Trade Liberalization and Institutional Quality: Evidence from Vietnam

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Abstract

Recent cross-country research shows that there is a causal relationship between trade liberalization and quality of institutions. The literature on cross-country studies has been criticized because differences in legal systems and other institutions across countries are difficult to control for. An in-depth case study of a particular country's experience can provide a useful complement to cross-country regressions. Using the unique dataset from provincial competitiveness survey and a natural experiment from joining the World Trade Organization, I find that variations in economic institutions across provinces in Vietnam can be explained by trade liberalization. To overcome endogeneity problems, I use minimum distance from each province to main economic centres as an instrument for trade liberalization. The instrumental variable approach shows that the direction of influence is from greater openness to better institutions. The results hold after controlling for various additional covariates. It is also robust to various alternative measures of institutions. I also find that trade liberalisation has greater short term impacts on institutional quality in the Northern provinces.

1. Introduction

A large volume of literature exists on the expected impact of trade liberalization on economic growth. In general, there is agreement that trade openness leads to economic growth beyond that expected under no policy change[1]. According to the standard neo-classical model of exogenous growth, trade patterns among countries are determined by comparative advantage, i.e., where each country maximises its welfare by concentrating on the activities in which it is most economically efficient. The gains from trade may be static—such as improvements in the allocative efficiency of resources use or dynamic such as imported technology or "learning-by-doing" effects. However, in the neoclassical theory, trade liberalisation only lead to an increase in the level of income but not the steady-state rate of growth.

Endogenous theory stresses the impact of dynamic efficiency gains as engines of growth. Trade policy creates impacts on both level of income and the long-run rate of growth of an economy through scale, allocation, spillover and redundancy effects. First, since the potential market is expanded, the economies of scale in production can be reaped and thus the production of final goods and intermediate goods are concentrated in the most efficient sites. Second, allocation effects arise from the resource reallocation leading to the accumulation of factors of production such as human, physical capital or R&D. Third, direct investment flows are expected to expand. Productivity can be gained from knowledge spillovers as a result of the ability to imitate the products of foreign producers or of informational spillovers which enables local firms to learn more about market opportunities in foreign locations, improving local firms' export capabilities and enabling new trading relationships and the expansion of the number of traded products. Fourth, trade openness leads to the reduction of unnecessary duplication of research, eliminating redundancy in R&D (Hale and Long, 2006; Duncan and Doan).

There is a growing consensus among economists that institutions are fundamental to determine long run economic performance (Knack and Keefer, 1995; Mauro, 1995; Alesina

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[1] See for example the seminal papers by Edwards (1998) and Rodrik (1999). Rodrik (1992) discusses the limits of trade reforms in developing countries. See also Rodríguez and Rodrik (2000), Harrison and Hanson (1999). Edwards' (1993) survey presents a detailed account of the studies on export growth and economic growth, as well as the literature on trade liberalisation and growth. Greenaway and Sapsford (1994) also provide empirical evidence regarding the links between trade liberalisation, exports and economic growth in a growth accounting framework.

et al., 1996; Hall and Jones, 1999; Acemoglu Johnson and Robinson, 2001, 2002; Rodirk, 2000a; Rodrik, 2000b; Rodrik, Subramanian and Trebbi, 2004; Easterly and Levine, 2003; Dollar and Kraay, 2003; La Porta et al., 1999, 2004; Acemoglu and Johnson, 2005; Acemoglu, 2009). Trade liberalisation now affects economic performance not only through changes in relative prices in a mechanical way, but also through a number of institutional arrangements. Recent studies have attempted to figure out channels that trade openness affects institutional change. Acemoglu and Robinson (2006) show that trade associated with transfer of skill-biased technology increases the income share of the middle class. This increases their political power relative to the rest of the society and they impose checks and balances on existing institutions to protect their property rights and contracts. Rodrik (2000a) argues that adoption of trade liberalisation policies has often entailed the importation of institutions. Membership of the WTO, for example, requires the adoption of a certain set of institutional norms.

Trade will increase the costs of excessive regulation and could lead domestic and foreign investors to pressure the government to improve institutions. Ades and Di Tella (1999) and Treisman (2000) find that trade openness associates negatively with corruption to a significant degree. Trade could have a stronger effect on growth in countries with bad institutions since it could both encourage regulatory reform and lead to more specialization. Other recent work highlights the importance of "sound institutions" in promoting efficient resource allocation. This reduces the general costs of doing business, enhances the efficiency of resource allocation (Beck and Levine, 2004) and strengthens an economy's performance (Acemoglu *et al.,* 2005). Trade liberalisation is associated with changes in the government's relationship with the private sector and with the rest of the world. Trade liberalisation sets new rules and expectations regarding how these policy choices are made and implemented, and establishes new constraints and opportunities for economic policy (Bates and Krueger 1993).

Islam and Montenegro (2002) argue that the more open economy is the better institutions and faster economic growth because rent seeking and corruption is harder when there is competition among agents. As the number of trading partner increases, better institutions are demanded to manage risk that comes from trading with unknown partners. Greater risk and greater opportunities work together to break the effectiveness of existing networks and rules,

creating demand for more effective institutions. Moreover, agents in open economies learn from those in other economies and these forces work to improve institutional quality.

While trade openness does seem to be associated with better institutions in a cross-section of countries, various studies have shown that openness has been no guarantee of continued institutional improvement. The growth benefit of international trade is evident only when combined with complementary reforms in education, regulatory environment and other institutions (Bolaky and Freund, 2004). Not surprisingly, then, some researchers question a simple positive relationship between openness and institutional development. In general, they believes that trade liberalisation has a positive impact on growth, but the positive direction of the impact is conditional, and incentives created by price reforms such as in external trade and taxation will not work in the absence of appropriate institutions. A well-known example is Rodrick (2003), who argues that the empirical relationship between openness and institutional development is uncertain. Imported institutions can be ill-suited or counterproductive and successful institutional reform requires an adequate combination of imported blueprints and local flavour. Do and Levchenko (2009) point out that international trade contributed to concentration of political power in the hands of groups that were interested in setting up or perpetuating bad institutions. In other studies, scholars show that argue that the impacts of inward FDI on corruption in host countries depend on the host's underlying political and economic environments. Economic integration that allows higher rents which could possibly be shared between investors and government officials, associating with weak institutions to detect bribe payments, can increase the level of corruption (Pinto and Zhu, 2009; Zhu, 2009).

Almost all empirical literature on causal relationship between trade openness and institutional change has employed cross-country regressions. There are many useful insights have been gained from this literature; however, cross-country regressions have been presently undesirable on two perspectives.

First, most cross-country analyses of the effect of institutions on economic performance use summary measures created by an idiosyncratic weighting of several institutions or categories of institutions. These aggregates are often based on subjective perceptions, contain significant noise, are suspiciously volatile and are likely to be biased or contaminated by perceptions of a

country's economic performance. Pincus (2009) maintains that governance indicators that rely on surveys that record the subjective evaluations of domestic and international businesses and citizens do not always reflect the fundamental situations, and averaging many different perceptions does not necessarily make the indicators more accurate. Moreover, it seems that there has not yet been an attempt to aggregate these measures into more reliable synthetic measure of institutions (Jellema and Roland, 2009).

Second, it is generally very difficult to control for differences in cultures, legal systems and other institutions that may be relevant for the outcome variable under study. Using dummy or inclusion of fixed effects in panel regressions may help. However, the myriad of country-specific institutions may also interact with the key regressor under investigation to affect the outcome variable. In this case, the usual fixed effects are not sufficient to control for the influence of the country-specific institutions (Wei and Wu, 2001, Malesky and Taussig, 2009).

Therefore, it is necessary to supplement cross-country studies by investigating the causal relationship between trade openness and institution quality within country. In this context, Vietnam is likely to be appropriate test for several reasons. First, the recent history of Vietnam offers a natural experiment on the consequence of embracing globalization. Before 1990, the country had relatively little trade with the rest of the world and almost no foreign direct investment. Since then, the trade-to-GDP ratio increased tremendously, reaching 152.7 percent in 2007 and economic integration has become the most dynamic component of the Vietnamese economy over the last decade (Dang and Baker, 2008). Second, as the central government signs bilateral and multilateral agreements with institutional improvements to trade and investment, all regions in Vietnam benefit. However, the results of institutional development have been uneven across provinces. Some provinces rank at high level and show rapid growth in business investment, while others lag behind. Diversity in initial structural conditions, such as geography and proximity to markets can explain partly these differences. However, they cannot explain substantial differences in ranking score between provinces with similar conditions. This variation across space provides a good opportunity to study the impact of openness on institutions while holding historical, cultural, political system and government structure and a host of other factors constant.

Using the dataset for 63 provinces in Vietnam, I find that the variation in economic institutions within country can be explained by trade liberalization. To address endogeneity concern, I use distance from capital of each province to main economic centres as an instrument for the proxy of trade liberalization. The results indicate that a higher amount of disbursed foreign direct investment result in a better institutional quality. The instrumental variable approach suggests that the direction of influence is from greater openness to better institutions. The result holds after controlling for various additional covariates. It is also robust to various alternative measures of institutions. The results also show that trade liberalization has greater institutional impacts on provinces in the North.

This paper is the first effort to systematically estimate the short term causal effect of trade liberalization on economic institutions within a country. To the best of my knowledge, there are no comparable empirical studies estimating the causal effects of trade liberalization on institutions within Vietnam.

The remainder of the paper is organized as follows. Section 2 discusses the theoretical motivation. Section 3 briefly describes the trade liberalization in conjunction with institutional changes. Section 4 justifies for data used. Section 5 introduces the empirical strategy. Section 6 presents the results and Section 7 concludes.

