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Private sector development and provincial patterns of poverty: Evidence from Vietnam

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ABSTRACT

Private sector development and the relationship between private firms and the state-owned sector continue to figure prominently in the debate about poverty reduction. Growth of private firms may generate economic opportunities, but changes of the role of the state in the economy may also carry social risks. The subnational dimension of the link between the private sector's weight in the economy and poverty remains underexplored. How do changing regional patterns of private sector development shape the geography of poverty? Especially in transition economies, reforms altering conditions for private enterprises and foreign direct investment do not always proceed at the same speed in all regions.

This paper examines the link between province-level changes in private firms' formal employment share and poverty reduction in Vietnam's provinces during 1999–2009. Particularly since 2000, Vietnam has taken large steps towards an equal administrative treatment of all firms irrespective of ownership. Provincial governments often enjoyed considerable freedom in their interpretation of reforms, contributing to differential province-level patterns of progress in private sector development.

The empirical analysis combines data from Vietnam's enterprise survey, independent poverty estimates, and two rounds of population censuses. Instrumental variable regressions reveal that larger increases of private firms' employment share are associated with larger reductions in poverty. This finding demonstrates that allowing some regions to move faster or slower than others regarding reforms changing the conditions for private firms and foreign direct investment is likely to leave an imprint on the country's geography of development. Multinational enterprises, rather than domestic private firms, emerge as drivers of the association identified in our analysis. The Vietnamese case therefore illustrates the poverty reduction potential of export-oriented activities of multinational enterprises, while simultaneously casting doubt on the contribution of small and medium sized enterprises to poverty alleviation.

1. Introduction

New economic opportunities that help reduce poverty often take centre stage in the debate about reforms changing the relationship between the state and the economy in developing countries. A pivotal role in the alleviation of poverty is frequently assigned to the private sector. However, the way changes in the relative weight of the private sector in the economy affect economically deprived areas remains imperfectly understood in the empirical literature.

This paper focuses on Vietnam, a major developing country that has implemented reforms transforming the conditions for private firms and state-owned enterprises (SOEs) since the late 1980s. As real GDP grew at an average annual rate of seven percent during 1986–2008, the country saw a large fall in poverty. Yet, not all parts of the country benefited to the same extent (Kozel, 2014). Subnational heterogeneity also characterizes changes in the relative economic weight of private firms. Provincial leaders were often left with some freedom in their interpretation of reforms, giving rise to province-level variation in regulatory and administrative conditions for private domestic and foreign-owned businesses (Malesky, 2004). Differences across provinces in the changes in the private sector's size relative to the state-owned sector have been mentioned as potential drivers of economic disparities across provinces (Beresford, 2008; Ishizuka, 2009, 2011). The present paper explores if such a link exists.

This study examines whether subnational differences in the evolution of private firms' employment share during 2000–2009

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can help explain changes in the geography of poverty. The year 2000 marks a turning point, as the introduction of Vietnam's enterprise law sparked a huge increase in private activity and province-level policy experimentation was encouraged in the 2000s (Schmitz, Tuan, Hang, & McCulloch, 2015).

Reform-oriented provinces occasionally moved beyond the central line, whereas more conservative province-level governments only slowly enforced reforms. Consequently, similar enterprises can be treated differently by provincial authorities depending on where they are located (Malesky & Taussig, 2009). The considerable province-level heterogeneity in the employment share of private firms provides a rich setting for an investigation of the link between private sector development and poverty.

Relying on the Vietnamese enterprise survey, independent poverty estimates, three rounds of population censuses, and additional data sources, the analysis uses a wide range of controls and an instrumental variable approach. The results suggest that larger increases in private firms' employment share are associated with larger reductions of the province-level poverty rate. These findings support contributions arguing that the private sector has a central role to play in the alleviation of poverty (e.g. Pietrobelli, 2007). We find tentative evidence suggesting that multinational enterprises (MNEs) shape the picture emerging from our analysis.

Previous research has highlighted agricultural reforms and trade as drivers of poverty reduction in Vietnam (McCaig, 2011; Ravallion & van de Walle, 2008). This paper adds a further dimension to our understanding of the factors influencing differences across space in Vietnam's recent development. It contributes to the debate about economic reforms in Vietnam (e.g. Beresford, 2008; Phan & Coxhead, 2013; Tran, 2013; Vu, 2014; Trung & Oostendorp, 2017) and to the literature on subnational heterogeneity in conditions for private businesses in emerging countries (Berkowitz & DeJong, 2011; Bruhn, 2011; Fujita & Hu, 2001; Yakovlev & Zhuravskaya, 2013).

The following section describes the context of the setting that is exploited in the empirical analysis. It summarizes changes in state-business relations in Vietnam in the 1990s and 2000s and explains how subnational governments influence these changes. Section 3 reviews the related literature on the facilitation of private sector growth and the debate on state ownership in Vietnam. Section 4 discusses channels between private firms' employment share and poverty. Section 5 presents the data and the empirical strategy. Section 6 discusses the results, whilst section 7 concludes.

2. Background: Enterprise reforms in Vietnam

In 1986 the Vietnamese government initiated reforms (Doi Moi; "renovation") aimed at gradual economic liberalization.[1] In addition to paving the way for greater trade openness and reforming the agricultural sector, Doi Moi changed the conditions for private domestic and foreign firms and the regulation of SOEs[2]. The reforms led to a prolonged period of economic growth. While Vietnam achieved middle-income status in the late 2000s, areas near Hanoi and Ho Chih Min City (HCMC) saw bigger reductions in poverty than the central highlands and northern mountainous areas.

[1] Vietnam's economic policies since 1986 largely correspond to the "Beijing consensus" characterized by a gradualist approach, export-led growth, and a strong state (Hakkala & Kokko, 2010; Malesky & London, 2014). Contradictions and ambiguities have shaped the reform process (Fukase, 2010). This "murkiness" may reflect a trial-and-error strategy (Tran, 2013) as well as the Communist party's efforts to seek consensus and accommodate diverging opinions about the speed of modernization (Fforde, 2007; Malesky, 2009; Rama, 2014).

[2] The empirical analysis in section 5 considers SOEs as enterprises with at least 50% percent state ownership.

2.1. Major enterprise reforms in 1990s and 2000s

The reforms of the late 1980s and early 1990s halved the number of state-owned enterprises (SOEs).[3] Despite steps towards greater encouragement of private firms, the reforms hardly weakened the state sector.[4] Private entrepreneurs continued to face obstacles, e.g. limited access to credit (Richards, Ha, Harvie, & Nguyen, 2002). Under the impression of private firms' sluggish growth in the 1990s and the Asian financial crisis, Vietnam's government passed a new Enterprise Law in 1999. Considered a breakthrough for the private sector's development, it eliminated over 100 licence requirements for private firms (Hakkala & Kokko, 2007).[5]

These improvements spurred growth in the number of registered private firms. By the end of 2006, roughly 120,000 registered private firms were operating – nearly a six fold increase compared to 1999 (Malesky & Taussig, 2008: 255).[6] Private firms started acting as increasingly important providers of formal employment opportunities. Private sector growth and privatizations caused SOEs' share in GDP to decrease from nearly 40 percent in 2000 to circa 33 percent in 2010. Yet, privatization efforts slowed down in the mid-2000s and SOE conglomerates grew stronger again, as the government renewed efforts to create national champions (Vu Thanh, 2014a).[7]

2.2. Vietnamese firms: Stylized facts

2.2.1. Domestic private

Formal employment in domestic private firms (henceforth DPFs) grew rapidly after 2000, with 3.02 million new formal jobs added during 2000–2009 (author's calculation based on Vietnamese enterprise survey). Yet, the majority of DPFs founded in the 2000s are micro firms and SMEs. Most large Vietnamese enterprises are SOEs, privatized SOEs, or MNEs (Sakata, 2013). Although the business environment improved following the Enterprise Law of 1999, DPFs continue to experience disadvantages relative to SOEs (Baccini, Impullitti, & Malesky, 2019). Informal linkages with state actors are often essential for access to credit and DPFs' credit constraints have been highlighted as a factor limiting their demand for skilled workers (Phan & Coxhead, 2013). DPFs face challenges commonly observed in developing countries, including limited access to technology, poor management, slow productivity growth and a low likelihood of turning into large enterprises (Kokko & Thang, 2014).

2.2.2. MNEs

Compared to DPFs and SOEs, MNEs in Vietnam have lower debt levels (World Bank, 2011). They mostly engage in labour-intensive

[3] SOE reforms resulted in the loss of roughly 800,000 jobs during 1990–1992 (Nguyen et al., 2003; Gainsborough, 2004). National programmes provided lump sum cash compensation to redundant SOE workers (Probert & Young, 2008). Note that these large-scale layoffs occurred before the beginning of our period of analysis (1999–2009).

[4] SOEs' share in GDP climbed from 39% in 1992 to circa 41% during 2000–2003 (Fforde, 2007: xxiii). Van Arkadie and Mallon (2003: 126) estimate that SOEs dissolved or privatized during that phase accounted for less than four percent of total SOE assets. Most dissolved SOEs were small and had less than 100 employees (National Centre for Social Sciences and Humanities, 2001). Akin to the Chinese approach of "keeping the big and releasing the small", smaller SOEs were often dissolved whereas larger ones were scaled up.

[5] The time needed to register an enterprise decreased from roughly a month in 1999 to 15 days in 2000 (Malesky, 2008: 256).

[6] SOEs' number shrank from 5579 in 2000 to 3364 in 2009.

[7] In an attempt to reconcile the benefits of WTO membership with a continued emphasis on SOEs as central players in the economy, the government provided state economic groups (SEGs) with substantial resources. SEGs are conglomerates, i.e. combinations of firms that form one corporate group typically operating in multiple industries. New forms of intra-conglomerate lending replaced classic subsidies to circumvent WTO rules (Vu Thanh, 2014a).

manufacturing production for export markets. Since the second half of the 2000s, MNE-driven assembly activities in electronics have gained importance (Athukorala & Tien, 2012). Particularly in industries that are new to Vietnam, MNEs increasingly establish production facilities outside Vietnam's traditional economic centres (Nguyen & Revilla-Diez, 2016). They pay higher wages than domestic firms (Fukase, 2014) and accounted for more than half of Vietnam's total exports in 2009. Formal employment in MNEs has been growing even faster than employment in DPFs; 3.88 million new jobs in MNEs were created during 2000–2009.

2.2.3. SOEs

SOEs still enjoy advantages regarding access to capital, land, skilled labour, and protection from foreign competition (Pincus, 2016).[8] They continue to act as key players in Vietnam's economy, influencing conditions for other economic agents. Despite SOEs' continued importance, total SOE employment decreased by 475,000 jobs during 2000–2009. In addition to lay-offs, privatizations of SOEs contributed to this reduction.

Reflecting efforts to create national champions, Vietnam's remaining SOEs are often part of conglomerates with activities in numerous sectors. They typically operate in more capital-intensive sectors and are larger in employment and capital endowment than private firms in equivalent industries.[9] Despite attempts to limit their activities to core sectors, SOEs operate in nearly all parts of today's Vietnamese economy – including real estate, food processing, logistics, retail, and tourism.

