

# Princelings and Paupers? State Employment and the Distribution of Human Capital Investments Among Households in Viet Nam

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Inequality in access to education is known to be a key driver of income inequality in developing countries. Viet Nam, a transitional economy, exhibits significant segmentation in the market for skilled labor based on more remunerative employment in government and state firms. We ask whether this segmentation is also reflected in human capital investments at the household level. We find that households whose heads hold state jobs keep their children in school longer, spend more on education, and are more likely to enroll their children in tertiary institutions relative to households whose heads hold nonstate jobs. The estimates are robust to a wide range of household and individual controls. Over time, disparities in educational investments based on differential access to jobs that reward skills and/or credentials help widen existing income and earnings gaps between well-connected “princelings” and the rest of the labor market. Capital market policies that create segmentation in the market for skills also crowd out investment in private sector firms, further reducing incentives for human capital deepening.

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*JEL codes:* J24, J45, O15, P23

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## I. Policy Distortions, “Connections,” and Inequality in Transition Economies

Inequality in Viet Nam is low by the standards of Asian economies but has risen during that country’s transition to “market-led socialism.” Part of the rise can be explained by reference to the weakening of many socialist-era policies that repressed returns to skills, ability, and entrepreneurial activity, in which case greater income disparities might be regarded as necessary and even beneficial consequences of liberalization. But despite huge strides toward a market economy, the state retains significant power over some product markets, notably those in which there is potential

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for monopolistic behavior, and factor markets, especially those for capital and land. It follows that part of the observed rise in inequality may be due to less positive trends, including rent capture by those with access to high-level government positions or to employment in firms that are in some way protected by policy or market structure.

As in the People's Republic of China (PRC), another economy undergoing a broadly similar transition, there is widespread concern in Viet Nam over the alleged capture of state-owned or partially privatized firms and influential public service positions by "princelings"—that is, members of the former *nomenklatura* and their close relatives and associates.<sup>1</sup> The same concerns extend to many other developing economies in which privileges extended to well-connected owners of capital and land have led to diminished earnings and opportunities for owners of labor (Berg and Ostry 2011). Paradoxically, in some economies, the structure of product and labor markets (and especially that for skilled labor) is such that the rewards to skills are significantly higher in public sector employment than in the private sector, leading to queuing and competition for such jobs.<sup>2</sup>

In Viet Nam, income inequality across the state/nonstate divide is clearly visible in household survey data. The data also reveal that this inequality is caused by just a few households at the very top of the political hierarchy. Figure 1, which is based on representative national household data, shows that the per capita incomes of "state" households (those containing at least one member working for a state firm or in public administration) are appreciably higher than those for nonstate households, whether in urban or rural areas.<sup>3</sup> The gap widened between 2004 and 2008, a period of very rapid growth in Viet Nam during which average real income per capita rose by almost 50%.

Why should the labor market connections of households be important, and why should returns to skills be higher for state employees than those in the private sector? A default model would predict equal returns to labor of equal skills in equilibrium. Moreover, the experience of the transition from socialism in Eastern Europe and the former Soviet Union was overwhelmingly one in which movement of white-collar workers to the private sector was strongly positively selected, reflecting more productive employment opportunities with higher earnings to match (Adamchik and Bedi 2000, Munich, Svejnar, and Terrell 2005). Viet Nam, like the PRC, shows the opposite trend (Phan and Coxhead 2013).