3. Vietnam's trade liberalization process and institutional changes

Vietnam began to liberalize international trading activities in the late 1980s and early 1990s from a position as one of the poorest economies in the world. The full impact of these reforms, however, was limited by the incomplete nature of the reforms and by the lack of access to the U.S. market, the traditional engine of growth for export-led economies in East Asia. As a legacy of the U.S-Vietnam War, conditions in Vietnam and the timing of reforms were a decade or more behind those of its East Asian neighbours.

In an effort to integrate into global markets, Vietnam has promoted a policy towards regional integration and in this light is committed to the ASEAN Free Trade Agreement (AFTA), ASEAN-China FTA (ACFTA), ASEAN-Korea FTA and is negotiating a number of other bilateral trade agreements, such as an agreement between ASEAN and Japan, India and

Australia and New Zealand. Vietnam's bilateral agreement with the US, signed in 2001 marked a major effort to liberalise and guarantee a stable trading environment for trade flows between the US and Vietnam. In early 2007, Vietnam officially became a member of the World Trade Organization (WTO).

With regard to the effects of trade liberalization on domestic institutional quality, to a large extent, international trade works closely with foreign direct investment. In Vietnam, trade openness is associated with the inflows of foreign investment. The international agreements, especially the BTA and WTO agreements, which had an amazingly deep impact not only on traditional trade policy issues, but also on many fundamental rule of law and governance, provided a critical benchmark and focus for improving Vietnam's economic and legal institutions to support a market economy and international integration from central to local governments. All of these promote and attract more foreign investors.

At the macro levels, all agreements require Vietnam to make major reforms of laws and institutions relating to trade in goods and services, intellectual property rights protection, treatment of investors, business facilitation, transparency, and the right to appeal administrative decisions to the courts. They require improving the legal and judicial systems to provide effective means for resolving commercial and administrative disputes and protecting property rights administrative and regulatory procedures must be open; and businesses and citizens must have the right to protest government decisions through open administrative procedures—with due process, written rulings, and ultimately judicial review (USAID, 2008).

Together, Vietnam is using the trade agreements and international best practices to set deadlines and provide substantive guidance for modernizing and strengthening its systems, while applying these international norms in a form of law applicable to the Vietnamese context. By the end of 2006, Vietnam fully revised and modernized almost every law affecting commercial activity in Vietnam in line with the needs for supporting a domestic market economy with a growing private sector and for conforming with international standards.

At the provincial levels, since trade and foreign direct investment are believed as the major driving force of budget revenue, economic growth and poverty reduction, local governments offer various preferential policies to foreign investors to attract more foreign investment. Many provinces seek to improve business environment and human resources; reinforce their administrative reform to meet the requirements of the WTO and take advantage of integration. With decentralization in the authority of investment regulation, some provinces even provide a variety of extra incentives beyond the ones permitted by the central government, ranging from investment premiums and accelerated depreciation to tax holidays and reductions of land use fees (Vu et al, 2007).

With commitment in the trade agreements to provide greater access to foreign providers of business, education and labor training services, it would be expected that private sector firms should benefit from a greater selection of quality service providers. While the BTA and WTO do not provide direct requirements regarding corruption, there is a strong presumption that transparency and enhanced appeals procedures will lead to reductions in informal charges. Transparency requirements should be expected to significantly improve access by the private sector to legal normative documents at the national and provincial levels (Malesky, 2007).

4. Data description

The main variables that we use in this study are: economic governance and disbursed foreign direct investment.

Institutional variables

Although the overall importance of institutions for economic development has been emphasised in the literature, there is less agreement on how to measure the quality of institutions. For cross-country studies, researchers who undertook empirical research on the effects of institutions rely on several sources to measure differences in institutional quality across countries. Some of the institutional quality measures that have been used in the empirical growth literature are the International Country Risk Guide (ICRG) expropriation risk index (Acemoglu, Johnson and Robinson, 2001); composite ICRG and Business Environmental Risk Intelligence (BERI) indexes (Knack and Keefer, 1995); an index

combining five ICRG indicators with the Sachs-Warner openness index (Hall and Jones, 1999); the bureaucratic efficiency, political stability and institutional efficiency indexes composed of nine Business International (BI) indicators (Mauro, 1999); and the composite ICRG index and the Freedom House democracy index (Rodrik, 1999b).

In this paper, data on institutions are from the Vietnam Provincial Competitiveness Index survey (PCI). The PCI is product of a United States Agency for International Development project conducted by the Vietnam Competitiveness Initiative and the Vietnam Chamber of Commerce and Industry. The main goal of the PCI is to explain why some provinces experience higher growth and private sector development than others. The primary output of the PCI is the Provincial Competitiveness Index, which ranks all provinces by their universal regulations. The main index has a possible range of 10-100 and is a weighted combination of ten sub-indices with higher values representing better regulations.

These sub-indices can be arranged into three factor groups. The first factor contains the three most strongly correlated sub-indices and two others that are generally concerned with post-registration policies and regulation in the provincial business environment. Transparency, Labor, Pro-activity and Time Costs are related to the local level policy initiatives or decisions to implement those policy choices. The second factor uncovers a general conception of property rights, including the ability to access and the security of business premises (Land Access), the faith firms have that provincial courts will enforce contracts (Confidence in Legal Institutions), and firm perceptions of the corruption of provincial officials (Informal Charges). These sub-indices explore formal restraints placed on the grabbing hand of bureaucrats. Good scores on property rights represent state retreat from intervention in the affairs of private firms, as opposed to the first factor, where good scores represent policy interventions. The final factor comprises two subindices Entry Costs and Bias to the State Sector, which address entry barriers to private entrepreneurs. Entry Costs describe the direct financial costs of entry, whereas SOE bias represents the implicit barriers to private sector entry posed by the economic strength of the existing state sector or the ideological convictions of provincial bureaucrats (Malesky, 2007).

I take the economic governance index in 2008 to investigate short term impact of trade liberalization on institutional quality after one year of WTO membership. This index is

assumed to reflect the effects of trade openness policy in recent years on provincial governance performance. Figure 5 shows the spatial variation of institutional levels across provinces in 2008. On average, it shows that institutional performances are better in southern provinces. In addition, the lowest rankings of economic institutions belong to mountainous provinces in the North.

Trade policy openness variables

Dowrick and Golley (2004) classify concepts of trade openness into revealed openness and policy openness. Revealed openness, which is the ratio of foreign trade (exports plus imports) to GDP, is the measure widely used in empirical studies. It has the advantage of being both clearly defined and well measure, although there are differing points of view as to whether domestic or international prices should be used to value trade ratio (Rodrik *et al.*, 2002). Studies using revealed openness address the question of whether countries that engage in more foreign trade have better economic performance to countries that trade less. One of the disadvantages of this measure is that it does not explain why some countries might trade more. In addition, a high trade ratio is likely to result from some combination of policy openness, easy access to foreign market and small internal market.

Trade policy openness is used to capture a range of policies that explain why some countries trade more than other. However, measurement of policy openness also confronts with difficulties. In a comprehensive survey of policy openness ranging from incidence measures of trade barriers (the frequency of non-tariff barriers and the average tariff level), to trade flow measures adjusted for structural characteristics (size and endowments), to measures of price distortion, Pritchett (1996) discusses the problem associated with all of these measures. He finds that the most commonly used measures are uncorrelated with each other, making it difficult to find a reliable measure of policy openness.

In another effort, Sachs and Warner (1995) seek to define policy openness and estimate its impacts on economic performance. They analyse the presumed linkage between openness and growth performance for 79 countries for the period 1970 – 1989. They construct a binary openness index of five indicators, which reflect various policy variables that influence the openness of an economy. An economy is closed if one or more of the following conditions

are given: (i) Its average tariff rate on imports of capital or intermediate goods is above 40 percent; (ii) Its non tariff barriers cover 40 percent or more of its import of capital and intermediate goods; (iii) Its black market premium is 20 percent or more; (iv) It has a socialist economic system; (v) It has a state monopoly on major exports.

The Sachs-Warner study has two weaknesses. First, the binary representation of openness is not satisfying. The idea of openness suggests gradual differences over time and between countries, and therefore a continuous index would be preferable. Second, the combined Sachs-Warner index blurs the effect of trade policy on economic growth. Rodriguez and Rodrik (2001) argue that only two of the five indicators, the tariff rate and the coverage of quantitative import restrictions, are acceptable indicators of trade policy. The other three indicators, the black market premium on foreign exchange, the state monopoly for major exports, and the classification as a socialist country, reflect policies and institutional characteristics that have nothing to do with trade policy.

For the case of Vietnam, these above measures are likely not to be appropriate to be proxy for trade policy openness at provincial level. First, tariff and non-tariff barriers, price distortion and Sachs-Warner indexes are most suitable for cross-country studies because it measures macroeconomic performance, not relevant at province level. Second, other proxies such as export growth and trade share all are subject to some biases in measurement. Trade volumes by provinces are likely to be double counted, that may overestimate trade figures across provinces and bias our inference. Moreover, if measurement errors are systematic in the direction that every province reports substantial high growth rate, there are likely not enough variation in interested variables. Third, it is expected that trade turnover cannot create significant impacts on provincial economic governance in the short run.

Therefore, I use the amount of disbursed FDI as a proxy for trade policy openness in provinces. The FDI index is calculated by averaging disbursed FDI over three years from 2005-07. This period is chosen because it allows looking at the impact of trade openness on foreign investment one year before and after becoming a member of the WTO with many expected institutional reforms.