2.3. Subnational autonomy

Vietnam has a long history of subnational policy experiments (Kerkvliet, 2005; Probert & Young, 1995). Fforde and de Vylder (1996) describe violations of the central party line (''fence breaking'') by provincial authorities in the 1970s. In the 2000s the central government encouraged province-level testing of policies and deepened fiscal decentralization, providing provinces with greater incentives to optimize economic policies. Schmitz et al. (2015: 187) conclude that "Vietnam is learning by experimenting in 63 laboratories".

Progressive subnational governments were at the forefront of designing policies tailored to SMEs, especially regarding land use rights and micro-economic reforms, such as universal auditing procedures for all enterprises irrespective of ownership.[10] Subnational governments also influence economic conditions via their role as owners of SOEs.[11] In response to increasing fiscal decentralization in the 2000s, some subnational leaders increased the size of SOEs owned by their province as sources of revenue or partners for infrastructure projects (Ishizuka, 2013).

Beyond the design of policies and decisions regarding SOEs under their management, subnational leaders also shape the conditions for private firms indirectly. Provincial governments often own banks. Local authorities are also in charge of the enforcement of court decisions and may decide not to enforce a court decision to protect an SOE with strong local ties.

As a result of diverse province-level starting conditions and decentralization, similar firms can face different regulatory conditions depending on where they are located.[12] The enterprise survey of Vietnam's General Statistical Office (GSO) reveals that private firms' share in formal employment ranged from less than 9% to 79% in 2000 across provinces.

While several authors have examined reasons for province-level variation in state-business relations (Dang, 2013; Malesky, 2004; Schmitz et al., 2015), the implications of differential province-level changes in the relative economic weight of private firms for the geography of poverty remain underexplored. Growing private firms may generate economic opportunities, but changes of the role of the state in the economy may also carry social risks (Ravallion & van de Walle, 2008).

3. Related literature on state-business relations and poverty

This paper relates to three main bodies of literature: first, the literature on state-ownership in transition economies; second, contributions discussing the facilitation of private sector growth through administrative streamlining; and third, the debate on SOEs as instruments for industrial and social policy – especially in the Vietnamese context.

The literature on SOEs in transition economies highlights arguments in favour of a reduction of state ownership. Soft budget constraints, ill-defined property rights, and agency problems are assumed to create incentives that undermine profit maximization and encourage SOE managers to appropriate rents (Kornai, Maskin, & Roland, 2003). Even if the government enforces hard budget constraints and eliminates rent seeking by SOE managers, the absence of entrepreneurial incentives and managerial decisions' politicization may cause differences in performance between state-owned and private enterprises (Estrin, Hanousek, Kočenda, & Svejnar, 2009). With the exception of the provision of public goods and natural monopoly industries, these arguments have led to a near consensus that private entrepreneurs are more efficient users of factors of production than SOE managers (Megginson & Netter, 2001).[13] Applying this logic to Vietnam, Hakkala and Kokko (2007) argue that reductions of state ownership are likely to generate economic gains and employment growth.

Potential advantages of the encouragement of private entrepreneurship take centre stage in the literature on streamlining of administrative procedures for businesses (de Soto, 2000; Djankov, 2009). A crucial aspect in this stream of literature, which has influenced the debate about firms' conditions in Vietnam (Malesky & Taussig, 2008, 2009), is the necessity to reduce the administrative costs of establishing a private formal enterprise. Private entrepreneurs are assumed to play a key role in ensuring an efficient resource allocation and lower start-up costs are expected to reduce unproductive firms' chances of survival (Acs, Desai, & Hessels, 2008; Banerjee & Duflo, 2005; Caselli & Gennaioli, 2008). Efforts to facilitate the establishment of new

[8] Cheong et al. (2010: 72) describe this situation as an "institutionally engineered uneven playing field with SOEs enjoying the upper hand in every transaction".

[9] In 2009 they accounted for high shares of turnover in textiles (21%), fertilizer (99%), insurance (88%), cement (51%), refined sugar (37%), beer (21%), and chemicals (21%).

[10] Further examples of province-level experimenting include special economic zones and the acceleration of business registration procedures (Van Arkadie & Mallon, 2003; Fforde, 2007).

[11] Vietnamese SOEs are either owned by the national government or by provincial governments. In 2000, 66 percent of all SOEs were owned by subnational governments; by 2009 this percentage amounted to only 48. In 2000 Hanoi (351) and HCMC (311) had the highest number of local SOEs, whereas Binh Phuoc in the Southeast – often praised for its progressive economic policies – had the lowest (16). In 2009, HCMC (211) and Hanoi (155) had the highest numbers of local SOEs, whereas Hà Giang in the Northeast had the lowest (3). These numbers were calculated based on the Vietnamese enterprise survey.

[12] The annual Provincial Competitiveness Index (PCI) survey of 7800 private enterprises documents this heterogeneity. In 2005, the average share of respondents that considered favouritism towards SOEs as an obstacle to their business ranged from 33% to 79% across Vietnam's provinces (Malesky, 2005). The PCI data are unfortunately only available for all Vietnamese provinces from 2006 onwards and therefore cannot be included in our empirical analysis.

[13] There are, however, important strategic considerations related to technological progress that go beyond a relatively narrow focus on efficiency comparisons between different ownership categories. For a comprehensive discussion of the state's role in promoting technological development, see Masina (2015). Wacker (2016) applies a similar reasoning to his discussion of SOEs' role in the Vietnamese economy.

businesses typically focus on reducing license requirements, the number of authorities involved in permit issuance, and the quantity of paperwork to be completed.[14] Vietnam's enterprise reforms of 2000 (see Section 2.1) are examples of such measures. Promoting Vietnam's private sector is often considered as the main way of creating jobs to mitigate economic deprivation[15] (Cheong, Duc, & Nguyen, 2010). Urging the government not to favour SOEs, Tran, Le Le, and Nguyen (2008: 327) highlight private SMEs' role as "a main vehicle for poverty alleviation".

The arguments associated with the two perspectives discussed above suggest that, in order to generate economic opportunities, governments should primarily act as market facilitators and limit any preferential treatment of SOEs. Conversely, Vietnam's government assigns a leading developmental role to SOEs. Official declarations portray large-scale SOEs as the main vehicle for Vietnam's integration into the global economy and the development of strategically important industries (Vu Than, 2014a).[16] Vietnam's government simultaneously expects SOEs to soften social effects of economic volatility. Several scholars have expressed sympathy for this vision – while simultaneously criticizing its translation into policies (Masina, 2006; Wacker, 2017).

The success of the developmental state in parts of East Asia (Wade, 1990) inspires supporters of strong SOEs.[17] Beresford (2004, 2008) suggests SOEs could be central agents in Vietnam's industrialization. She regards SOEs and private firms as mutually dependent: "Investing in better performing SOEs is therefore likely to (...) create more, not fewer, opportunities for private sector SME employment" (Beresford, 2004: 83).[18] Wacker (2017) argues that private firms might benefit from potential spillover effects associated with SOEs' greater ability to conduct R&D. As a developmental tool, SOEs are thus expected to support private firms' growth and contribute directly and indirectly to the generation of new opportunities for disadvantaged individuals.

Proponents of strong SOEs also describe them as anchors of social stability in times of rapid change. Conceptualizing SOEs' role in the Chinese context[19], Bai, Li, Tao, and Wang (2000: 736) consider it as "inevitable that SOEs continue to play their multitask role during the transition" to guarantee social stability. By providing social services and keeping surplus labour on their payroll, SOEs are assumed to safeguard social stability, thereby protecting all firms' business environment (Bai, Lu, & Tao, 2006). This resonates with Beresford (2008) view that Vietnam's SOEs cushioned effects of economic restructuring and used revenue from new business activities to avoid layoffs.[20]

4. Potential channels between changes in private firms' employment share and poverty

The review of the related literature revealed two opposing views on the link between state-business relations and poverty. Proponents of equal treatment of all firms irrespective of ownership see the promotion of private firms as a principal instrument to alleviate poverty. In contrast, advocates of strong SOEs emphasize their role as guarantors of social stability in times of rapid economic change. In the empirical analysis, the change in private firms' share in formal employment serves as a measure of the extent to which the relative weight of the private sector in a province's economy changed during 2000–2009. The employment share of private firms (henceforth Π) can be decomposed as follows:

$$\frac{e_{private}}{(e_{private}+e_{state})}, \text{ where } e_{private} = e_{domesticprivate} + e_{foreign}$$

Holding $e_{private}$ constant, Π will change if e_{state} changes. This could happen if SOEs alter their staffing levels or cease to operate as SOEs (through closure or privatization).

Holding e_{state} constant, changes in Π can be driven by the entry and exit of private firms (domestic or foreign) and changes in the employment levels of existing private firms.

Total formal employment sharply increased by 6.4 Million, i.e. by 203%, between 2000 and 2009 (see Fig. 1). This growth was driven by MNEs and, to a smaller extent, DPFs.[21]

4.1. Changes driven by changes in SOE employment

From the perspective of advocates of strong SOEs, an increase in Π driven by reductions of e_{state} might aggravate poverty. This view focuses on the loss of employment opportunities which may exacerbate poverty if the private sector is not capable of absorbing the released labour. Beresford (2008) and Ishizuka (2009, 2011) argue that province-level variation in the reduction of SOE employment opportunities may have contributed to spatial disparities within Vietnam. Measures causing SOEs to abandon business activities may also have negative multiplier effects on private firms via supply chain linkages (Hakkala & Kokko, 2007; Tran, 2004). Furthermore, poverty may increase if SOEs stop providing social services in the absence of alternatives. Yet, most social mandates of SOEs have been transferred to subnational governments, with the exception of a few large SOEs predominantly operating in extractive industries.[22] Besides, SOEs continue to constitute a major source of fiscal revenue, while Vietnamese authorities' ability to monitor private firms' cash flows is still limited (Beresford, 2008; Ishizuka, 2013). Reforms decreasing SOEs' share of the economy without accompanying improvements of tax collection from private firms may hence jeopardize provincial governments' ability to fund measures to alleviate poverty.[23]

Notwithstanding the plausibility of the arguments regarding consequences of an increase in Π driven by reductions of e_{state}, SOE closures associated with large-scale shedding of SOE jobs were

[14] For a critical discussion of the potential social benefits of business regulation neglected by proponents of far-reaching deregulation, see Arruñada (2007).

[15] For the purpose of this paper, we are using poverty and economic deprivation as synonyms. For a discussion of the concept of poverty, see Beaudoin (2007) or Rand (1998).

[16] References to Singaporean SOEs and Korean chaebols indicate that Vietnam's government is looking eastwards for policy lessons. However, SOEs' objectives are not precisely defined and are constantly evolving (Chia, 2013).