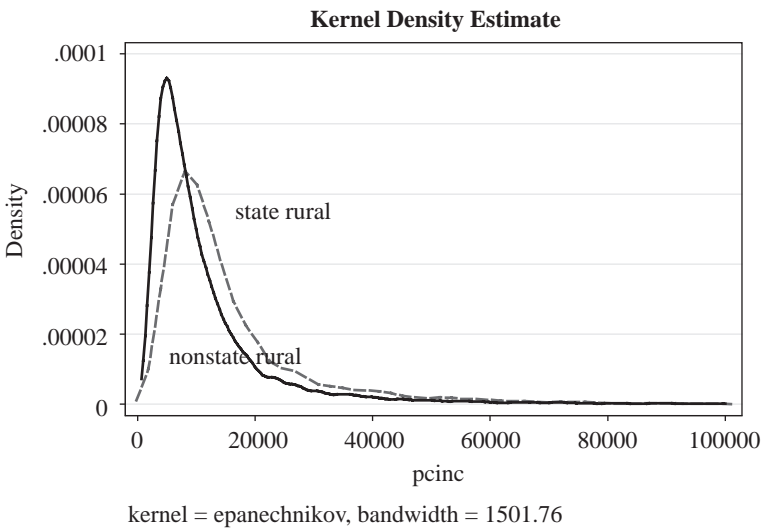
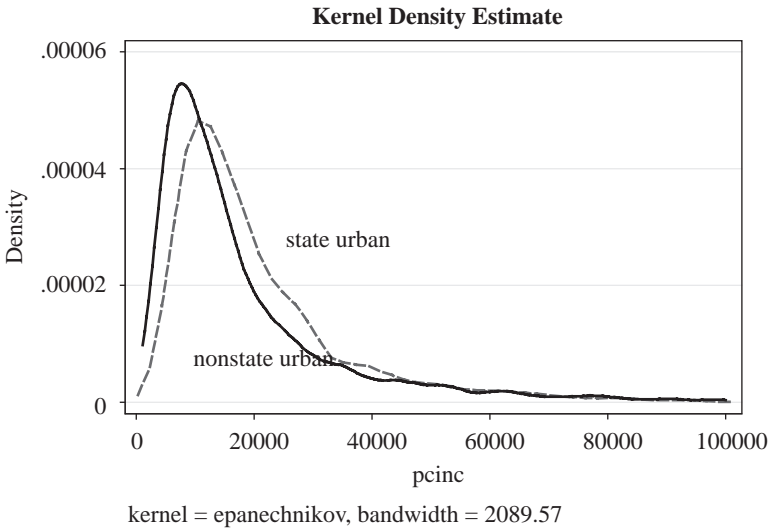
Our answer, while speculative, fits with the stylized facts of an economy in an as yet incomplete transition from command to market economy. The skill intensity of civil service employment is high, but the demand for workers is limited by budget

<sup>1</sup>"'Princelings' in [the People's Republic of] China Use Family Ties to Gain Riches," *New York Times*, 17 May 2012. See also, "In Viet Nam, Message of Equality is Challenged by Widening Wealth Gap," *New York Times*, 1 September 2012.

<sup>2</sup>"Young Feel Hungrier for 'Golden Rice Bowl' Jobs: Record Numbers Eye Public Sector," *Financial Times*, 25 October 2012.

<sup>3</sup>Simple t-tests also show statistically significant difference in the mean per capita income between the two groups of households, for both rural and urban areas (at significance levels 7% or lower).

Figure 1. Distribution of Per Capita Income for State and Nonstate Households (D million, January 1998 prices)



Note: State households are those with at least one member working for the state (in either a state firm or for the government in public administration).

Source: Viet Nam Household Living Standards Survey 2004, 2006, and 2008.

constraints on government agencies. State-owned enterprises (SOEs), on the other hand, benefit from capital market interventions that lower their borrowing costs; they therefore adopt relatively capital-intensive techniques. Because capital and skills are complementary inputs, more highly educated workers are drawn to these firms and compete to be hired by them. But since SOEs primarily supply goods and

services to (often highly-regulated) domestic markets, their expansion—and thus their demand for labor—is bounded in ways that do not apply to privately-owned and trade-oriented firms. What both SOEs and civil administration have in common, however, is access to rents, which when distributed among their workers, generate potential for incomes that are higher than the earnings of equivalent workers in competitive industries.<sup>4</sup>

Nonstate firms, meanwhile, suffer from crowding out in capital markets and so adopt less capital-intensive techniques. In these firms, capital-skills complementarity means they will hire fewer skilled workers, and will offer to compensate them at a lower rate, commensurate with their lower value marginal product.<sup>5</sup>

In this system, segmentation in the skilled labor market arises indirectly, from capital market distortions, market structure, and budget constraints limiting hiring by state entities. This segmentation is visible as queuing by applicants and demands for up-front payments from prospective employers. The difference in earnings for equivalent workers at each type of firm will persist so long as the favored firms face market or regulatory conditions that generate rents and so encourage them to restrict hiring. Thus capital market policies will lead to job rationing and incentives for corrupt behavior across a broad spectrum of the white-collar labor market, not merely among the few that have direct access to the highest levels of political power.