There are some reasons that justify for using disbursed foreign direct investment as a measurement of trade openness policies across provinces. First, Figure 4 shows that in the period of 2005 – 2007, the growth rate of export keeps stable at an average rate of 22 per cent per annum even Vietnam is expected to be gain significant benefit from joining the WTO and to some extent from post-trade agreement with the US[2]. Second, in structure of Vietnamese export, primary products[3] account for nearly 48 per cent of export volumes which are rather inelastic with the world demand and not likely to be impacted significantly by bilateral and multilateral agreements as shown by Figure 6. In contrast, Figure 7 indicates a dramatic increase in registered foreign direct investment from around 3 billion USD in 2001 to more than 21 billion USD in 2007. The disbursed FDI also increases significantly from 2.4 billion in 2001 to 4.6 billion in 2007. As mentioned above, Vietnam's trade liberalization is a comprehensive trade agreement with investment plays an important role. The integration process goes along with the implementation of agreements on institutional improvements. These include improving transparency by requiring publication of regulations before their effectiveness, reforming court procedures to make the court more independent and effective, improving the arbitration process, modernizing contract law, reforming legal and banking services, and implementing transactions-based customs procedures. All of which create more transparent investment environment which attract more attention from foreign investors. Investors have viewed WTO membership as not only offering wider investment opportunities, but have also been comforted by the predictability and "lock-in" to policy reforms that it entails (Dang and Baker, 2008).

Other data on infrastructure and real GDP per capita are taken from Vietnam's Statistical Yearbook. The numbers on inequality and public sector education are calculated from Vietnam Living Standard Survey 2006. The budget transfer per capita data is from the website of Ministry of Finance. The descriptive statistics of and the correlation matrix among explanatory variables are represented in Appendix.

5. Econometric model

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[2] One counter-argument is if not signing of bilateral trade agreement trade with the US, Vietnam is unable to maintain the export growth rate at double digits at early 2000s after the impacts of Asian financial crisis. However, this argument is likely to overestimate the BTA's impacts since the US market only accounts for less than 20 per cent of the total exports.

[3] Primary products include raw mineral and agricultural and forestry commodities.

To uncover the relationship between trade liberalization and institutions within a country I estimate an equation of the form:

$$INS_{i08} = \alpha_0 + \gamma_1 Tradepo_{i05-07} + \gamma_2 INS_{i06} + X'_{05-07}\Gamma + \varepsilon_i \ (1)$$

where INS_{i08} is a measure of institutional quality in province i in 2008, $Tradepo_{i05-07}$ is trade openness policy measured by average disbursed FDI in 2005-07, and X_{05-07} is a vector of other control variables. INS_{i06} controls for initial institutional conditions.

We expect coefficient of trade openness policy to be positive and statistically significant. However it is not straightforward to interpret it as a causal effect. There are challenges of reverse causality and omitted variable bias that we need to address to interpret γ_1 as a causal effect. First is the problem of reverse causality. Using lag of FDI does not ensure eliminating the possibility that disbursed FDI at current time responded to reforms in previous periods or the promise of economic governance reforms at previous periods (Malesky, 2009). Second, some unobserved factors may affect both the decisions of investors and governance quality, resulting in correlation between the two but nothing to do with a direct causal relationship.
We are arguing here that trade liberalization improves institutional quality. However it is also possible that province specific unobservable factors such as history, culture, ethnic makeup, religion and geography may influence both institutions and foreign direct investment. This will also bias our estimates. Measurement error is another concern and can lead to bias and inconsistency in our estimates.

To address the problem of omitted variable bias and measurement error, I estimate the model using the two-step efficient Generalized Method of Moments (GMM) in the two-stage least squares (2SLS) estimation. One advantage of GMM-IV is to exploit the optimal weighting matrix of the orthogonality conditions to allow for efficient estimation in the presence of heteroskedasticity with unknown form. Therefore, this adds efficiency gains of this estimator relative to the traditional IV-2SLS estimator (Baum, Schaffer and Stillman, 2003).

An instrumental variable has to satisfy the twin conditions that it is (highly) correlated with the suspected endogenous variables but contemporaneously uncorrelated with the error term in the levels regression. Moreover, the instrument cannot have direct effects on the dependent variable. Recent studies have proposed different variables to instrument for foreign investment flows such as predicted exchange rate (Malesky, 2009); distance from the border (Jensen & Rosas, 2007); weighted average of the geographical distance between the host country and the richest economies in the world as an instrument for trade and investment (Pablo and Zhu, 2008).

To construct instrument for trade openness policy at province level, I follow the technique that has been employed by Irwin and Tervio (2000) and Wei and Wu (2001) using log minimum distance to main economic centers.

The basic idea is foreign direct investment in each province is related to its geography (e.g. proximity to major economic centers), but its geography is unlikely to be influenced by its institutions. In this case, I take advantage of the special geographic features of the Vietnamese territory to construct an instrumental variable for province's openness. I observe that a different degree of foreign investment reflects largely a different degree of access to major economic centers. Provinces that are far away from economics centers are likely to have lower registered and disbursed FDI. FDI projects that take advantage of economic scale tend to be located near well-developed cosmopolitan areas such as Hanoi and Ho Chi Minh City (HCMC). There are many benefits that the projects which are close to Hanoi and HCMC can gain. First, it is convenient to gain access to international markets as the two cities possess or in close proximity to the dynamic airports and seaports in the country. Second, it reduces the cost and complexity of domestic and international travel. Third, FDI projects located in or near Hanoi, HCMC and neighboring provinces, obtain positive agglomeration effects with investors cluster near other investors to benefit from vertical linkages (Vu et al, 2009). Actually, Ho Chi Minh City and its surrounding area receive more than two-thirds of all FDI while the Red River Delta (Hanoi and its region) receives 20 per cent of the total. All in all, the country's two leading economic regions attract some 85 per cent of total disbursed foreign investment.

I note that while Hanoi and Hochiminh city are the top two economic centers in Vietnam, they certainly do not cover all foreign direct investment (Figure 2). For provinces in the central region, the minimum distance from the economic center in this region may be a more relevant determinant for their disbursement of FDI. The biggest economic center in this area is Danang.

With these observations in mind, I use the road distance from a province capital to either Hanoi, Danang or Hochiminh city, whichever is smaller, as the instrumental variable (together with other regressors in the main regression) for openness for that province. To be more precise, assume d(k, Hanoi) [or d(k, Hochiminh) or d(k, Danang)] is the distance between province k and Hanoi (or Hochiminh city or Danang), then, the instrumental variable for province k is

$$D(k) = \min \{\log[d(k, \text{Hanoi})], \log[d(k, \text{Hochiminh city})], \log[d(k, \text{Danang})]\}$$

Then Hanoi, Hochiminh and Danang are dropped from the regressions as we want to avoid the problem of having to define the distance for any of these three cities to itself.

The instrumental variable estimation method can be summarized as follows. At the first stage I estimate equations (2) and use the predicted values of trade liberalization to estimate equation (1). If the instrument is valid, the IV strategy will solve the omitted variables bias and measurement error problems, and I can estimate the γ_1 parameters consistently.

$$Tradepo_{i05-07} = \alpha_1 + \phi \ln(DIST)_i + \omega_i \quad (2)$$

To investigate more accurately the impacts of joining WTO, I control the provincial economic governance in 2006 as initial conditions. There are two reasons to choose this cut-off. First, it is the first year for the inclusion of all provinces, up from 42 provinces surveyed in 2005. Second, I want to control for all impact of trade liberalization on provincial institutions before Vietnam officially achieves its membership. Of course, this year is not ideal because it has reflected partly the impacts of WTO membership.

The bivariate correlation between the instrument and trade liberalization is 0.45 which is statistically significant at five per cent. Figure 1 and 2 represent the relationship between economic integration and geographic closeness with the closer a province is to the main economic centres, the more inward FDI it has.

A remaining econometric concern is whether the instrumental variable violates the exclusion restriction in the sense that distance to main economic centers has an independent impact on institutions beyond any effects working through FDI (conditional on other control variables). Many of omitted observed and unobserved deep factors such as culture, ethnicity, religion or climate influencing disbursed FDI can be correlated with institutions. This has the potential of causing omitted variable bias. IV strategy allows us to eliminate the influence of these factors. Of course there are other variables which can correlate with distance and influence institutions. Some of the obvious ones are infrastructure, inequality, education, budget transfer and real GDP per capita[4]. I try to control for them as a robustness check. However, we can never be sure that we have adequately controlled for all the omitted factors.

One mechanism through which $D(k)$ might plausibly be correlated with error term is through education. Provinces near major economic centers have higher level of concentration of colleges and university and also attract more high quality labor working in the public sector. Glaeser et al. (2004) show that schooling positively influences institutional quality. To account for this, I use the average year of schooling of people working in the state sector in each province to control for education.

Provinces far away from Hanoi, Hochiminh and Danang have less favorable infrastructure conditions than other provinces near three economic centers. A highly developed transportation network supported by airports, seaports, railroads and highways helps to increase accessibility and decrease the cost of transportation for investors. Therefore, provinces with infrastructure at the beginning of the period are likely to attract more FDI. However, it is also possible that initial conditions may affect the policy selection of provincial leaders. Leaders of provinces with a good infrastructure tend to make pro-investor policies, whereas leaders of province with poor infrastructure would have no such ideas

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[4] Percentage of ethnic minority is possible to correlate with distance to main economic centres and impacts on economic institutions. However, this factor is expected to indirectly affect economic institutions through quality of education.