[17] However, there are major discrepancies between the typical Southeast Asian developmental state and Vietnam's approach – most notably the low accountability of Vietnamese SOEs and the lack of a well-defined industrial policy (Malesky & Taussig, 2006; Cheong et al., 2010). In contrast to the case of Taiwan, Vietnamese SOEs were neither disciplined by the market nor by the government (Beresford, 2008). Malesky and Taussig (2006) argue that the foundations of a developmental state, especially strategic planning and a system of checks and balances, are missing in the case of Vietnam.

[18] This resonates with Tran's (2004: 160) description of a "symbiotic relationship" between Vietnamese SOEs and private domestic enterprises via subcontracting linkages in the textile industry.

[19] For a recent comparison of the reform processes in Vietnam and China, see Malesky and London (2014).

[20] Similarly, Vu Thanh (2014a: 7) argues that Vietnam's "SOEs are still required to help ensure social security and contribute to poverty alleviation".

[21] As discussed in section 3, this rapid growth, especially regarding private domestic firms, is closely linked to the simplification of business registration procedures through the enterprise law (2000) and simultaneously reflects Vietnam's rapid GDP growth during this period.

[22] While it has been argued that, since the launch of DoiMoi in 1986, Vietnam's government has tried to avoid the harsh social effects of economic restructuring observed in Russia (London and Malesky, 2014), descriptions of SOEs' social mandates are rare and imprecise. Beresford (2008: 232) mentions "health, education, social security and childcare needs, as well as providing jobs", while Pincus, Anh, Nghia, Wilkinson, and Thanh (2012) refer to the provision of cheap electricity.

[23] Several authors have highlighted Vietnamese private firms' tendency to underreport revenue (Taussig, Nguyen, & Nguyen, 2015).

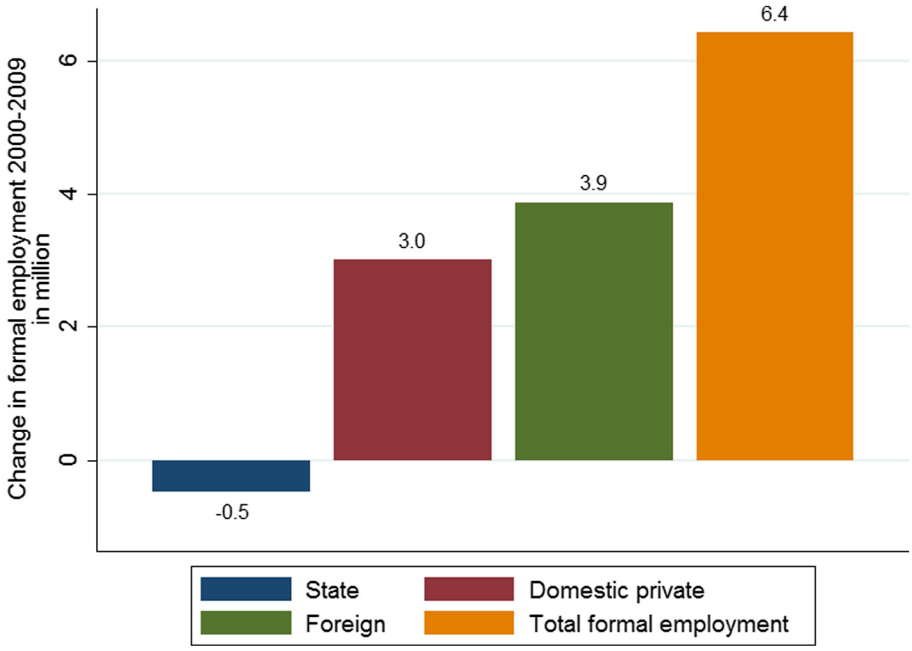

Fig. 1. Formal employment growth 2000–2009 by sector (Vietnam as a whole).

rare in the 2000s (Sakata et al., 2013). Absolute SOE employment still declined in most provinces between 2000 and 2009. On average, SOE employment declined by 7,900 jobs during 2000–2009 – corresponding to 15 percent of the average province-level total formal employment at the beginning of our period of analysis in 2000.

4.2. Changes driven by aggregate private employment growth

The literature on economic gains from private sector growth points to several channels for poverty-reducing effects of changes in Π driven by growth of $e_{private}$. Higher entry rates of private firms should increase competition in provincial markets and may improve allocative efficiency and spur innovation (Aghion, Bloom, Blundell, Griffith, & Howitt, 2005). Descriptive statistics on Vietnamese enterprises' appear to confirm arguments that private enterprises are more efficient users of factors of production (World Bank, 2011).[24] Potential productivity gains via the reallocation of factors associated with increases in Π driven by growth of $e_{private}$ could translate into employment growth and possibly higher remuneration of workers and lower prices, contributing to poverty alleviation.

An increase in Π may also help to alleviate poverty if private firms are more likely than SOEs to generate economic gains associated with Vietnam's integration in the global economy. McCaig (2011) finds that increased export opportunities reduce poverty levels in Vietnamese provinces. According to (Baccini, Impullitti, & Malesky, 2019), Vietnamese industries dominated by private firms respond to growing trade intensity with productivity increases, whereas SOEs lobby for continued protection from competition and sustain low productivity levels due to soft budget constraints. Income gains stemming from Vietnam's integration in trade flows would therefore be higher in provinces with a relatively larger private sector.

4.3. Changes in MNE employment as driving force

An increase in Π may be driven by growth of $e_{foreign}$. Given their knowledge of export opportunities, superior technology, and access to foreign capital, MNEs may contribute to productivity gains, employment growth, and higher wages (Lall and Narula, 2009). Given the relevance of labour-intensive industries to poverty alleviation in Vietnam, MNEs may play a key role in shaping the potentially poverty-reducing effect of growth in private firms' employment share. Their ability to pay high salaries (Fukase, 2014) and access export markets makes it plausible to assume that they affect poverty rates more than growth in the frequently credit-constrained DPFs.[25]

Based on the conceptual and empirical literature reviewed in this section, the overall association between changes in Π and poverty in the Vietnamese context remains ambiguous. We address this empirical question in the econometric analysis presented in the next section.

5. Data and empirical strategy

5.1. Data

5.1.1. Poverty rate

The measurement of poverty is notoriously difficult (Ravallion, 1998). We rely on the percentage of the population whose disposable income falls below the level needed to cover basic needs.[26] We use poverty estimates from two independent poverty mapping pro-

[24] Malesky and Taussig (2008) provide evidence that SOEs enjoy preferential access to credit (often provided by state-owned banks), while private enterprises are frequently credit-constrained (Rama, 2007). SOEs also enjoy privileges in the access to land, as private enterprises often have to purchase land usage rights from SOEs (Pincus et al., 2012). Painter (2013) and Coxhead and Phan (2013) link the capital market segmentation to firms' access to skills. They find that SOEs' preferential access to capital created a two-track market for skills, in which SOEs offer the highest salaries for skilled workers and crowd out skill-intensive private activities.

[25] Particularly for women MNEs appear to offer positions at salary levels not available in SOEs or private domestic firms (Fujita, 2014).

[26] A distinction is commonly made between absolute and relative poverty. Absolute poverty refers to deprivation of basic needs, such as food, clothing, and shelter (Beaudoin, 2007). Mostly used in developed countries, relative poverty is based on a comparison to the median or average of a society. Vietnam still being a country with significant remaining deprivation of basic needs, the poverty measure used in the empirical part of this paper refers to absolute poverty.

jects (Minot, Baulch, & Epprecht, 2003; Lanjouw et al., 2013). These data are not directly linked to any Vietnamese policy and therefore not likely to be subject to manipulation by policy-makers.[27] The approach adopted by Minot et al. (2003) and Lanjouw, Marra, and Nguyen (2013) relies on a reference basket of essential food and non-food consumption. Lanjouw et al. (2013) build upon the contribution of Minot et al. (2003). Both studies employ a micro-level estimation technique (Elbers, Lanjouw, & Lanjouw, 2003) which combines rich information of household surveys with the comprehensive coverage of population censuses.[28] Several poverty-related studies on Vietnam rely on data based on this approach (e.g. Miguel & Roland, 2011; Nguyen, Truong, & Van Der Weide, 2010; Kozel, 2014). As stressed by Lanjouw et al. (2013), the data allow for a comparison of the geographic pattern of poverty in the two years. Rather than focusing on precise estimations of marginal effect sizes, this paper prioritizes the identification of the overall direction of the association between the change in the poverty rate and the change in Π during 1999–2009.[29]

5.1.2. Employment share of private firms

Our key variable of interest, Π, is based on the annual Vietnamese enterprise survey (VES) conducted by the GSO. It covers all registered enterprises with at least 30 employees and includes information on ownership. Firms with at least 50 percent state ownership are defined as SOEs. The VES data are "as complete a record as possible on the economic activities of firms in Vietnam" (Howard, Newman, & Tarp, 2015: 7) and have been used in several recent studies (Baccini, Impullitti, & Malesky, 2019; Ha & Kiyota, 2014; Kyburz and Nguyen, 2017). Yet, this dataset is not without its limitations. It only captures a 15% subsample of firms with fewer than 30 employees. We therefore undercount the full extent of private formal employment, as many private domestic firms are small. Most importantly, it does not cover the informal sector. There is a general scarcity of information on Vietnam's informal sector. Cling, Razafindrakoto, and Roubaud (2011) draw on labour force and household surveys and estimate that informal activities account for 20 percent of GDP. There are multifaceted links between the informal sector and the formal one. Formal employers – especially private ones – also act as providers of non-registered informal employment opportunities (Castel & To, 2012). To take into account the relative size of the formal sector and to address the possibility that dynamics in the formal sector may affect the informal sector, in the empirical analysis we control for the change in the formal employment share.

5.1.3. Controls

We primarily rely on the VES and three rounds of Vietnamese population censuses (1989, 1999, 2009) to construct controls. Table A1 in the Appendix provides a complete list of data sources.

5.1.4. Descriptive statistics

Table 1 shows the province-level variation in both poverty and private firms' employment share that we use for our empirical analysis. Poverty levels were lowest in 2009 in the Mekong Delta and the Red River Delta, but remained substantially higher in the northern mountains and central highlands. Private employment shares are highest near HCMC in 2009. The private employment share rose on average by 46.28 percentage points (Table 3.1), while the poverty rate fell on average by 16.2 percentage points.[30] Poverty fell in nearly all provinces.[31] There is considerable variation in key variables that have been highlighted in the literature as major factors shaping poverty patterns in Vietnam, such as the share of the majority ethnicity (Kinh) or literacy. The descriptive statistics for the variables capturing the contribution of different ownership categories to aggregate formal employment growth indicate that private domestic firms and MNEs acted as the main drivers of formal employment growth. Conversely, SOEs' contribution to formal employment growth was, on average, negative.

Fig. 2 displays the descriptive visualization of the unconditional relationship between the province-level change in the poverty rate and the change in Π. It suggests that there is a negative association. Larger increases in Π appear associated with larger drops in the provincial poverty rate.