In earlier work (Phan and Coxhead 2013), we uncovered evidence in support of an important part of the above narrative. Viet Nam displays a high degree of industrial policy distortion, with a clear bias in favor of state-owned enterprises in the markets for banking sector credit, equity capital, and land (World Bank 2005, Sjöholm 2008, Hakkala and Kokko 2008, Leung 2009, Nixson and Walters 2010, IMF 2012) and in trade and pricing policies (Athukorala 2006). We discovered a highly significant state sector premium in earnings and in returns to education—as of 2008, this premium had persisted despite two decades of economic reforms. We also found that family connections to state sector employers increase an individual’s own probability of having a state sector job. Together, these results indicate that connections to the state sector increase individual earnings and returns on human capital investments, and that these effects operate at least in part through household-level connections.

The concerns raised by these findings are not limited to inequality. A country’s long-term economic growth depends on its ability to accumulate and efficiently deploy human capital, and the acquisition of human capital is a key determinant of improvements in individual earning power. The preceding narrative suggests that

<sup>4</sup>For an equivalent account using Chinese labor market data, see Xin Meng (2000).

<sup>5</sup>A recent study using labor force data covering five broad industrial sectors confirms this prediction, finding that in manufacturing, post-secondary qualifications earn a premium of only 40%–50% over primary education, and concluding that “there is currently not a strong demand for workers with either professional training or tertiary education in either low-value or medium-value industries. . . workers with post-secondary qualifications are therefore likely to gravitate towards better-remunerated jobs in government and administration and the services” (Baulch, Dat, and Thang 2012, p. 22–23).

in the presence of certain policies and capital market distortions, household-level incentives for educational investments will depend, in part, on the likelihood that their children will be able to secure jobs in which skills or credentials are rewarded. If this probability is viewed as small, then returns to additional years of education are perceived as low, and capital-constrained parents will spend less on education and/or withdraw children from school earlier; those children will enter the labor force at a younger age and with less formal training.

That perceived returns matter for educational investments is well established in empirical studies. In a study from the Dominican Republic, for example, Jensen (2010) finds that when children are given information on higher measured returns to education, they complete on average 0.20–0.35 more years of schooling over the next 4 years. Similarly, Jensen (2012) finds that young rural women in India are significantly more likely to enter the labor market or obtain more schooling instead of getting married and having children if they have access to recruiting services, which increase their awareness of job opportunities.

Lower perceived returns to schooling reduce educational investments and the schooling achievements of children. As a result their lifetime earnings profiles will be flatter and their capacity to invest in the education of their own children will be diminished. In this way, initial household-level disparities in opportunity may become persistent over more than one generation. Moreover, the potential productivity of less-educated workers will also be lower, so the economy as a whole will face a diminished growth rate and lower steady-state income per capita relative to the counterfactual of one in which perceived returns are higher.

In this paper, we test the hypothesis that households with close connections to Viet Nam's state sector invest more in their children's human capital. Specifically, we ask whether children from households headed by state employees are more likely to attend high school or university, and whether those households spend more on their children's education. The first of these questions explores the extensive margin of educational attainment in an economy where only a small minority of school-leavers continue on to higher education. The second question investigates the intensive margin of educational investments in a system in which household spending on discretionary educational items, such as tutors and private schools, is an important component of total educational expenditures.

After controlling for characteristics of the potential student, the household head, and the household, we find robust evidence that children from households whose heads work for the state are more likely to attend university, and that these households also spend significantly more on their children's education.

Our work extends the existing literature on educational inequality by identifying and focusing on a previously neglected dimension. The state/nonstate dichotomy among households proves to be an important dividing line for investments in the most growth-oriented form of individual and household capital, education. Policies that restrict access to schooling or reduce incentives to remain in school create and

exacerbate inequality, a phenomenon now widely seen as reducing growth (Stiglitz 2012). By discouraging educational investments by some, they also reduce the efficacy of efforts to promote and sustain long-run economic growth.

The rest of this paper is organized as follows. In Section II we review basic data and trends on educational attainment and related indicators in Viet Nam. In Section III we motivate a somewhat deeper analysis and conduct an econometric exploration of our main hypotheses. In Section IV we discuss our results, and in Section V we draw some tentative conclusions, speculate on the generalizability of our findings, and propose some avenues for future research.