(Shirk, 1994; Zweig, 2002; Cai and Treiman, 2005; Malesky, 2008). To account for this, I use the number of telephone subscribers per capita as a proxy to control for the effects of infrastructure.

It is open debate whether southern provinces had a special advantage in leading the reform agenda and attracting investment. They benefited from a southern legacy of market mechanism (Malesky, 2008). Before 1975, the South followed a market-oriented economy. When the country is unified in 1975, the central planning economy is applied in the whole country. Because centrally planned system is only implemented in the South for 11 years (between 1975 and 1986), as opposed to 32 years (1954-1986) in the northern provinces, and since key components of a central planning economy such as the collectivization of land and agriculture are never fully implemented in the South, southern provinces have a enormous advantage at developing streamlined economic governance after the beginning of economic reforms (Dinh, 2009). To capture the unique characteristics of the South and its potential correlation with distance to main economic centres, I control a dummy variable based on whether a province was located north or south of the 1954 Geneva Armistice's border declaration at the 17th Parallel.

Another related concern is that the minimum distance to main economic centers is likely to have direct effects on provincial institutions through regional policy diffusion (Simmons and Elkin, 2004; Tiebout, 1956). Provinces can exchange ideas and replicate the model of economic governance from neighboring ones. Adding the dummy variable for provinces in the North and South partly captures this effect. To further investigate this potential direct relationship, I firstly correlate minimum distance to main economic centers with economic governance indices of provinces in Southeast, Southcentral Coast and Red River Delta. The results show that only provinces in Red River Delta are statistically significant at five per cent. However, I first add dummy variables to control for policy diffusion in the regression and implement another formal test later to check sensitivity.

Vietnam has managed to transfer a great deal of wealth from the most developed provinces to the least ones over the course of the reform era. Only eleven provinces have routinely run fiscal surpluses in 2005-2007. Together they account for about 73 per cent of national

revenue[5]. On the other hand, 52 provinces have been frequent recipients of balance transfers from the central government. Poor provinces in northeast, northwest and central highland receive a large amount of subsidies. Malesky and Taussig (2009) argue that these poorly endowed provinces looked to the central government for transfers, rather than exploring independent reform strategies or attempting to converge to the successful strategies of other the high-flying provinces. Therefore, to control for possible correlation between distance to main economic centers to budget transfer, I include the average budget transfer per 100.000 citizens over the period 2005-07.

Provinces near main economic centers grow faster than other one with less favorable infrastructure conditions. Barro (1997) and Lipset (1959) agrue that institutional development associates with economic growth. In addition, provinces with higher economic growth tend to have a wider gap of income inequality. There are some evidences showing that inequality has a negative effect on institutions (Engerman and Sokoloff, 1997; Jong-sung and Khagram, 2005). I control real income per capita and GINI as a proxy for growth and inequality, respectively, to check robustness of the instrumental variable.

6. Evidence

This section systematically tests whether trade liberalization leads to institutional development. I start correlating foreign direct investment with institutions using OLS. I find that proxy of trade liberalization policy impacts positively institutions. The estimated magnitudes of the relationship between disbursed FDI and institutions are not only statistically significant but also economically meaningful. Calculating the standardized beta coefficients of the estimates, I find that on percent increase in foreign investment per capita is associated with 0.72 point increase in institution index. However, the estimates are bias and inconsistent as OLS does not account for reverse causality, measurement error or unobserved variable problems.

To deal with these above problems, I use GMM-2SLS regression model with the instrument constructed. In the first stage regression, the instrument strongly predicts the provincial levels

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[5] They include QuangNinh, Hanoi, HaiPhong, VinhPhuc, HoChiMinh City, DaNang, KhanhHoa, DongNai, BRVT, CanTho and BinhDuong

of trade liberalization. The F-statistics of the excluded instrument is well above 10 showing that the instrument is strong (Staiger and Stock, 1997).

The IV estimates are reported in Table 4. The first column reports estimates only control for initial condition in 2006 and without control other variables. From column (2), I use additional covariates to check robustness of exclusion conditions. The result of a positive and statistically significant effect of liberalization on institutions is robust to the inclusion of inequality, schooling, budget transfer, real GDP per capita, South dummy and infrastructure variables. The results are significant as I either add one by one or simultaneously include all control variables.

I put the results under further scrutiny. Because the impacts of trade liberalization on economic governance are not homogenous across provinces, I check whether our result is driven by any particular group of provinces. I omit provinces that may be different from the rest of the sample to see if this influences the results. The first row of Table 5 reports the result with full sample. I re-estimate the regression with two sub-samples, one for Northern provinces and another for Southern ones. It is often argued that provinces in the South have economic governance better than those of the North due to legacy of market-orientation. I also do estimation with the Northern sample without northeast and northwest provinces. Doing this does not change the results. The coefficient on foreign direct investment remains negative and statistically significant. In the fifth row, I report the results when provinces in northeast, central highland and northwest regions are omitted from the sample. Since these provinces are mountainous and poor infrastructure, they almost cannot attract foreign direct investment. Therefore, the impacts of foreign investment on institutional quality are likely to be negligible. Since foreign direct investment mainly concentrates on Southeast, Red River Delta and South Central Coast, I re-estimate the model only with provinces in these three regions. Overall, the results remain robust to this procedure. However, as I only examine provinces in South Central Coast, Mekong Delta and Southeast, the coefficient drops significantly and becomes insignificant. One possible explanation is that these Southern provinces, which attract substantial investment in the past, still maintain good economic governance which supports private investment environment. Therefore, the impacts of joining WTO do not result in a significant improvement in institutional quality in the short term.

To look at more detail the impact of trade liberalization on current level of institutional development, I unbundle the impact of trade openness with different measure of economic governance. I correlate proxy of trade openness index with subgroup measures of institutions using GMM-IV method. There are several PCI indicators which are likely to provide some insight into how the economic governance has been affected by BTA/WTO-related reforms over the last several years. Table 6 reports the results of regressions estimated with different measures of institutional quality used as the dependent variable without controls. All other control variables are included and the results are represented in Table 7.

The results show that trade liberalization creates positive impacts on improvement of labour training, pro-activity of provincial leadership and reduction of informal charges. For example, one percent increase in foreign investment per capita lead to corresponding 0.4 points increase in the institutional score for pro-activity of provincial leadership. Trade openness policies also create a catalyst to prevent corruption. On average, institutional index on informal charge rise by 0.18 points with one percent increase in foreign direct investment. I also do separated estimation for provinces in the North. The results show that trade liberalization have greater positive impacts on almost all of indicators compared to the whole country such as labour training, pro-activity of provincial leadership, private business development and corruption.

The striking feature of this institutional dataset is that it combines information about informal aspects of institutional setting which allows examining more accuracy the impacts of trade liberalization on institutional quality. However, this dataset faces the problem as indicated by Glaeser et al. (2004) and Rodrik (2004). These indicators are likely to measure investor's perceptions rather than any of formal aspects of economic institutions. They are likely to represent institutional outcomes rather than economic institutions itself. In addition, Rodrik (2004) suggests that these perceptions are likely to result from not only the actual operation of the institutional environment but also from many other aspects of the economic environment. Therefore, to test robustness, I replicate the analysis with only hard indicators that are not derived from the survey and less subject to the biases of individual respondents across different provinces. However, I have only four out of ten hard indicators that can be proxies for those above indices, including: (i) share of liability/revenue of state-owned

enterprises as proxy of SOEs bias (ii) number of locally managed vocational schools per 10,000 citizens to measure labor policy; (iii) trade fairs held by province in previous year and registered for present year as a proxy for private sector development policies and (iv) percentage of legal case filed by private firms measuring private sector confidence in legal institutions. The results in Table 8 confirm our above results that only the proxy for labor training is statistically significant as I control for all variables. The results also indicate that trade liberalization result in better effects on labour training on Northern provinces.

Sensitivity Analysis of Potential Violation of Exclusion Restriction

As mentioned, a valid instrument has to satisfy exclusion restriction assumption that requires that it impacts the dependent variable only through the endogenous variable. However, this assumption is not testable. In our case, if geographic closeness influences economic governance directly, this assumption is violated. As discussed before, there are reasons to believe that provinces can imitate policies from neighbours to create a cluster of provinces with similar policy system.

In this section, I report results from the bounds approach developed by Conley, Hansen, and Rossi (2008) to check potential violation of the exclusion restriction assumption. The model can be represented in a form as:

$$Y = X\beta + Z\gamma + W\phi + \varepsilon \ (1)$$
$$X = Z\Pi + V \qquad (2)$$

where Y is vector of outcome, X is vector of endogenous variable, $E(X\varepsilon) = 0$ and Z is (excluded) instruments for endogenous variables of X, $E(Z\varepsilon) = 0$. W is predetermined or exogenous variables. The difference in this model with normal IV setup is the term, Z, does not appear in equation (1). If exclusion restriction assumption holds, then $\gamma = 0$ and we can estimate the two equations using normal GMM-2SLS regression.

If exclusion restriction assumption is violated then $\gamma \neq 0$. Based on these two equations, we can conduct some sensitivity analysis using the prior knowledge about the magnitude of γ

and check to what extent the coefficient of foreign investment is still positive within certain confidence interval.

In our case, we have reasons to believe that even if $\gamma \neq 0$, it should be small. If we knew that the true value of γ is γ_0, we could consistently estimate γ from

$$(Y - Z\gamma) = X\beta + W\phi + \varepsilon$$

with 2SLS using Z as instruments for X. However, since we do not know γ_0, we can perform sensitivity analysis by studying the implications of different assumptions about its values. Conley et al. suggest that we can assume some specific support interval $[-\delta; +\delta]$ for $\gamma > 0$ and estimate the union of confidence intervals for β given any γ in that support.