5.2. Empirical strategy

Variation in our key variable of interest – the province-level change in Π during 2000–2009 – is not randomly assigned. To address endogeneity and reverse causality concerns, we use a wide range of controls and an instrumental variable strategy.

The province-level poverty data described above are only available for 1999 and 2009. We regress changes in poverty on changes in Π, while controlling for initial conditions. In addition, we control for the change in the formal employment share during the period of analysis. The formal employment share is calculated as the percentage of all employment (the number of individuals reporting to have work in the population census) that is accounted for by total formal employment (calculated based on the Vietnamese enterprise survey) in a province. This control variable takes into account changes in the overall availability of formal employment opportunities in a province. Its inclusion implies that the coefficient of the main variable of interest, Π, captures link between poverty and the private share of formal employment and is not driven by changes in the overall prevalence of formal employment.

We employ a long-difference specification described by the following equation:

$$\Delta POVERTY_{i,2009-1999} = \alpha + \beta \Delta \Pi_{i,2009-2000} + \mu X'_{i,1999} + \Delta \varepsilon_i$$

[27] There are two major sources of poverty data from Vietnamese authorities: The Ministry of Labour, Invalids, and Social Affairs (MOLISA) and the Vietnam's General Statistical Office (GSO). MOLISA combines information from local surveys and village-level consultations. Drawing on household survey data, the GSO relies on two different methods. First, it uses official, inflation-adjusted poverty lines applied to incomes per capita. Jointly developed with the World Bank, the GSO's second method is based on a basket of essential food (corresponding to a daily per capita intake of 2390 kcal) and additional non-food consumption. Individuals lacking the resources to afford this basket are categorized as poor (Kornai et al., 2014).Particularly the MOLISA poverty rate's suitability for research purposes has been questioned (Nguyen & Revilla-Diez, 2014; Dell & Querubin, 2015), e.g. regarding the incomplete adjustment for inflation. While the GSO poverty line does correct for inflation, it is not available for 1999 and 2009 and methodological changes after 2008 limit its value for comparisons across time (Dell & Querubin, 2015).

[28] Miguel and Roland (2003) combine the 1998 Vietnam Living Standard Survey (VLSS) and a 33% sample of the 1999 population census to create a poverty map for 1999. Lanjouw, Marra and Nguyen (2013) use a 15% sample of the 2009 population census in combination with the 2010 Vietnam Household Living Standard Survey (VHLSS) to create a poverty map for 2009.

[29] While the second mapping project (Lanjouw, Marra and Nguyen (2013)) was designed to enable researchers to examine changes in the geography of poverty during 1999–2009 based on comparison with the estimates of Miguel and Roland (2003), adjustments of the consumption module of Vietnam's household survey impose constraints on precise comparisons of the 1999 and 2009 poverty rates. However, any measurement error resulting from these modifications should be symmetric across provinces.

[30] Fig. A.1, Fig. A.2, Fig. A.3 and Fig. A.4 in the Appendix map the levels of poverty and the private employment share in 1999 and 2009.

[31] Two southern provinces, Binh Duong and Dong Nai, saw marginal increases in poverty (by 0.20 and 0.71 percentage points respectively) from relatively low starting levels of poverty (7.62% and 11.02% respectively). All other provinces saw reductions in poverty.

Table 1
Descriptive statistics (at level of 60 provinces).

Variable	Mean	S.D.	Min	Max
ΔPoverty rate, 1999–2009	−16.22	7.72	−32.97	0.71
ΔPrivate employment share, 2000–2009	46.28	14.72	17.98	76.44
ΔFormal employment share, 2000–2009	6.31	5.813	0.951	32.22
Overall private contribution to formal employment growth, 2000–2009	2.37	1.16	0.78	5.57
Domestic private contribution to formal employment growth, 2000–2009	1.31	0.66	0.22	3.68
SOEs' contribution to formal employment growth, 2000–2009	−0.23	0.18	−0.55	0.31
MNEs' contribution to formal employment growth, 2000–2009	1.06	0.84	0.22	3.95
Area (% of province) at >1000 m altitude	4.93	9.75	0	37.61
Distance Hanoi/HCMC	251.3	220.86	0	835
Major port in province	0.08	0.28	0	1
Kinh (%), 1999	79.88	28.02	4.41	99.99
Literacy (%), 1999	89.19	7.87	54	97.2
Urbanization (%), 1999	20.89	15.49	5.64	83.6
Fence breaking intensity level 1 (0–10 cases)	0.7	0.46	0	1
Fence breaking intensity level 2 (11–25 cases)	0.25	0.44	0	1
Fence breaking intensity level 3 (26–147 cases)	0.05	0.22	0	1
Distance from former border	716.59	327.16	80	1447
Christians (% of population), 1999	7.38	8.69	0.006	39.4
Instrumental variable	119.09	99.36	10.55	416.39
Former South	0.53	0.5	0	1
Total U.S. bombs per km^2, 1965–1975	28.81	50.15	0.01	335.47
ΔHouseholds (%) with access to electricity, 1989–1999	63.5	18.33	12.2	98.1
Net migration 1984–1999 as % of population in 1999	−0.35	5.38	−8.24	17.2
ΔUrbanization, 1989–1999	3.92	3.99	−4.23	18.93

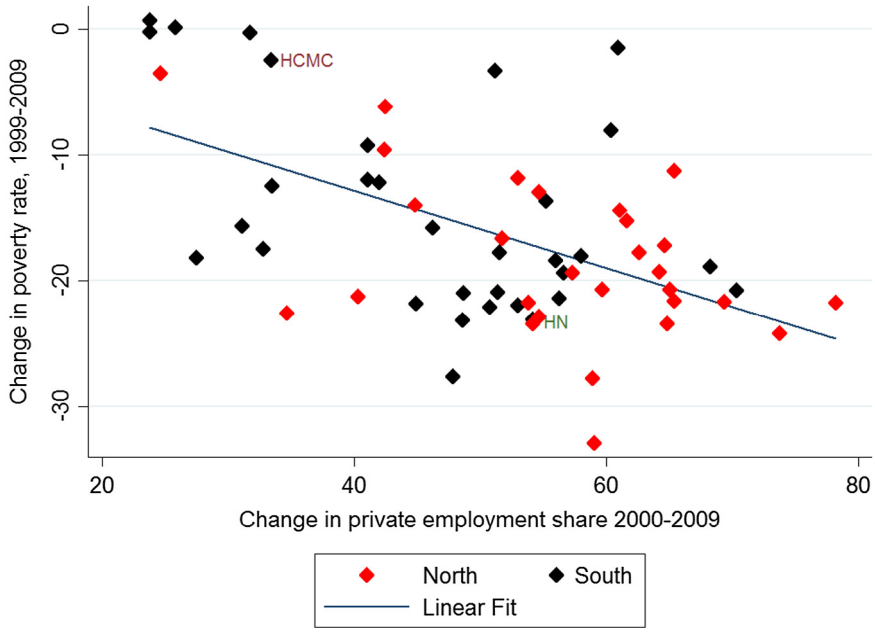

Fig. 2. Change in poverty rate and change in private employment share.

where

$$\Delta\Pi_{i,2009-2000} = \frac{e_{private,\ 2009}}{(e_{private,\ 2009} + e_{state,\ 2009})} - \frac{e_{private,\ 2000}}{(e_{private,2000} + e_{state,\ 2000})}$$

The subscript i corresponds to 60 provinces i.[32] $X'\mu_{i,1999}$ is a vector of control variables measured in 1999: urbanization, literacy, ethnic majority share, and share of territory at high altitudes. Regarding the role of Vietnam's two main cities (Hanoi and HCMC), we control for the distance to the nearest one of the two.[33]

Despite the inclusion of poverty-related controls, one may still worry about omitted variables and reverse

[32] The number of provinces changed between 1999 and 2009. One province (Hà Tây) was merged with Hanoi, whereas three new provinces were created after being split from their "mother" province. We maintain the merger of Hà Tây and Hanoi but re-aggregate the new provinces with their three "mother" provinces in 2009 based on population weights.

[33] Note that Hanoi and HCMC are located at opposite ends of the country. Creating two variables for the distance to both cities is therefore likely to introduce multicollinearity. We instead created a variable that equals the distance to the nearest of the two major cities. For provinces close to Hanoi, this will be the distance to Hanoi. For provinces closer to HCMC, this will be the distance to HCMC.

causality.[34] We therefore employ an instrumental variable strategy. More specifically, we use a shift-share instrument (Bartik, 1991; Card, 2007; Moretti, 2010). Our instrument relies on private firms' initial province-level share of total formal employment and the national change – excluding the province under observation – in private formal employment over the period of analysis to predict the change in the province-level private employment share. Specifically, we construct our instrument as:

$$IV\_\Delta\Pi_{i,2009-2000} = \left(\Pi_{i,2000} * \frac{e_{VNM,private,2009} - e_{VNM,private,2000}}{e_{VNM,private,2000}}\right)$$

where $\Pi_{i,2000}$ is the initial formal private employment share of province *i*, while the term to its right captures the national growth rate of formal private sector employment. The subscript *VNM* refers to Vietnam as a whole – excluding province *i*: the national growth in private employment is calculated without taking into account the province under observation and therefore varies across provinces. Excluding a province's own change in private employment helps address the concern that national changes might be driven by events in the same province (Faggio & Overman, 2014). The intuition behind this IV is that, in the absence of province-specific shocks, all provinces would have received a share of the increase in national formal private employment during 2000–2009 in proportion to their initial private employment share. One might still worry that starting-level shares are correlated with unobservables that might affect changes in poverty (Baum-Snow & Ferreira, 2015). We address this concern through the inclusion of a large number of starting-level controls. In a set of robustness checks we also enter several variables aimed at capturing relevant dynamics in the years before 1999: location in former South Vietnam, bombardment during the U.S.-Vietnamese war, net migration 1984–1999, change in urbanization 1989–1999, and change in the share of households with access to electricity 1989–1999.

6. Results and discussion

Table 2 presents the main results, starting from OLS (columns 1–3) and then proceeding to the instrumental variables estimates (columns 4–6). We start by entering our key variable of interest, while simultaneously controlling for the increase in the formal employment share (column 1). The coefficient of the change in the private employment share is negative, indicating that provinces that saw a larger increase in Π experienced a larger drop in poverty. The coefficient is statistically significant, albeit only at the 10%-level. The coefficient of the control for the change in the share of formal employment in total employment is positive. While an in-depth examination of the link between poverty and changes in the formal employment share would require a different methodological approach, this pattern is likely to reflect the fact that growth informal employment opportunities during this period was particularly pronounced in predominantly urban and internationally integrated provinces (2018; McCaig & Pavcnik, 2015), i.e. in parts of Vietnam that had already achieved large reductions in the poverty rate by the beginning of the 2000s. With the change in Π and the change in the change in the formal share of total employment displaying a relatively low pairwise correlation (−0.2), it seems that changes in the private share of formal employment and increases in the formal share of total employment did not necessarily occur simultaneously in Vietnam during this period.

