(pop)	ln(total population).	Source: GSO, Statistical Publishing House, Hanoi.
ln(popdens)	ln(population per square km ²). Population density.	Source: GSO, Statistical Publishing House, Hanoi.
Agr population	Share of total population in agricultural areas.	Source: GSO, Statistical Publishing House, Hanoi.
Land productivity	Output of rice per hectare land in rice production	Source: GSO, Statistical Publishing House, Hanoi.
Local SOEs	Share of industrial output conducted by local government firms.	Source: GSO, Statistical Publishing House, Hanoi.
FDI-penetration	Number of FD licences / number of industrial firms.	Source: GSO, Statistical Publishing House, Hanoi.
Education	Number of pupils in upper secondary education / total population.	Source: GSO, Statistical Publishing House, Hanoi.
Education quality	Number of teachers per upper secondary student.	Source: GSO, Statistical Publishing House, Hanoi.
Edu*Edu-quality	(Education)*(Education quality).	
W*ln(inc)	Spatial lagged income in contingent provinces.	
Central SOEs	Central SOEs share of industrial output	Source: GSO, Statistical Publishing House, Hanoi.
FDI cap	FDI projects, registered capital. Mill USD / POP	Source: GSO, Statistical Publishing House, Hanoi.

Table AI.2 Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>ln</i> (inc)	305	7.87	0.97	5.51	10.00
PCI	305	3.17	3.77	0.81	33.13
<i>ln</i> (population)	305	6.99	0.53	5.58	8.59
Land productivity	305	3.72	0.91	1.8	7.37
Local SOE share of industrial output	305	0.27	0.17	0.01	0.79
Central SOE share of industrial output	257	0.22	0.21	0.00	0.86
Upper sec stud/pop	305	23.85	8.2	4.04	43.51
Agr population	305	0.79	0.15	0.16	0.94
FDI penetration	305	0.0008	0.003	0	0.034
FDI registered capital per capita	173	0.04	0.12	0	0.83

Table AI.3 Correlation matrix

	<i>ln</i> (inc)	pci	<i>ln</i> (pop)	Land prod	Local SoE	Central SoE	Edu	Agr pop	FDI lic
<i>ln</i> (inc)	1.00								
Pci	0.65	1.00							
<i>ln</i> (pop)	0.71	0.05	1.00						
Land prod	0.12	-0.15	0.23	1.00					
Local SoE	-0.37	-0.33	-0.14	-0.01	1.00				
Central SoE	0.01	-0.13	0.10	0.08	-0.26	1.00			
Edu	0.29	0.11	0.26	0.40	-0.33	0.13	1.00		
Agr pop	-0.51	-0.39	-0.21	0.16	0.01	-0.17	-0.16	1.00	
FDI lic	0.29	0.32	-0.06	-0.29	-0.21	-0.11	0.04	-0.22	1.00
FDI cap	0.28	0.47	-0.03	-0.24	-0.25	0.01	-0.01	-0.22	0.39

Appendix II

Variable descriptions and summary statistics for employment and wage regressions

Econometric considerations for wage regressions

The Vietnamese economy exhibit remarkable growth rates and dynamics. The collected data reflect this dynamics but is also exposed to measurement and other errors. Therefore it is not easy to judge whether an exceptional value is correct or not. We choose to handle these outliers by way of robust regressions. This technique puts lower weight to outliers that strongly level the regression equation. We also correct for heteroscedasticity using the white correction, see e.g. White (1980) and STATA, User's Guide 8 (2003).

In the wage level analysis we include the 1996 wage On the right hand side. Since the dependent variable consist wages from 2002 only this is valid. However, in the growth regressions the inclusion of the 1996 wage introduces an upward bias of the initial wage level. Given access to more years (which we do not have) using GMM techniques we would be able to correct for this bias (Hsaio 1996: 76–77). However, the OLS bias does generally not upset results. Moreover, typically the speed of convergence does not depend on the inclusion/exclusion of other variables, nor do measurement errors tend to be crucial for the estimated convergence, see e.g. Sala-i-Martin (1996).

The regional wage level variable also introduces an endogeneity bias. We handle this by way of spatial econometric techniques and instrument the regional wage level with exogenous variables filtered by the same spatial filter as the wage when transformed to a regional average. To be precise, we filter the regional wage with a weight matrix, W where its typical element ω_{ijt} is one if the firms belong to the same region and same sector (manufacturing or non-manufacturing) and zero elsewhere. To avoid the impact of the firms own wage on the own wage we set ω_{iit} equal to zero. The spatially filtered wage variable is then simply defined as $\tilde{w} = Ww$. Using the W weight matrix on the exogenous variables we generate the instrumented regional wage variable. For details, see Anselin (1988).

Table AII.1 Variable definitions

Variable	Definition
ln(wage)	Log average wage per employee
ln(cash)	Log average cash compensation per employee
Wage growth, %	$((wt-wt-1)/wt-1)*100$
Cash growth, %	$((ct-ct-1)/ct-1)*100$
ln(regional wage)	Average wage per employee by region and sector (manufacturing and non-manufacturing), excluding the firms own impact on the average, instrumented.
ln(regional cash)	Average cash employee per employee by region and sector (manufacturing and non-manufacturing), excluding the firms own impact on the average, instrumented.
Regional skill constraint	By region, share of firms that perceive supply of skilled labour as a constraint to growth
ln(k)	Log assets per employee
Tax-ratio	$((Taxes + fees)/income)*100$
ln(size)	Log no. of employees
Skillshare	Average years of education
ln(profit)	Log firm profit
Constraints	1 if firms perceive a constrain as severe, 0 else
Support variables	1 if a firm received support, 0 else
Industry dummies	Seven industry dummies

Table AII.2 Summary statistics

Variable	Mean	Std. Dev.
ln(wage)	8.8	0.7
ln(cash)	8.7	0.7
Wage growth, %	70	241
Cash growth, %	59	186
ln(regional wage)	9.0	0.3
ln(regional cash)	8.6	0.3
regional wage growth, %	40	40
regional cash growth, %	23	33
Regional skill constraint	0.02	0.02
ln(k)	11	1.3
k growth, %	374	987
ln(size)	2.2	1.2
Size growth, %	58	237
Skillshare	8.7	2.4
Skillshare growth, %	8.0	40
ln(profit)	11	1.4
Profit growth, %	57	470
Tax-ratio	16	245
Change tax-ratio	-24	346
Hours of operation	8.8	3.4

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