I arbitrarily select several of intervals with δ = 0.2; 0.4 and 0.6. The maximum value, 0.6, approximates to 40 per cent of the foreign investment coefficient in IV model. The estimated bounds are reported for 95 percent confidence intervals in Table 9.

The results show that the estimated bounds do not vary significantly with the value of γ. Moreover, none of the 95 percent confidence intervals contain zero. This shows strong evidence in favour of robust positive impacts of disbursed foreign investment on the economic governance. It is confirming that even if we allow for non-zero level direct geographic distance to affect economic governance directly and then remove this part of influence of the instrument, the fundamental conclusion that foreign investment improves institutional quality remains unchanged. Even if the most cautious case, one per cent increase in foreign direct investment per capita still increases economic governance substantially, by 0.96 standard points. It also indicates that regression results are robust.

7. Conclusion

In this paper, I demonstrate the short term impacts of globalization on institutional quality across Vietnam's provinces. Using data on sixty three provinces, the paper has documented a positive association between institution and trade openness policy. In particular, provinces

that have had a greater amount of disbursed foreign direct investment also witness a better institutional quality. The instrumental variable approach suggests that the direction of influence is from greater openness to better institutions. The result holds after controlling for various additional covariates. It is also robust to various alternative measures of institutions and different samples. The results also show that trade liberalization has greater institutional impacts on provinces in the North compared to the overall national performance.

This paper provides a useful complement to studies based on cross-country regressions. The results indicate that developing country can use trade liberalization as a catalyst for domestic institutional reform and as a promotion of convergence of institutional quality across regions. However, the Vietnamese experience of trade liberalization does not necessarily imply that the effect of openness policies on institutional quality should be the same in other countries. Difference in institutions and government policies could matter. It would be very useful to undertake similar case studies for other countries to better understand the channel through which globalization impacts on institutions.

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Appendix I

Table 1. Descriptive Statistics

Variables	Obs	Mean	SE	Min	Max
Provincial competitive Index 2008	63	53.45	7.92	36.39	72.18
Log average foreign direct investment per capita 2005-07	63	-3.10	3.09	-10.00	2.18
Log distance to main economic centers	63	4.61	1.73	-2.30	6.07
Log real average GDP per capita 2005-07	63	2.15	0.55	1.28	4.83
Average Year of schooling of public sector	63	12.87	0.92	10.33	15.30
Log budget transfer per 100,000 citizens	63	6.55	0.95	3.75	8.53
Inequality (GINI)	63	0.32	0.04	0.24	0.43
Log average telephone per capita 2005-07	63	4.82	.81	2.73	7.6

Table 2. Bivariate correlation

Variables	1	2	3	4	5	6	7
1. Provincial competitive Index 2008	1						
2. Log average foreign direct investment per capita 2005-07	0.282*	1					
3. Log distance to main economic centers	**-0.498***	**-0.453***	1				
4. Log real average GDP per capita 2005-07	0.426*	0.473*	-0.305*	1			
5. Average Year of schooling of public sector	0.315*	0.266*	-0.391*	0.418*	1		
6. Log budget transfer per 100,000 citizens	-0.53*	-0.29*	0.465*	-0.724*	-0.472*	1	
7. Log average telephone per capita 2005-07	0.422*	0.426*	-0.376*	0.624*	0.516*	-0.537*	1

* Significant at .05 level

Figure 1. Regional Distribution of Disbursed Foreign Direct Investment 2005-07

Ha Noi

Da Nang

(1200.24,8858.03]
(559.88,1200.24]
(272.74,559.88]
(144.2,272.74]
(89.555,144.2]
(43.66,89.555]
(28.71,43.66]
(5.97,28.71]
(.02,5.97]
[0,.02]

Hochiminh city
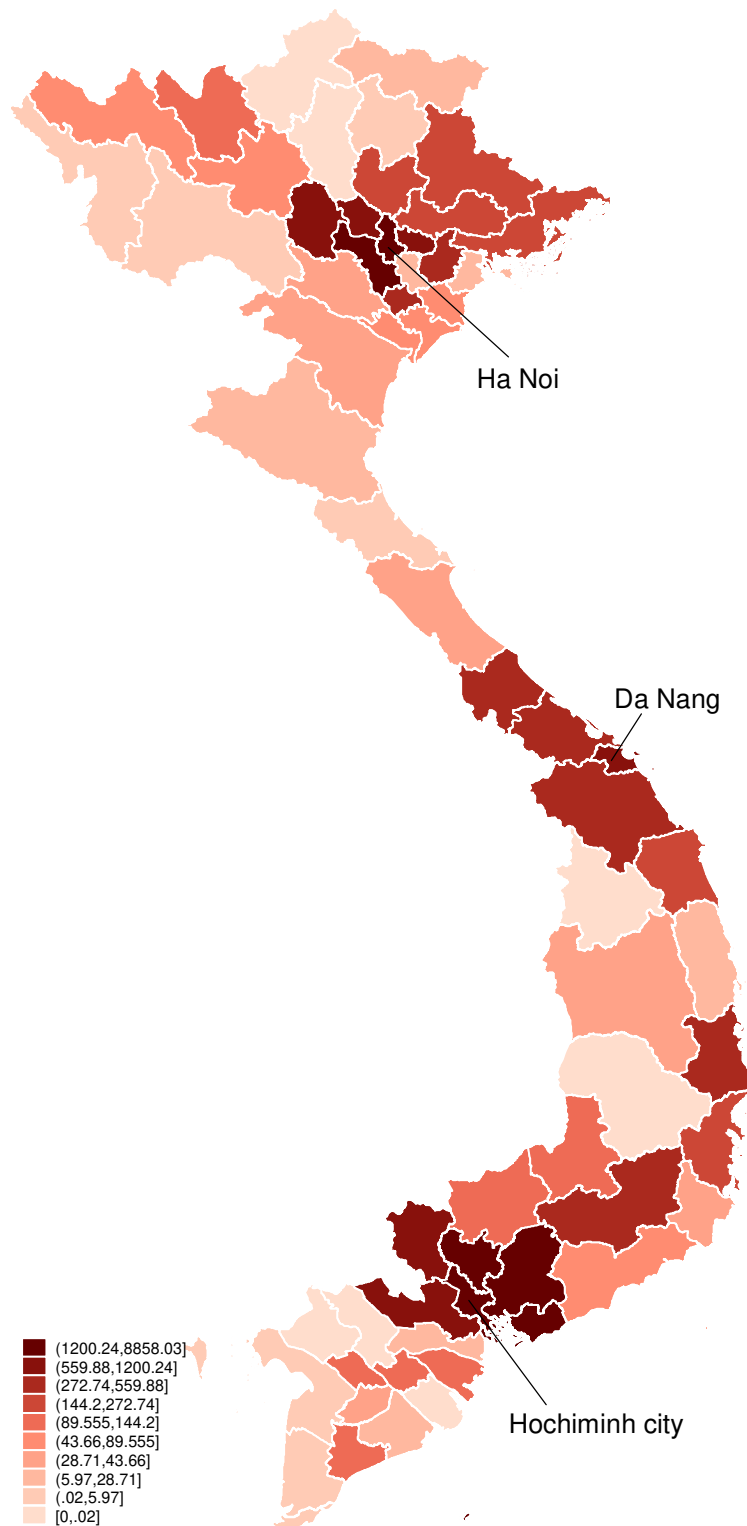
Figure 2. Relationship between disbursed FDI and Distance to nearest economic centers

coef = -.01047283, (robust) se = .00285413, t = -3.67
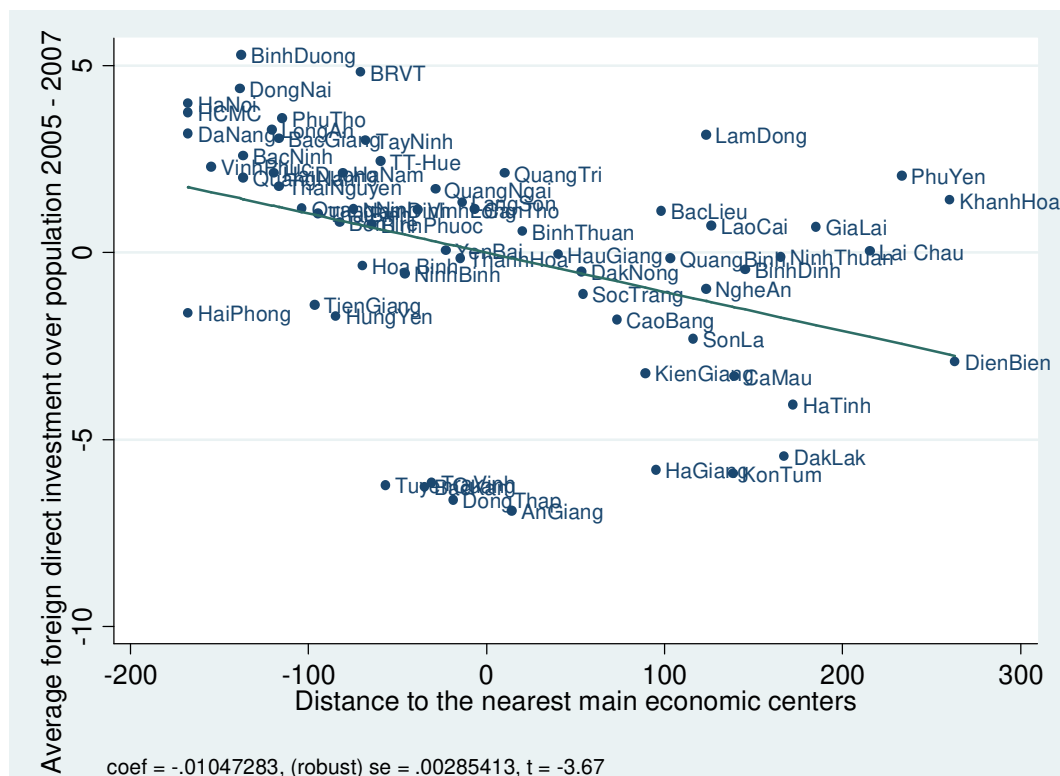
Figure 3. Growth rate of Import and Export over 2001 - 2008