In column 2 we add a set of geographical controls: we add the share of the province's territory's that is at an altitude of more than 1000 m. In Vietnam mountainous areas display particularly persistent levels of poverty (Kozel, 2014). We also enter distance to Hanoi and HCMC, as Vietnam's two biggest cities act as internationally connected growth engines. To take into account the relevance of Vietnam's integration in trade flows (McCaig, 2011), we add a dummy to control for whether the region hosts a major port. The coefficient remains nearly unchanged. We proceed to enter additional controls for factors linked to initial economic deprivation. Poverty is particularly common in areas predominantly populated by ethnic minorities (Demombynes & Vu, 2015). At the same time, poverty in Vietnam is also a predominantly rural phenomenon (Nguyen, 2014). The regression presented in column 3 therefore also controls for ethnicity[35], literacy and urbanization. The coefficient remains statistically significant at the 5%-level. Overall, the OLS results reveal a negative association between increases in Π and the change in the poverty rate.

These OLS estimates might be afflicted by omitted variable bias, reverse causality and measurement error. We therefore extend our analysis and use our instrumental variable. Columns 4–6 present the results of IV regressions. The first-stage F statistic indicates that the instrument has satisfactory explanatory power. We observe a negative and statistically significant coefficient in all IV regressions. The size of the coefficient is – in absolute terms – roughly twice as large as the OLS coefficient found in column 1. This difference in the coefficient size in absolute terms may be due to measurement error in our measure of the private sector's employment share. For example, the reporting of employment levels by firms is unlikely to be fully precise. Overall, both the OLS and IV results point in the same direction: larger increases in Π are associated with larger poverty reduction.

While the regressions presented in Table 2 control for key variables that feature prominently in the debate about poverty reduction in Vietnam, they do not encompass measures of the institutional characteristics of provinces. To address the concern that the change in the private employment share might act as a proxy for pro-business policies, we run three additional regressions with three different variables intended to capture province-level institutions. In addition to the controls included in the main analysis, Column 1 of Table 3 also enters three dummies corresponding to the number of cases of so-called "fence breaking" between 1990 and 2000. This information is taken from a categorization of Vietnam's provinces provided by Malesky (2008: 100), who conducted a content analysis based on the articles published in six newspapers with nation-wide circulation during 1990–2000 to identify cases of autonomously designed economic reforms in that period. Malesky counted the number of times a province was mentioned for "willfully pushing beyond central economic or administrative policy" (Malesky, 2008: 105). Restricted to economic policies, Malesky's (2008) contribution allows us to enter three dummies corresponding to three different levels of "fence breaking intensity": 42 provinces in the lowest category ("Fence breaking intensity 1") were mentioned 0–10 times for such reforms. The next category ("Fence breaking intensity 2") includes 15 provinces for which Malesky (2008) counted 11–25 cases of "fence breaking". In the regression reported in column 1 of Table 3 the reference category is the group of three provinces (Hanoi,

[34] More specifically, we would overestimate the poverty-reducing effect of an increase in Π if decreases in poverty cause increases in Π (not vice versa). Similarly, if policy-makers allocate state activities to the most disadvantaged areas with particularly persistent poverty, the coefficient of Π would be biased downwards. As discussed in section 3, several authors mention SOEs as a regional development instrument (Fujita & Hu, 2013; Vu, 2014). Vu (2014) describes political factors' influence on the decision to locate a state-owned refinery in the province of Quang Ngai in central Vietnam.

[35] We control for the percentage of the population claiming membership of the majority ethnicity Kinh.

Table 2
Main regressions.

	(1) OLS	(2) OLS	(3) OLS	(4) IV	(5) IV	(6) IV
ΔPrivate employment share, 2000–2009	−0.102* (0.056)	−0.105* (0.053)	−0.107** (0.050)	−0.232* (0.133)	−0.215** (0.108)	−0.192** (0.077)
ΔFormal employment share, 2000–2009	0.301* (0.169)	0.452*** (0.163)	0.485*** (0.145)	0.235 (0.157)	0.413*** (0.146)	0.487*** (0.128)
Area (% of province) at >1000 m altitude		0.334*** (0.063)	0.065 (0.073)		0.327*** (0.066)	0.077 (0.074)
Distance Hanoi/HCMC		−0.001 (0.004)	−0.000 (0.003)		−0.001 (0.004)	0.001 (0.003)
Major port in province		−2.818 (2.921)	−7.343** (3.392)		−3.764 (2.883)	−7.703** (3.032)
Kinh (%), 1999			−0.113*** (0.037)			−0.133*** (0.039)
Literacy (%), 1999			−0.120 (0.117)			−0.028 (0.137)
Urbanization (%), 1999			0.142 (0.090)			0.121 (0.083)
Observations	60	60	60	60	60	60
R-squared	0.107	0.283	0.438			
1st-stage Kleibergen-Paap F				34.87	33.56	39.48

Dependent variable: Change in poverty rate, 1999–2009. A constant is included but not reported. First-stage results are presented in Table A.4 in the Appendix. Pairwise correlations of the variables included in this table are presented in Table A.2 in the Appendix.
Robust standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

Table 3
Proxies for institutions.

	(1) IV	(2) IV	(3) IV
ΔPrivate employment share, 2000–2009	−0.182* (0.098)	−0.146* (0.088)	−0.153** (0.069)
Fence breaking intensity 1	9.150*** (3.533)		
Fence breaking intensity 2	6.722 (4.574)		
Distance to 17th parallel		0.006 (0.004)	
Christians (%), 1999			0.253*** (0.093)
Observations	60	60	60
1st-stage Kleibergen-Paap F	28.07	30.89	38.72

Dependent variable: Change in poverty rate, 1999–2009. A constant is included but not reported. All regressions reported in this table include all controls corresponding to the specification presented in column 6 of Table 2.
Robust standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

HCMC, Da Nang) that saw the largest number of "fence breaking cases – up to 147. The inclusion of these dummies reduces the coefficient of our key variable of interest but it remains significant.

As a second proxy for the institutional characteristics of a province we enter the distance to the former internal border that separated North and South Vietnam before the reunification. As highlighted by Miguel and Roland (2011), the intensity of fighting during the Vietnam War was highest near this border that was established by the Geneva Accords of 1954. Kocher, Pepinsky, and Kalyvas (2011) find that areas more exposed to U.S. bombing during the war developed stronger support for Communism. Recent work by Dell and Querubin (2016) demonstrates that areas targeted by U.S. attacks saw a weakening of local governance and a reduction of non-communist civic engagement. The inclusion of this control reduces the size of the coefficient of our key variable of interest but it remains significant at the 10%-level. We obtain similar results (coefficient of −0.212, significant at 5%-level) if we directly control for the bombing intensity (instead of entering the distance to the former internal border).

In column 3 of Table 3 we add another variable intended to capture province-level institutional characteristics: the percentage of the population accounted for by Christians in 1999. This can be seen as a coarse proxy for historical exposure to Western culture, as Christianity was introduced to Vietnam by Western missionaries. Since Christians faced discrimination by the communists (Reimer, 2011), this variable might also partly capture openness to ideas diverging from orthodox Communist views. The inclusion of this control reduces the coefficient size but it remains negative and significant at the 5%-level.

Overall, the results presented in Tables 2 and 3 demonstrate that larger increases in the private employment share are associated with larger poverty reduction. As this private sector expansion occurred in the context of economic growth fuelled by Vietnam's increasing integration in the global economy, this finding does not contradict but rather complements earlier research highlighting the poverty-reducing effect of export-oriented activities in the Vietnamese case (McCaig, 2011). This finding resonates with contributions dedicating a major role to private-sector firms in the alleviation of poverty. Our results can also be read as support for calls for greater efforts to create equal conditions for all firms in Vietnam irrespective of ownership (Hakkala & Kokko, 2007; Smith, Binh, Colvin, & Rab, 2014).

Yet, one should not jump to the conclusion that all arguments in favour of strong SOEs (Bai et al., 2006; Beresford, 2008) are invalid. As discussed in section 4, the period covered by this analysis saw few cases of large-scale shedding of SOE jobs – a potentially poverty-increasing factor that may have played a greater role in the early 1990s.

While our main results reveal a clear picture regarding the association between changes in Π and changes in the poverty rate, they do not shed light on underlying channels. An in-depth examination of the relevant mechanisms would require different methods and data at other levels of analysis; these extensions are beyond the scope of this paper. However, we run a set of auxiliary OLS regres-

sions to shed light on some of the "suspects" emerging from the literature.

Both contributions calling for lower obstacles to the formalization of firms as well as voices critical of privileges enjoyed by SOEs highlight economic gains from increased entry. Via lower prices, and growth of employment and wages these competition-induced gains may alleviate poverty. We therefore run an additional regression (not reported), entering the same dependent variable and controls (corresponding to the specification shown in column 6 of Table 2) but now enter the change (between 2000 and 2009) in the number of all (i.e. any ownership) formal firms per 1000 inhabitants as the key regressor.[36] The corresponding coefficient is positive but not statistically significant, indicating that larger entry of firms was not associated with higher reductions in poverty. This finding may point to the growth of numerous formal but relatively small firms of limited longevity and capital intensity in the 2000s. It therefore does not appear likely that the results of our main analysis are driven by productivity increases associated with greater entry.

As discussed in Section 4, the change in the private employment share that takes centre stage in our main analysis could be driven by changes in the employment levels of firms of the three main ownership categories: domestic private firms, SOEs, MNEs. We therefore explore the role of the different ownership categories as contributors to a province's overall formal employment growth. Following Faggio and Overman (2014), the formal employment growth in province i can be decomposed as follows:

$$\frac{e_{total\_formal_{i,2}} - e_{total\_formal_{i,1}}}{e_{total\_formal_{i,1}}} = \frac{e_{domesticprivate_{i,2}} - e_{domesticprivate_{i,1}}}{e_{total\_formal_{i,1}}} + \frac{e_{statei,2} - e_{state_{i,1}}}{e_{total\_formal_{i,1}}} + \frac{e_{foreign_{i,2}} - e_{foreign_{i,1}}}{e_{total\_formal_{i,1}}}$$

In Table 4 we present OLS regressions examining the link between poverty reduction and different ownership categories' contribution to formal employment growth. All regression include the set of controls used in column 6 of Table 2 as well as the dummies for the intensity of "fence breaking". We start by entering the aggregate contribution of all private firms, i.e. domestic private firms and MNEs combined. This step (column 1) can be considered as an alternative way of measuring the change in the private sector's relative importance in the provincial economy during the period of analysis. The coefficient is negative and significant at the 5%-level. This finding resonates with the picture emerging from our main analysis. We now proceed to disaggregate employment growth by individual ownership categories, entering the contribution of domestic private firms (column 2), SOEs (column 3), MNEs (column 4), as well as all three ownership categories simultaneously (column 5).