## II. A New Dimension of Inequality: State and Nonstate Households

### A. Data

Our primary data source is the Viet Nam Household Living Standards Survey (VHLSS), with rounds in 1993, 1998, 2002, 2004, 2006, and 2008.<sup>6</sup> These surveys gather data on household income and expenditure and are designed to measure living conditions and poverty and inequality (Grosh and Glewwe 2000). They are intended to be representative at the national and provincial levels. They also include modules on education and on employment and wages. Early rounds of VHLSS were smaller in size (4,800 households in 1993 and 6,000 in 1998). The survey year 2002 had the largest number of households (29,533). In the most recent three rounds, the number of households from which both expenditure and income data are collected has stabilized at around 9,000.<sup>7</sup> In our regressions, we use data from the 2004, 2006, and 2008 rounds. Consistent questionnaires and definitions of variables in all these three survey years allow us to pool data into one estimating model.

To measure years of education, most other studies using VHLSS data have used the survey's original schooling year variable, which ranges from 0 through 12 years. We adjust schooling years for highest educational level (junior college corresponds to 14 years of education, a college degree 16 years, master's degree 18 years, and PhD 21 years). As a result, our calculated years of schooling are higher than other studies.

In the descriptive analysis in the next section we also use the Viet Nam Enterprise Survey for data on firms. This is an annual survey begun in 2000.<sup>8</sup> It covers all enterprises with independent accounting systems that are established under and governed by the Law on State-owned Enterprises, the Law on Cooperatives, the Law

<sup>6</sup>Data from the most recent VHLSS rounds, in 2010 and 2012, are not yet available to us.

<sup>7</sup>These are survey subsamples that have both income and expenditure modules. There are also much larger surveys with expenditure modules only, which we do not want to use because data are considered less reliable when income cannot be compared against expenditures.

<sup>8</sup>This survey existed in the 1990s, but in a somewhat different form and quality.

Table 1. Structure of Employment by Type and Ownership (%)

	1993	1998	2002	2004	2006	2008
Self employed	73.4	59.4	60.9	57.0	55.7	55.2
Wage employed	26.6	40.6	39.1	43.0	44.3	44.8
State wage employed	4.3	6.7	10.2	14.7	15.4	14.7
Nonstate wage employed	22.2	33.9	28.9	28.3	28.9	30.1

Source: Authors' calculations from Viet Nam Household Living Standards Survey, various years.

Table 2. Average Years of Education of Workers in State and Nonstate Sectors

	1993	1998	2002	2004	2006	2008
State	11.3	9.9	11.7	11.1	11.3	11.8
Nonstate	5.6	5.8	6.7	6.9	7.0	7.3

Source: Authors' calculations from Viet Nam Household Living Standards Survey, various years.

Table 3. Workers with College Degree in State and Nonstate Sectors (%)

	1993	1998	2002	2004	2006	2008
State	17.31	22.22	27.86	25.81	26.07	29.92
Nonstate	0.38	0.78	1.38	0.98	1.12	1.77

Source: Authors' calculations from Viet Nam Household Living Standards Survey, various years.

on Enterprises, and the Law on Foreign Investment in Viet Nam. All formal sectors and industries, including agriculture, are covered. However, because the criterion for inclusion in the survey is establishment and governance under the law, the informal sector is largely ignored. The survey questionnaire includes various business and production activities: labor and employment, incomes of employees, number of establishments, assets and liabilities, investments, capital stock, production costs, turnover, products, profits, inventories, taxes, research and development investments, IT applications, and others.

## B. Employment and Wages in State and Nonstate Firms

In the course of Viet Nam's more than 20 years of transition to a market economy, the state sector has retained an extraordinarily prominent role. SOEs account for between one-third and two-fifths of economic activity. According to VHLSS data, employment in SOEs has even risen as a share of total wage labor employment (which itself has risen substantially since the 1990s). Table 1 provides a summary of employment by ownership type.

Table 2 confirms that state sector firms are far more intensive in their use of educated workers than are nonstate firms. Although the average education of nonstate workers has risen steadily, from 5.6 years in 1993 to 7.8 in 2008, this figure still remains far below years of education in state sector firms. Moreover, as Table 3 shows, the proportion of workers in nonstate firms with a college degree remains extremely low (1.8% in 2008) by comparison with state firms (30%).

Table 4. **Capital Intensity (D million per worker)**

	2000	2002	2004	2006	2008
State firms	194	234	329	407	324
Private firms	53	49	65	90	99
Foreign firms	391	378	292	499	478

Source: Authors' calculations from Viet Nam Enterprise Survey, various years.