Source: General Statistics Office
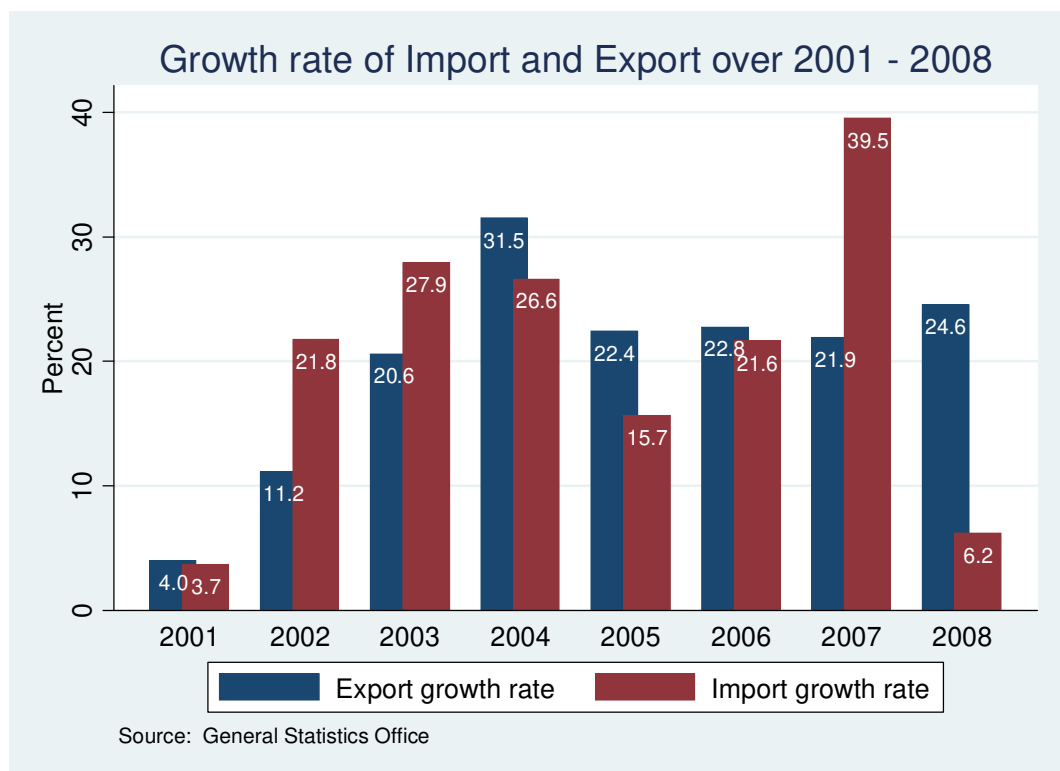
Figure 4. Exports by commodity group

Export by commodity group, 2000-2007

Legend:
- Heavy indust. products and minerals
- Light industr. and handicraft products
- Agricultural products
- Aquatic products
- Forest products

Source: GSO, Statistical Yearbook 2008
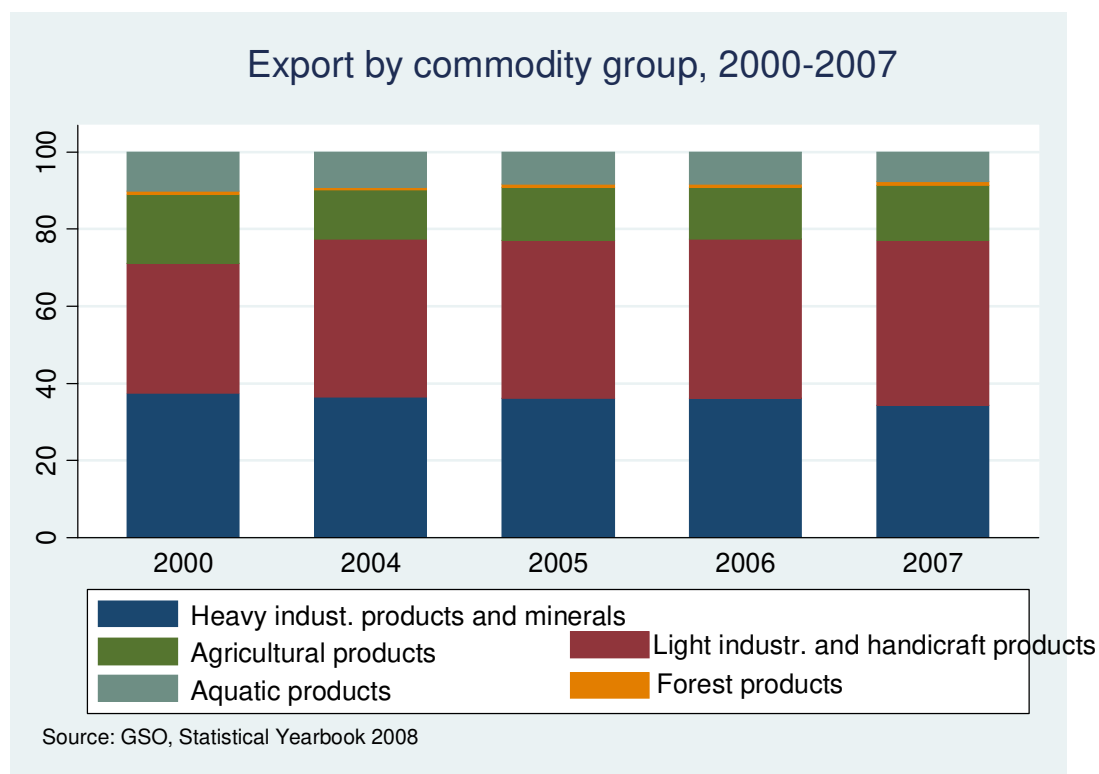
Table 3. Regional policy diffusion: Bivariate correlation between institutional indices and minimum distance within regions

	Log minimum distance to main economic centres
Provinces in Southeast region	-0.632
Provinces in South Central Coast region	-0.463
Provinces in Red River Delta region	-0.839*

*Significant at level 0.05

Figure 5. Ranking of Provincial Economic Governance 2008

Ha Noi

Da Nang

Hochiminh city

(60.67,72.18]
(56.32,60.67]
(53.725,56.32]
(49.52,53.725]
(46.03,49.52]
[36.39,46.03]