The coefficient of private domestic firms' contribution is negative but not statistically significant. Although these exploratory OLS results must be read in a careful way, this finding suggests that the dramatic increase in the number of formal private domestic firms in the 2000s contributed little to poverty alleviation. Most domestic private firms are small and suffer from slow productivity growth and insufficient access to capital and technology (Kokko & Thang, 2014). This result resonates with earlier cross-country research that cast doubt on the potential of SMEs to alleviate poverty (Beck, Demirguc-Kunt, & Levine, 2005). The coefficient corresponding to SOEs' contribution to formal employment growth is positive but not statistically significant. This auxiliary regression therefore does not provide strong support for either side of the debate about SOEs' role in Vietnam's recent economic development.

In contrast, the coefficient of the change in MNEs' employment share (column 3) is negative and marginally significant (at the 10%-level). While an instrumental variable[37] for changes in MNEs' employment share would be required to rule out endogeneity concerns, this finding suggests that MNEs may be the key actors behind the picture emerging from our main analysis. MNEs possess superior technology, pay higher salaries than local Vietnamese firms, and act as intermediaries linking Vietnamese provinces to export markets (Athukorala & Tien, 2012). MNEs' share of Vietnam's total exports increased from 40.6% of all Vietnamese exports in 1999 to 53.2% in 2009. It therefore appears likely that our key variable of interest, the change in Π, partly captures poverty-reducing effects associated with MNE-driven export-oriented manufacturing.

6.1. Robustness checks

We run a set of additional regressions to test the robustness of the results of our main analysis. Controlling for the change in the agricultural employment share during 1999–2009 produces similar results. Similarly, the exclusion of privatized SOEs from the calculation of the private employment share does not fundamentally alter the results (results available upon request). Moreover, we run a set of additional regressions with variables intended to capture province-specific trajectories. We control for whether a province belonged to former South Vietnam and for U.S. bombardment[38] during 1965–1975 (columns 1 and 2 Table A.3 in the Appendix). We also enter three proxies for pre-1999 poverty trends: changes in access to electricity, net migration, and urbanization (columns 3–5 of Table A.3 in the Appendix).[39] The general picture remains unchanged.

7. Conclusion

Potential gains for economically deprived areas figure prominently in the debate about enterprise reforms in developing countries. However, the implications of changes in the relative size of the private sector with respect to spatial patterns of poverty remain imperfectly understood. This study sheds light on the link between increases in private firms' employment share and the prevalence of poverty in the provinces of Vietnam.

Particularly since 2000, Vietnam has taken large steps towards a more equal treatment of all firms irrespective of ownership. With provinces acting as policy "laboratories" (Schmitz et al., 2015), differential patterns of progress of private sector development provide a fruitful setting for the empirical investigation of the link between province-level changes in the relative weight of the private sector in the economy and the geography of economic deprivation.

[36] We obtain very similar results if we instead normalize the number of firms by the number of formal employees in the province in thousands.

[37] The fact that many provinces had zero MNE employment in 2000 prevents us from constructing a similar shift-share IV for changes in MNEs' employment share. In addition, in the 2000s MNEs often entered Vietnam to operate in sectors with limited previous domestic activities (e.g. electronics), complicating attempts to rely on initial sectoral structures to construct an IV.

[38] Although Megginson and Netter (2011) find that province-level U.S. bombing intensity was not a significant predictor of poverty levels in 2002, Malesky and Taussig (2009) argue that this finding reflects the efforts of Vietnam's government to offset bombing-related damages through public investment.

[39] In the case of the variables for changes in electricity and urbanization, we only have 35 unique values. Due to changes in the number of provinces between the population censuses in 1989 and 1999, we have to assign the values of 35 larger provinces to our 60 provinces. While this will certainly cause measurement error, the statistical significance of the corresponding coefficients suggests that the inclusion of these controls is still meaningful.

Table 4
Contribution to formal employment growth by ownership category.

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS
Overall private contribution to formal employment growth, 2000–2009	−2.105** (0.918)				
Domestic private contribution to formal employment growth, 2000–2009		−1.629 (1.300)			−1.474 (1.372)
SOEs' contribution to formal employment growth, 2000–2009			3.573 (7.415)		1.728 (6.619)
MNEs' contribution to formal employment growth, 2000–2009				−2.631* (1.483)	−2.579* (1.375)
Observations	60	60	60	60	60
R-squared	0.515	0.483	0.475	0.505	0.518

All regressions reported in this table include all controls corresponding to the specification presented in column 6 of Table 2 as well as the dummies for "fence breaking intensity".
Robust standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1

We find that during 1999–2009 provinces with larger increases in private firms' formal employment share saw bigger reductions of poverty. This result is robust to the inclusion of a wide range of controls and instrumental variable estimations. Our empirical strategy and data do not allow for the precise identification of underlying channels. We therefore leave this challenge for further work. A set of exploratory regressions suggests that increased entry of firms – frequently proposed as a driver of income gains via productivity increases – is unlikely to explain our results. Conversely, we find tentative signs that multinational enterprises (MNEs) may be key actors behind our findings, whereas private domestic firms' contribution appears limited. These results merit further investigation in future research. MNEs increasingly set up plants outside Vietnam's established economic centres (Nguyen & Revilla-Diez, 2016); research investigating their location choices may lead to important insights regarding provincial differences in progress in poverty reduction. The absence of signs of a link between increases in private domestic firms' contribution to formal employment growth and changes in provincial poverty rates highlights the necessity to improve our understanding of the obstacles faced by this category of Vietnamese firms.

Our results are in line with contributions assigning a major role to the private sector in the alleviation of economic deprivation in developing countries. In the specific setting of Vietnam during 1999–2009, private sector dynamism appears to have created new opportunities that benefited economically deprived areas. Yet, context-specific factors must be taken into account. Vietnam's government adopted a gradualist approach to mitigate socially adverse effects of rapid structural change (Malesky & London, 2014; Rama, 2008, 2014). The results of this study therefore cannot be interpreted as support for radical, fast-paced dismantling of state-owned enterprises (SOEs) in emerging countries with a high share of SOE employment. Our results do, however, provide support for policies that reduce obstacles to private firms' growth.

This study shows that regional differences in changes in the relative economic weight of the private sector can help to explain evolving regional patterns of poverty in developing countries. Prominent differences in subnational governments' attitudes towards private sector development have been observed in several countries, including China (Jin, Qian, & Weingast, 2005) and Russia (Berkowitz & DeJong, 2011; Yakovlev & Zhuravskaya, 2013). In light of the widespread trend towards decentralization in recent years (Rodríguez-Pose & Ezcurra, 2010), regional variation in private sector policies and the relative size of the private sector in the economy may become even more pronounced.

The limitations of this study point towards potential directions for future research. This analysis relies on a limited number of observations and only one dependent variable and one level of analysis. Investigations at the household and firm-level might lead to important additional insights, especially regarding the roles of MNEs and DPFs in shaping the channels behind the picture emerging from this study. Particularly the potential spillovers of jobs in the formal private sector on the informal sector warrant closer examination in future research. Similarly, studies based on alternative empirical strategies could help to deepen our understanding of the picture emerging from the analysis presented in this paper. Furthermore, detailed information on province-level differences in approaches to business reforms and social policies would allow for a more fine-grained consideration of Vietnam's "learning by experimenting" at the province-level (Schmitz et al., 2015: 187). We intend to explore some of these aspects in future work.

Declaration of Competing Interest

The author declares that he has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix

1	**Hà Nội**	26	Vĩnh Phúc	48	Đà Nẵng	75	Đồng Nai
2	Hà Giang	27	Bắc Ninh	49	Quảng Nam	77	Bà Rịa - Vũng Tàu
4	Cao Bằng	30	Hải Dương	51	Quảng Ngãi	**79**	**Hồ Chí Minh**
6	Bắc Kạn	31	Hải Phòng	52	Bình Định	80	Long An
8	Tuyên Quang	33	Hưng Yên	54	Phú Yên	82	Tiền Giang
10	Lào Cai	34	Thái Bình	56	Khánh Hòa	83	Bến Tre
12	Lai Châu	35	Hà Nam	58	Ninh Thuận	84	Trà Vinh
14	Sơn La	36	Nam Định	60	Bình Thuận	86	Vĩnh Long
15	Yên Bái	37	Ninh Bình	62	Kon Tum	87	Đồng Tháp
17	Hòa Bình	38	Thanh Hóa	64	Gia Lai	89	An Giang
19	Thái Nguyên	40	Nghệ An	66	Đắk Lắk	91	Kiên Giang
20	Lạng Sơn	42	Hà Tĩnh	68	Lâm Đồng	92	Cần Thơ
22	Quảng Ninh	44	Quảng Bình	70	Bình Phước	94	Sóc Trăng
24	Bắc Giang	45	Quảng Trị	72	Tây Ninh	95	Bạc Liêu
25	Phú Thọ	46	Thừa Thiên Huế	74	Bình Dương	96	Cà Mau

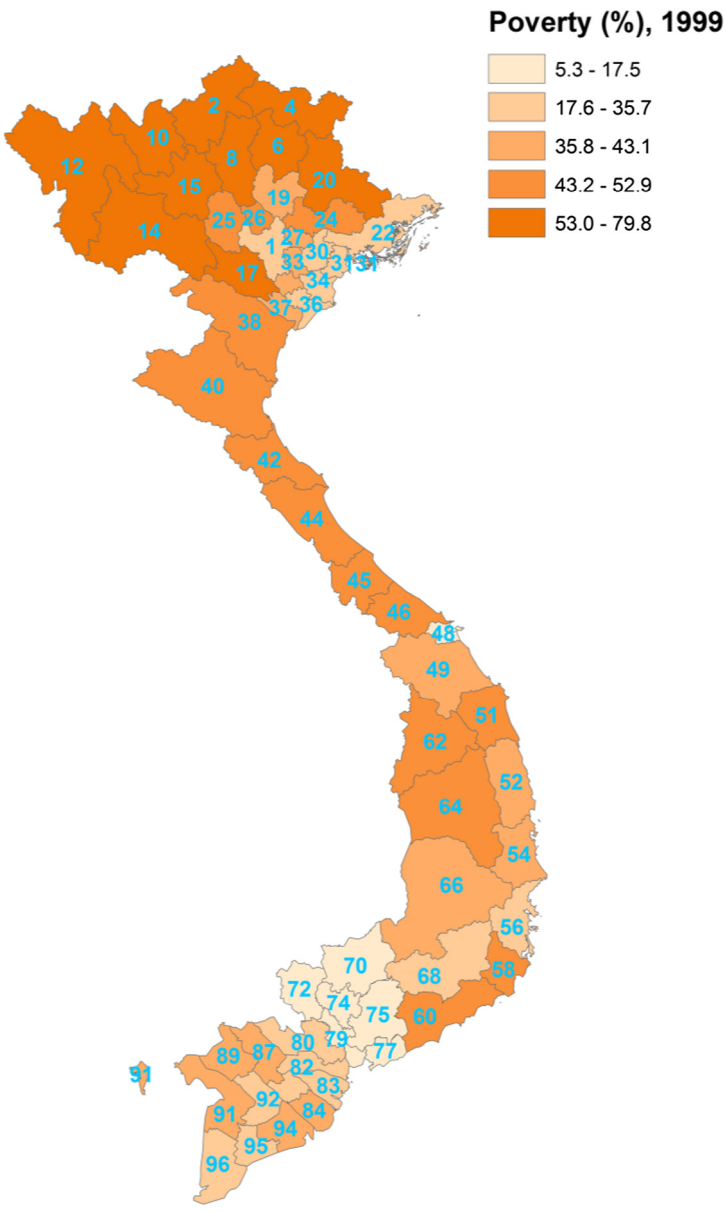

Fig. A.1. Map of Vietnamese provinces: poverty rate in 1999.