Table 4. IV Regressions

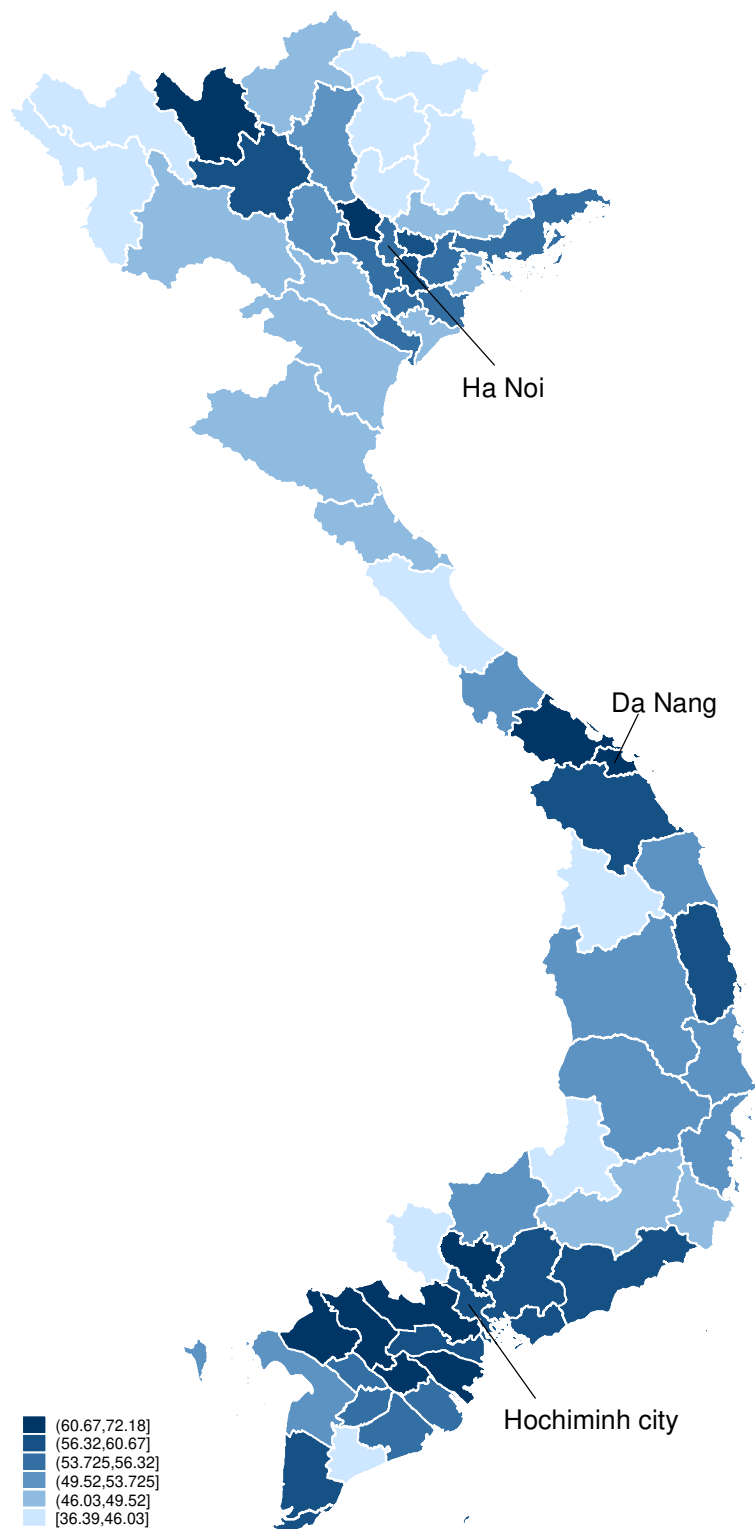|	IV Estimates							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Second Stage. Provincial Competitiveness Index 2008								
Log (FDI/pop)	1.355*	1.4	1.471*	1.036*	1.486**	1.33**	1.341**	1.504***
	[0.708]	[0.861]	[0.838]	[0.619]	[0.664]	[0.597]	[0.618]	[0.552]
F-stat	29.35	26.83	18.09	13.76	8.62	8.18	7.13	7.8
Number obs.	60	60	60	60	60	60	60	60
First Stage. Dependent variable is average foreign direct investment over population 2005-2007								
Log distance	-1.58***	-1.37***	-1.43***	-1.69***	-1.7***	-1.78***	-1.72***	-1.72***
	[0.420]	[0.429]	[0.440]	[0.457]	[0.437]	[0.426]	[0.436]	[0.480]
PCI 2006	0.05	0.013	0.019	0.032	0.032	0.025	0.014	0.004
	[0.053]	[0.054]	[0.057]	[0.056]	[0.055]	[0.056]	[0.057]	[0.057]
Log GDP per capita		1.808***	1.874***	3.017***	3.015***	2.902***	2.672***	2.414**
		[0.518]	[0.530]	[0.967]	[1.011]	[1.031]	[0.891]	[1.048]
Public Schooling			-0.21	-0.037	-0.036	0.038	-0.061	-0.129
			[0.378]	[0.406]	[0.414]	[0.433]	[0.456]	[0.431]
Budget transfer				1.121**	1.121**	1.118**	1.138**	1.313**
				[0.522]	[0.538]	[0.531]	[0.511]	[0.584]
South					0.006	-0.017	-0.05	-0.655
					[0.730]	[0.748]	[0.736]	[1.059]
Inequality						7.469	7.521	6.047
						[8.131]	[8.279]	[7.301]
Log telephone per capita							0.63	0.488
							[0.685]	[0.639]
Red River Delta Dummy								0.729
								[0.916]
South Central Coast Dummy								2.949***
								[1.086]
Southeast Dummy								2.478**
								[1.202]
F-stat	14.14	15	11.73	8.94	7.58	7.19	6.15	4.75
F test for excluded IVs	14.13	10.21	10.50	13.73	15.03	17.45	15.5	12.89
Stock-Yogo critical values:	5.53/16.38							

Notes: ***, ** and * indicates significance level of 1%, 5% and 10% respectively against a two sided alternative. Robust standard errors to heteroskedasticity are in the square brackets. F statistics on excluded IV for weak-instrument tests are also reported. The null hypothesis in this case is that the instrument is weak. Stock-Yogo critical values are the 5 percent significance level critical values for weak instruments tests based on, respectively, 25 percent and 10 percent maximal IV size. The null hypothesis of weak instruments is rejected in the case that the F statistics on excluded IV exceeds the Stock-Yogo critical values.

Table 5. Institutions and trade openness policy: Robustness to subsamples. Dependent variable is provincial competitiveness index 2008

Sample	coef	SE	N
Full	1.50***	0.552	60
Only South	1.42**	0.701	31
Only North	1.07*	0.574	29
Only North (excluded Northeast and Northwest)	1.48**	0.601	15
Excluded Northeast, Northwest and Central Highland	2.0***	0.707	41
Only Southeast, Read River Delta and South Central Coast	2.76**	1.122	23
Only South Central Coast and Southeast	0.48	0.782	13
Only Southeast and Mekong Delta	1.18	1.072	18
Only Southeast, South Central Coast and Mekong Delta	1.24	0.765	25

Notes: ***, ** and * indicates significance level of 1%, 5% and 10% respectively against a two sided alternative. Robust standard errors to heteroskedasticity. Other control variables include: provincial competitiveness index 2006, average income per capita 2005-07, public sector education, number of telephone per capita, average budget transfer per capita, inequality and dummy variables for Red River Delta, South Central Coast and South East regions.

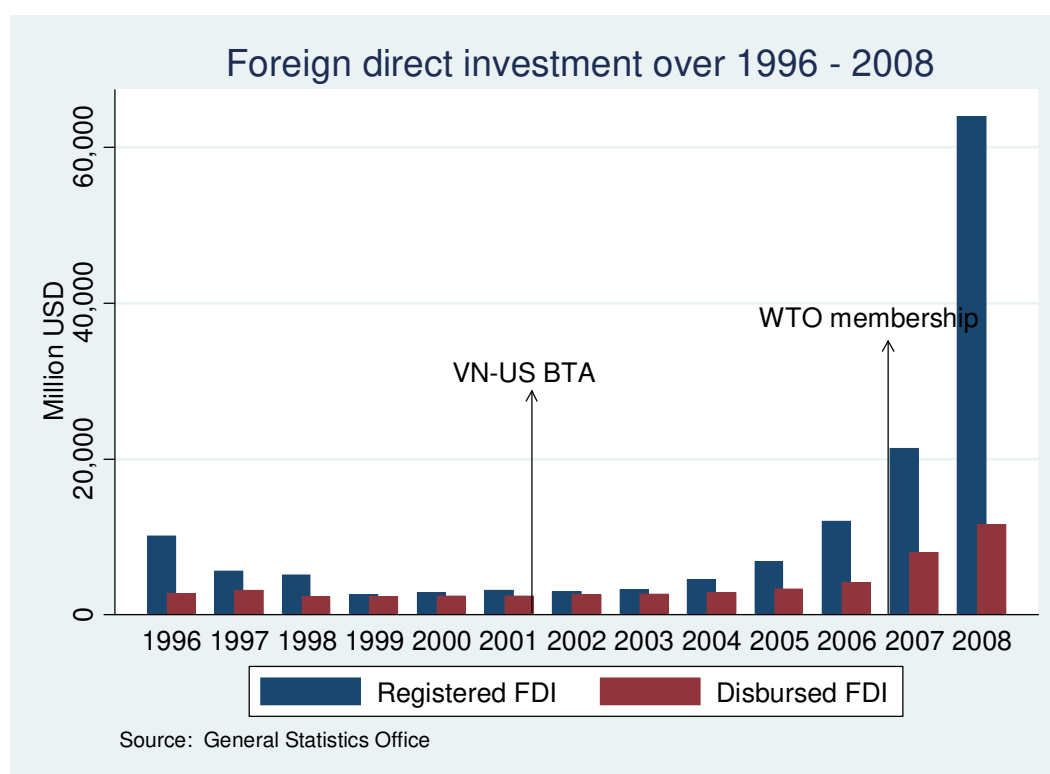**Figure 6. FDI inflows into Vietnam during 1996-2008**

Foreign direct investment over 1996 - 2008

Source: General Statistics Office

Table 6. Trade openness policy and different institutional measures. Without control variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Regulation in business environment						Property rights		Accountability	
	Full Sample									
Dependent Variable	Entry Cost	Bias to the State Sector	Labor training	Proactivity of Provincial Leadership	Private Business Development	Time Costs of Regulatory Compliance	Land Access and Security of tenure	Confidence in Legal Institutions	Informal Charges (corruption)	Transparency of business information
Log (FDI/pop)	-0.04	0.072	0.458***	0.392***	0.365***	0.256***	0.048	0.182*	0.175***	0.251**
	[0.055]	[0.050]	[0.124]	[0.143]	[0.116]	[0.082]	[0.051]	[0.098]	[0.055]	[0.098]
F-stat	0.52	1.97	13.17	7.3	9.61	9.49	0.85	3.31	9.74	6.36
Number obs.	60	60	60	60	60	60	60	60	60	60
F test of excluded instrument:		23.36								
	Only North provinces									
Log (FDI/pop)	-0.150*	0.053	0.592***	0.439*	0.432**	0.217*	0.081	0.153	0.239***	0.251
	[0.087]	[0.075]	[0.205]	[0.226]	[0.194]	[0.129]	[0.066]	[0.119]	[0.085]	[0.162]
F-stat	0.52	1.97	13.17	7.3	9.61	9.49	0.85	3.31	9.74	6.36
F test of excluded instrument:		18.44								
Number obs.	29	29	29	29	29	29	29	29	29	29

Notes: ***, ** and * indicates significance level of 1%, 5% and 10% respectively against a two sided alternative. Robust standard errors are in squared brackets. F statistics on excluded IV for weak-instrument tests are also reported. The null hypothesis in this case is that the instrument is weak. Stock-Yogo critical values are the 5 percent significance level critical values for weak instruments tests based on, respectively, 25 percent and 10 percent maximal IV size (5.53/16.38). The null hypothesis of weak instrument is rejected in the case that the F statistics on excluded IV exceeds the Stock-Yogo critical values.