1	**Hà Nội**	26	Vĩnh Phúc	48	Đà Nẵng	75	Đồng Nai
2	Hà Giang	27	Bắc Ninh	49	Quảng Nam	77	Bà Rịa - Vũng Tàu
4	Cao Bằng	30	Hải Dương	51	Quảng Ngãi	**79**	**Hồ Chí Minh**
6	Bắc Kạn	31	Hải Phòng	52	Bình Định	80	Long An
8	Tuyên Quang	33	Hưng Yên	54	Phú Yên	82	Tiền Giang
10	Lào Cai	34	Thái Bình	56	Khánh Hòa	83	Bến Tre
12	Lai Châu	35	Hà Nam	58	Ninh Thuận	84	Trà Vinh
14	Sơn La	36	Nam Định	60	Bình Thuận	86	Vĩnh Long
15	Yên Bái	37	Ninh Bình	62	Kon Tum	87	Đồng Tháp
17	Hòa Bình	38	Thanh Hóa	64	Gia Lai	89	An Giang
19	Thái Nguyên	40	Nghệ An	66	Đắk Lắk	91	Kiên Giang
20	Lạng Sơn	42	Hà Tĩnh	68	Lâm Đồng	92	Cần Thơ
22	Quảng Ninh	44	Quảng Bình	70	Bình Phước	94	Sóc Trăng
24	Bắc Giang	45	Quảng Trị	72	Tây Ninh	95	Bạc Liêu
25	Phú Thọ	46	Thừa Thiên Huế	74	Bình Dương	96	Cà Mau

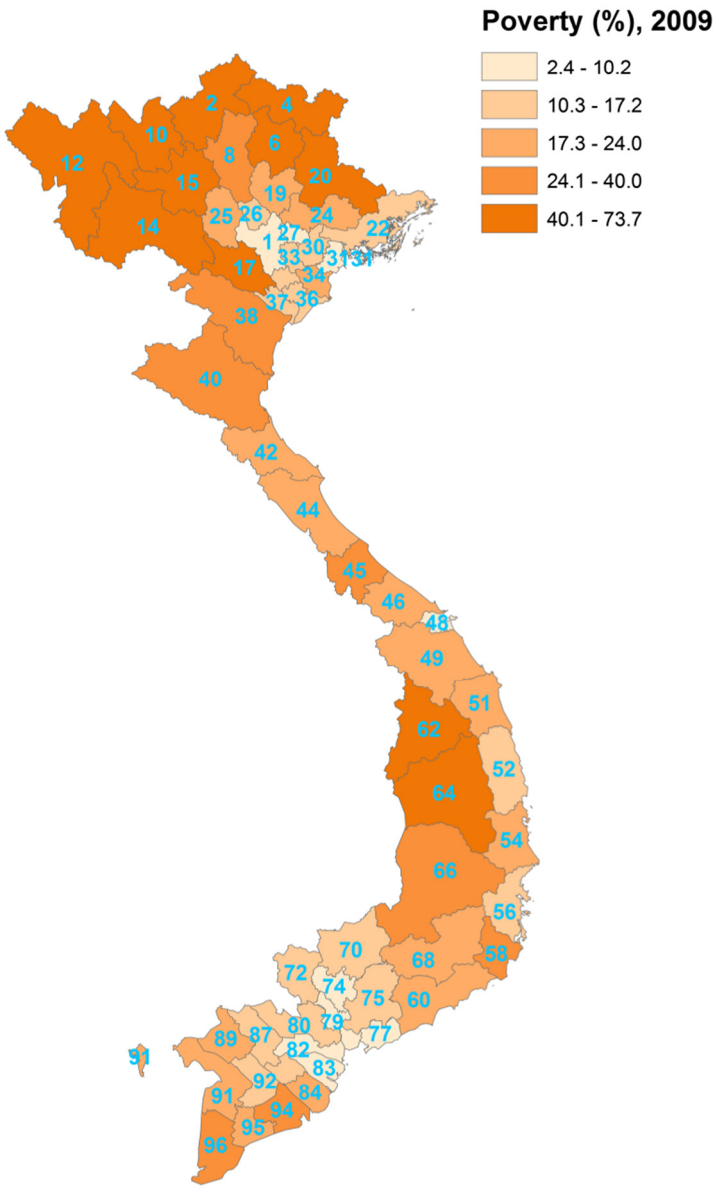

Fig. A.2. Map of Vietnamese provinces: poverty rate in 2009.

1	**Hà Nội**	26	Vĩnh Phúc	48	Đà Nẵng	75	Đồng Nai
2	Hà Giang	27	Bắc Ninh	49	Quảng Nam	77	Bà Rịa - Vũng Tàu
4	Cao Bằng	30	Hải Dương	51	Quảng Ngãi	**79**	**Hồ Chí Minh**
6	Bắc Kạn	31	Hải Phòng	52	Bình Định	80	Long An
8	Tuyên Quang	33	Hưng Yên	54	Phú Yên	82	Tiền Giang
10	Lào Cai	34	Thái Bình	56	Khánh Hòa	83	Bến Tre
12	Lai Châu	35	Hà Nam	58	Ninh Thuận	84	Trà Vinh
14	Sơn La	36	Nam Định	60	Bình Thuận	86	Vĩnh Long
15	Yên Bái	37	Ninh Bình	62	Kon Tum	87	Đồng Tháp
17	Hòa Bình	38	Thanh Hóa	64	Gia Lai	89	An Giang
19	Thái Nguyên	40	Nghệ An	66	Đắk Lắk	91	Kiên Giang
20	Lạng Sơn	42	Hà Tĩnh	68	Lâm Đồng	92	Cần Thơ
22	Quảng Ninh	44	Quảng Bình	70	Bình Phước	94	Sóc Trăng
24	Bắc Giang	45	Quảng Trị	72	Tây Ninh	95	Bạc Liêu
25	Phú Thọ	46	Thừa Thiên Huế	74	Bình Dương	96	Cà Mau

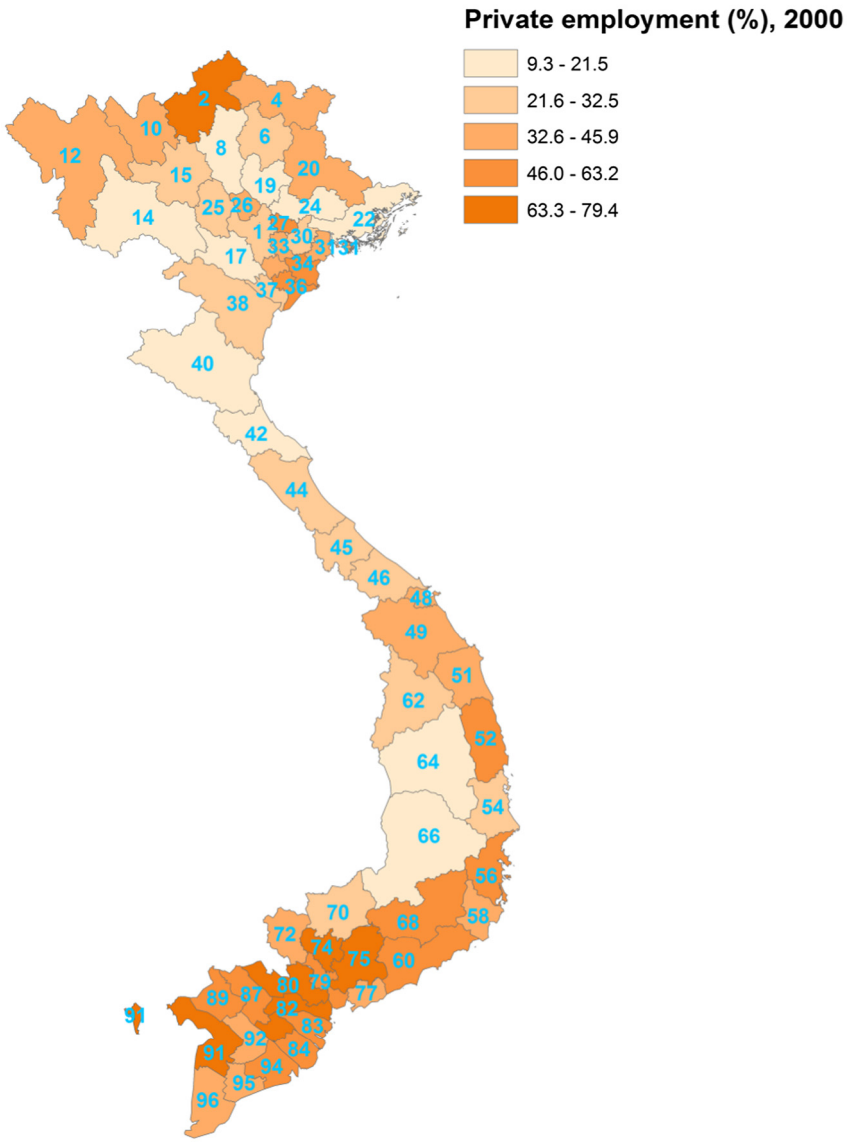

Fig. A.3. Map of Vietnamese provinces: private firms' employment share in 2000.