Table 7. Trade openness policy and different institutional measures. Adding control variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Regulation in business environment						Property rights		Accountability	
	Full Sample									
Dependent Variable	Entry Cost	Bias to the State Sector	Labor training	Proactivity of Provincial Leadership	Private Business Development	Time Costs of Regulatory Compliance	Land Access and Security of tenure	Confidence in Legal Institutions	Informal Charges (corruption)	Transparency of business information
Log (FDI/pop)	-0.024	0.061	0.229**	0.175**	0.228***	0.023	0.024	0.340**	0.141***	0.155
	[0.085]	[0.049]	[0.103]	[0.079]	[0.082]	[0.084]	[0.048]	[0.149]	[0.053]	[0.104]
F-stat	1.47	5.09	10.28	8.47	6.95	11.62	9.79	1.65	2.51	4.72
F stat for excluded IV	15.51									
Number obs.	60	60	60	60	60	60	60	60	60	60
	Only Northern provinces									
Log (FDI/pop)	-0.125	-0.005	0.319***	0.079	0.092	-0.13	0.002	0.173	0.170***	0.008
	[0.095]	[0.073]	[0.096]	[0.115]	[0.084]	[0.110]	[0.055]	[0.150]	[0.048]	[0.129]
F-stat	1.47	5.09	10.28	8.47	6.95	11.62	9.79	1.65	2.51	4.72
F stat for excluded IV	13.50									
Number obs.	29	29	29	29	29	29	29	29	29	29

Notes: ***, ** and * indicates significance level of 1%, 5% and 10% respectively against a two sided alternative. Robust standard errors are in squared brackets. Other control variables include: provincial competitiveness index 2006, average income per capita 2005-07, public sector education, number of telephone per capita, average budget transfer per capita and inequality, dummy variables for Red River Delta, South Central Coast and South East regions. F statistics on excluded IV for weak-instrument tests are also reported. The null hypothesis in this case is that the instrument is weak. Stock-Yogo critical values are the 5 percent significance level critical values for weak instruments tests based on, respectively, 25 percent and 10 percent maximal IV size (5.53/16.38). The null hypothesis of weak instrument is rejected in the case that the F statistics on excluded IV exceeds the Stock-Yogo critical values.

Table 8. Trade openness policy and different institutional measures. Hard indicators

	(1)	(2)	(3)	(4)
	Full Sample without controls			
Dependent Variable	SOEs share of liability/revenue	Trade fair	Vocational Training	Cases of non-state entities filed by courts
Log (FDI/pop)	0.008	0.091**	0.132***	0.055
	[0.023]	[0.043]	[0.047]	[0.069]
F-stat	0.12	4.39	7.63	0.62
F statistics for excluded IV	23.36			
Number obs.	60	60	60	60
	Full Sample with other controls			
Log (FDI/pop)	0.014	0.091*	0.036	0.113
	[0.016]	[0.052]	[0.043]	[0.081]
F-stat	9.59	1.1	8.55	2.01
F statistics for excluded IV	15.51			
Number obs.	60	60	60	60
	Only Northern provinces with other controls			
Log (FDI/pop)	0.048**	0.132*	0.139**	0.032
	[0.022]	[0.074]	[0.069]	[0.114]
F-stat	4.06	1.03	3.35	8.88
F statistics for excluded IV	13.50			
Number obs.	29	29	29	29

Notes: ***, ** and * indicates significance level of 1%, 5% and 10% respectively against a two sided alternative. Robust standard errors are in squared brackets. Other control variables include: provincial competitiveness index 2006, average income per capita 2005-07, public sector education, number of telephone per capita, average budget transfer per capita and inequality, dummy variables for Red River Delta, South Central Coast and South East regions. F statistics on excluded IV for weak-instrument tests are also reported. The null hypothesis in this case is that the instrument is weak. Stock-Yogo critical values are the 5 percent significance level critical values for weak instruments tests based on, respectively, 25 percent and 10 percent maximal IV size (5.53/16.38). The null hypothesis of weak instrument is rejected in the case that the F statistics on excluded IV exceeds the Stock-Yogo critical values.

Table 9. Bounds for the effect of geographic closeness on economic governance

Support interval for possible values of γ	95% confidence interval	
	Lower	Upper
$\gamma \subset$ [-0.02, +0.02]	1.06	3.12
$\gamma \subset$ [-0.04, +0.04]	1.01	3.19
$\gamma \subset$ [-0.06, +0.06]	0.96	3.27

Notes: (1) Control variables include: provincial competitiveness index 2006, average income per capita 2005-07, public sector education, number of telephone per capita, average budget transfer per capita and inequality.
(2) Bounds are estimated using the approach by Conley et al.(2008)
(3) Number of observations: 60

Appendix II. Data sources

Log Real GDP per capita: Log of provincial real average GDP per capita in 2005-2007. Source: GSO (2009)

Log average foreign direct investment per capita: Log of provincial average disbursed foreign direct investment per capita in 2005-2007. Source: GSO (2009)

Schooling: Average year of schooling of public sector, calculated from Vietnam Household Living Standard Survey 2006. Source: GSO

Budget transfer: Log average budget transfer per 100,000 citizens in 2005-2007, calculated from data at Ministry of Finance, www.mof.gov.vn.

Inequality: Proxied by GINI coefficient. Source: Author calculation from from Vietnam Household Living Standard Survey 2006

South: Dummy variable for provinces in the south of 17th parallel. Source: Author's calculation

Log telephone per capita: Log of provincial average telephone per capita in 2005-2007. Source: GSO (2009)

Distance to main economic centers: Distance from centers of each province to nearest main trading centers (Hanoi, Danang or HCM) by road. Source: Author's own calculation.

Provincial Economic Institutions: Ranking of economic governance in Vietnam's 63 provinces by the Vietnam Chamber of Commerce and Industry and Vietnam Competitiveness

Initiative (PCI Survey 2006 and 2008). Data is from the Provincial Competiveness Survey available at www.pcivietnam.org

Entry Costs: A measure of: i) the time it takes a firm to register and acquire land; ii) the time to receive all the necessary licenses needed to start a business; iii) the number of licenses required to operate a business; and iv) the perceived degree of difficulty to obtain all licenses/permits. Source: PCI Survey 2006 and 2008.

Land Access and Security of Tenure: A measure combining two dimensions of the land problems confronting entrepreneurs: how easy it is to access land and the security of tenure once land is acquired. Source: PCI Survey 2006 and 2008.

Transparency and Access to Information: A measure of whether firms have access to the proper planning and legal documents necessary to run their businesses, whether those documents are equitably available, whether new policies and laws are communicated to firms and predictably implemented, and the business utility of the provincial webpage. Source: PCI Survey 2006 and 2008.

Time Costs and Regulatory Compliance: A measure of how much time firms waste on bureaucratic compliance, as well as how often and for how long firms must shut their operations down for inspections by local regulatory agencies. Source: PCI Survey 2006 and 2008.

Informal Charges: A measure of how much firms pay in informal charges, how much of an obstacle those extra fees pose for their business operations, whether payment of those extra fees results in expected results or 'services,' and whether provincial officials use compliance with local regulations to extract rents. Source: PCI Survey 2006 and 2008.

SOE Bias and Competition Environment: A measure focusing on the perceived bias of provincial governments toward state-owned enterprises, equitized firms, and other provincial champions in terms of incentives, policy, and access to capital. Source: PCI Survey 2006 and 2008.

Proactivity of Provincial Leadership: A measure of the creativity and cleverness of provinces in implementing central policy, designing their own initiatives for private sector development, and working within sometimes unclear national regulatory frameworks to assist and interpret in favor of local private firms. Source: PCI Survey 2006 and 2008.

Private Sector Development Services: A measure of provincial services for private sector trade promotion, provision of regulatory information to firms, business partner matchmaking, provision of industrial zones or industrial clusters, and technological services for firms. Source: PCI Survey 2006 and 2008.

Labor and Training: A measure of the efforts by provincial authorities to promote vocational training and skills development for local industries and to assist in the placement of local labor. Source: PCI Survey 2006 and 2008.

Legal Institutions: A measure of the private sector's confidence in provincial legal institutions; whether firms regard provincial legal institutions as an effective vehicle for dispute resolution, or as an avenue for lodging appeals against corrupt official behavior. Source: PCI Survey 2006 and 2008.

Appendix III. Sample

Ha Noi, Hai Phong, Da Nang, HCMC, Can Tho, Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, Quang Tri, TT-Hue, Quang Nam, Quang Ngai, Binh Dinh, Phu Yen, Khanh Hoa, Dong Thap, An Giang, Tien Giang, Vinh Long, Ben Tre, Kien Giang, Tra Vinh, Soc Trang, Bac Lieu, Ca Mau, Binh Phuoc, Tay Ninh, Ninh Thuan, Long An, Quang Ninh, Hau Giang, BRVT, Bac Ninh, Binh Duong, Binh Thuan, Dong Nai, Ha Nam, Hai Duong, Hung Yen, Nam Dinh, Ninh Binh, Thai Binh, Vinh Phuc, Bac Kan, Bac Giang, Cao Bang, Dak Lak, Dak Nong, Dien Bien, Gia Lai, Hoa Binh, Kon Tum.