1	**Hà Nội**	26	Vĩnh Phúc	48	Đà Nẵng	75	Đồng Nai
2	Hà Giang	27	Bắc Ninh	49	Quảng Nam	77	Bà Rịa - Vũng Tàu
4	Cao Bằng	30	Hải Dương	51	Quảng Ngãi	**79**	**Hồ Chí Minh**
6	Bắc Kạn	31	Hải Phòng	52	Bình Định	80	Long An
8	Tuyên Quang	33	Hưng Yên	54	Phú Yên	82	Tiền Giang
10	Lào Cai	34	Thái Bình	56	Khánh Hòa	83	Bến Tre
12	Lai Châu	35	Hà Nam	58	Ninh Thuận	84	Trà Vinh
14	Sơn La	36	Nam Định	60	Bình Thuận	86	Vĩnh Long
15	Yên Bái	37	Ninh Bình	62	Kon Tum	87	Đồng Tháp
17	Hòa Bình	38	Thanh Hóa	64	Gia Lai	89	An Giang
19	Thái Nguyên	40	Nghệ An	66	Đắk Lắk	91	Kiên Giang
20	Lạng Sơn	42	Hà Tĩnh	68	Lâm Đồng	92	Cần Thơ
22	Quảng Ninh	44	Quảng Bình	70	Bình Phước	94	Sóc Trăng
24	Bắc Giang	45	Quảng Trị	72	Tây Ninh	95	Bạc Liêu
25	Phú Thọ	46	Thừa Thiên Huế	74	Bình Dương	96	Cà Mau

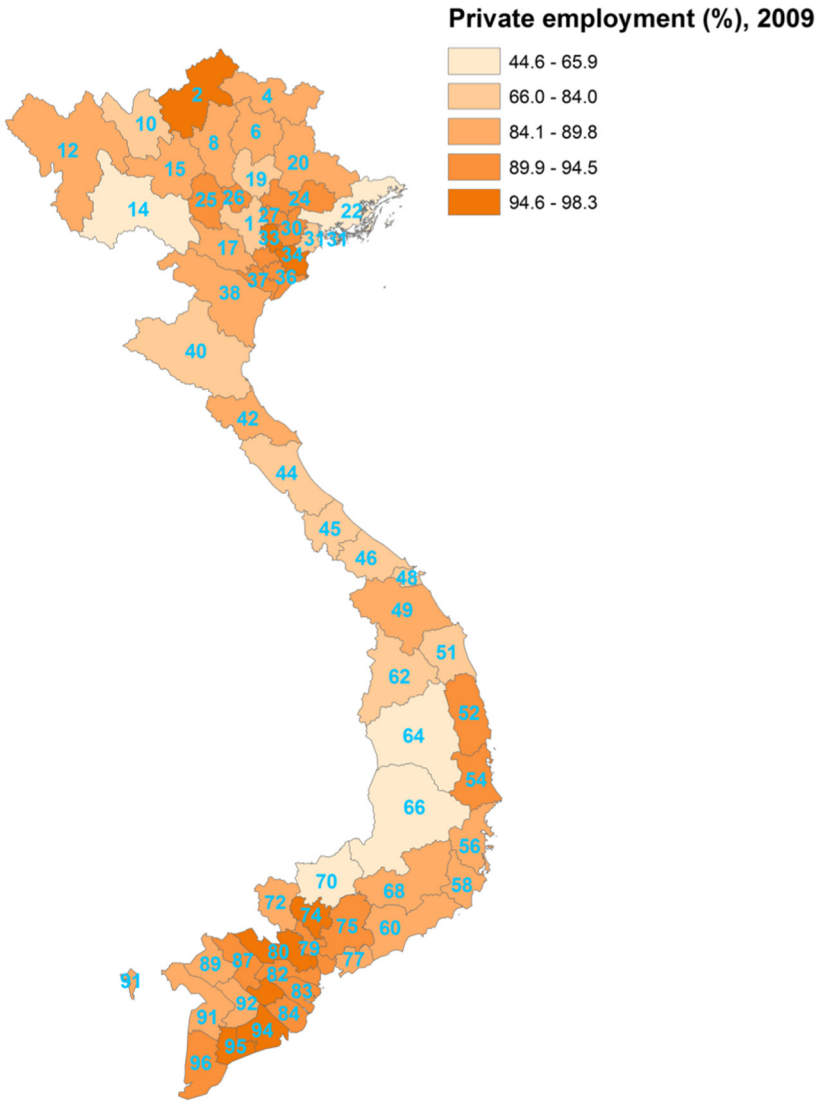

Fig. A.4. Map of Vietnamese provinces: private firms' employment share in 2009.

Table A.1
Description of variables and data sources.

Variable	Description	Source
Main variables		
Poverty rate	Percentage of province-level population with insufficient income to cover basic needs as defined by basket of essential food and additional non-food consumption	Minot et al. (2003) for 1999, Lanjouw et al. (2013) for 2009. Minot et al. (2003) combine 1998 Vietnam Living Standard Survey (VLSS) and 1999 population census. Lanjouw et al. (2013) use 2009 population census in combination with 2010 Vietnam Household Living Standard Survey (VHLSS).
Private employment share	Employment in private domestic and foreign-owned enterprises as a percentage of total formal employment in province	Vietnamese Enterprise Survey, 2000 and 2009
Change in formal employment share	Total province-level formal employment (calculated based on Vietnamese Enterprise Survey) divided by number of individuals "in work" according to population census, multiplied by 100.	Vietnamese Enterprise Survey, 2000 and 2009; 3% subsample of Vietnamese population census 1999, accessed via IPUMS; 15% subsample of Vietnamese population census 1999, accessed via IPUMS
Overall private contribution to formal employment growth	Change in formal employment in all private enterprises between 2009 and 2000, divided by initial total formal employment in all ownership categories.	Vietnamese Enterprise Survey, 2000 and 2009
Private domestic contribution to formal employment growth	Change in formal employment in private domestic enterprises between 2009 and 2000, divided by initial total formal employment in all ownership categories.	Vietnamese Enterprise Survey, 2000 and 2009
SOEs' contribution to formal employment growth	Change in formal employment in state-owned enterprises between 2009 and 2000, divided by initial total formal employment in all ownership categories.	Vietnamese Enterprise Survey, 2000 and 2009
MNEs' contribution to formal employment growth	Change in formal employment in multinational enterprises between 2009 and 2000, divided by initial total formal employment in all ownership categories.	Vietnamese Enterprise Survey, 2000 and 2009
Urbanization	Percent of province-level population living in areas designated as urban	3% subsample of Vietnamese population census 1999, accessed via IPUMS
Literacy	Percent of province-level population able to read and write in any language	3% subsample of Vietnamese population census 1999, accessed via IPUMS
Kinh	Percent of province-level population claiming membership of main ethnicity in Vietnam (Khin)	3% subsample of Vietnamese population census 1999, accessed via IPUMS
Area at >1000 m altitude	Percentage of province's total territory located at >1000 m altitude	Calculation based on ASTER Global Digital Elevation Map
Distance Hanoi/HCMC	Distance in kilometres to the nearest of the two biggest Vietnamese cities	Calculation in ArcGIS
Major port in province	Dummy that equals 1 if province is location of one of Vietnam's 5 major ports (HCMC, Hai Phong, Da Nang, Binh Dinh, Quang Ninh)	Own calculation
Intensity of "Fence breaking"	Three dummies corresponding to three different levels. Based on newspaper content analysis conducted by Malesky (2008)	Malesky (2008)
Distance to 17th parallel	Distance to former border between North and South Vietnam	Calculation in ArcGIS
Christians	Christians as percentage of provincial population in 1999	3% subsample of Vietnamese population census 1999, accessed via IPUMS
Variables for ancillary regressions		
# of formal firms per 1000 inhabitants	Number of firms in the province captured by Vietnamese enterprise survey in 2000 divided by province's population in 1000	Vietnamese enterprise survey and 15% subsample of Vietnamese population census 2009, accessed via IPUMS
Controls for pre-trends		
South	Dummy that equals one if province was part of former South Vietnam	Own calculation
Bombs per square kilometre	Total U.S. bombs, missiles, and rockets per square kilometre dropped during 1965–1975	Miguel and Roland (2011)
Change households with access to electricity, 1989–1999	Percentage of province-level households with access to electricity in 1999 minus same measure in 1989	3% subsample of Vietnamese population census 1999 and 5% subsample of Vietnamese population census 1989, accessed via IPUMS
Net migration 1984–1999 as % of 1999 population	Net migration received by province during 1984–1999 as percentage of province's population in 1999.	National Human Development Report (National Centre for Social Sciences and Humanities, 2001) and 3% subsample of Vietnamese population census 1999, accessed via IPUMS
Change urbanization 1989–1999	Percent of province-level population living in areas designated as urban in 1999 minus same measure in 1989	3% subsample of Vietnamese population census 1999 and 5% subsample of Vietnamese population census 1989, accessed via IPUMS

Table A.2
Pairwise correlation table corresponding to variables entered in regressions presented in Table 2.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1)	ΔPoverty rate, '99-'09	1									
(2)	ΔPriv. empl. share, '00-'09	−0.24	1								
(3)	Distance HN/HCMC	−0.014	0.049	1							
(4)	Major port	−0.005	−0.202	0.117	1						
(5)	Urbanization, '99	0.255	−0.274	0.087	0.637	1					
(6)	Literacy, '99	−0.344	0.074	−0.37	0.156	0.188	1				
(7)	Kinh, '99	−0.36	−0.167	−0.097	0.139	0.204	0.695	1			
(8)	Area >1000 m	0.341	0.025	0.344	−0.133	−0.018	−0.689	−0.563	1		
(9)	Instrumental variable	0.352	−0.528	−0.255	0.26	0.38	0.187	0.171	−0.109	1	
(10)	Change in formal Employment share	0.265	−0.201	−0.283	0.345	0.525	0.331	0.347	−0.218	0.668	1

Table A.3
Robustness checks with proxies for pre-trends.

	(1) IV	(2) IV	(3) IV	(4) IV	(5) IV	(6) IV
ΔPrivate employment share, 2000–2009	−0.519** (0.246)	−0.412*** (0.157)	−0.374** (0.153)	−0.253* (0.134)	−0.264* (0.136)	−0.276** (0.120)
Former South Vietnam	−5.319 (5.350)					−8.199** (3.286)
Total U.S. bombs per km^2, 1965–75		−0.006 (0.019)				0.018 (0.018)
ΔHouseholds (%) with access to electricity, 1989–1999			−0.080 (0.074)			−0.145*** (0.049)
Net migration 1984–1999 as % of population in 1999				0.697*** (0.205)		0.671*** (0.198)
ΔUrbanization, 1989–1999					0.747*** (0.165)	0.448* (0.242)
Distance Hanoi/HCMC	0.006 (0.007)	0.002 (0.006)	0.001 (0.005)	0.001 (0.003)	−0.002 (0.004)	0.003 (0.005)
Major port in province	−5.833 (4.951)	−4.667 (3.961)	−4.827 (3.335)	−5.105** (2.342)	−2.297 (3.105)	−5.869*** (2.206)
Observations	60	60	60	60	60	60
First-stage Kleibergen-Paap F	10.40	26.88	17.87	24.10	25.42	13.01

Dependent variable: Change in poverty rate, 1999–2009. A constant is included but not reported. Robust standard errors in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

Table A.4
IV first-stage results corresponding to Table 2.

	(1)	(2)	(4)
Instrumental variable	−0.105*** (0.018)	−0.105*** (0.018)	−0.104*** (0.017)
ΔFormal employment share, 2000–2009	0.697** (0.315)	0.778** (0.364)	1.138** (0.495)
Area (% of province) at >1000 m altitude		0.017 (0.123)	0.166 (0.162)
Distance Hanoi/HCMC		−0.002 (0.006)	0.010 (0.009)
Major port in province		−6.186 (5.361)	−2.745 (5.686)
Kinh (%), 1999			−0.242*** (0.068)
Literacy (%), 1999			1.046*** (0.267)
Urbanization (%), 1999			−0.220* (0.122)
Observations	60	60	60
First-stage Kleibergen-Paap F	34.87	33.56	39.48

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