Table 5. **Hourly Wage of State vs. Nonstate Workers (D thousand per hour)**

	1993	1998	2002	2004	2006	2008
State	1.71	3.23	5.49	5.26	5.61	8.02
Nonstate	1.89	2.73	3.14	3.35	3.65	5.01
State/Nonstate ratio	0.90	1.18	1.75	1.57	1.54	1.60

Source: Authors' calculations from Viet Nam Household Living Standards Survey, various years.

One reason for the higher skill intensity of state sector employment is that some jobs in this sector are government administrative positions that require higher education. Another important reason is technological: capital and skills are complements in production (Griliches 1969). Table 4 reveals much higher capital per worker in state and foreign-invested firms compared to nonstate firms. In the case of SOEs this is undoubtedly the result of their privileged access to capital. The combination of technological factors and policy distortions results in higher demand for skilled workers by SOEs than by private firms.

These differentials in capital and skill intensities between state and nonstate firms no doubt contribute to the discrepancy in average hourly wages, shown in Table 5. In 1993, workers in the state sector earned less on average than workers in the nonstate sector. But this was prior to the implementation of most market and labor reforms. Since then, they have earned about 40% more per hour than nonstate workers.

Of course, these are simple averages and do not take account of differences in the composition of the labor force in each type of firm. But as mentioned earlier, our earlier econometric investigation confirms that workers in state firms indeed receive higher returns to education, even after controlling for many differences in worker and job characteristics and that, far from being erased by the economic transition, this disparity has increased over time (Phan and Coxhead 2013).

### C. Educational Attainment and Investments by State and Nonstate Households

There is a large literature on the influence of family environment on human capital investments (for a recent and highly relevant survey, see Yi et al. 2011).<sup>9</sup>

<sup>9</sup>See especially their footnote 21, a discussion of the "true" meaning of parental education which has been shown to have a strong influence over schooling outcomes for children. Parts of this literature explore just what parental education stands for—whether income, or cultural norms favoring education, or other things.



For Viet Nam, the VHLSS data reveal well-known sources of cross-household variation in schooling rates and educational expenditures such as between urban and rural subpopulations, ethnic minority and Kinh majority households, households in different regions of the country, and of course variation based on differences in per capita income (Vu 2012).<sup>10</sup> These are the familiar break points in econometric analyses of educational attainment. But even after controlling for these sources of variation, differences in human capital investments persist.

What explains this? One clue to the remaining differences comes from our prior work on returns to education. Our estimates of the treatment equation for employment in the state sector revealed that workers in households where another household member works for a state firm are far more likely themselves to have state sector jobs, even after controlling for other household factors and individual characteristics. This empirical insight points to a previously unexamined fracture line in the educational attainment and investment data: variation by state versus nonstate households. We now turn to the examination of these data.

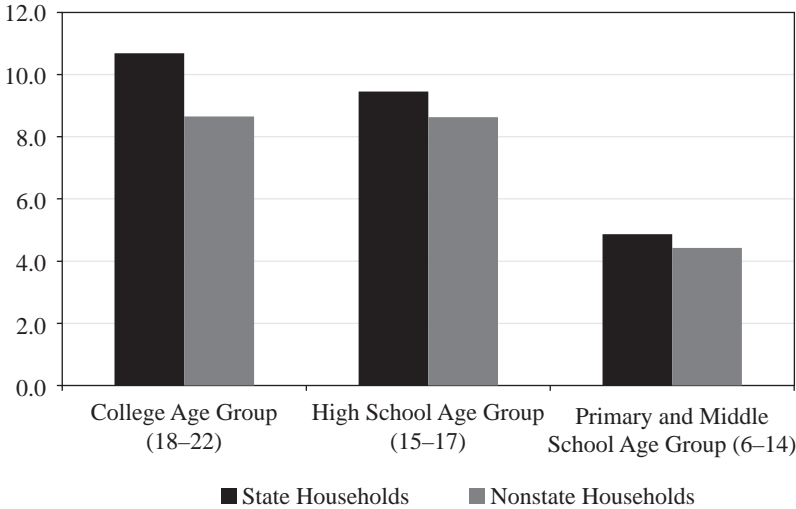
In this section we use three different measures of educational attainment and investments: average years of schooling, net and gross enrollment rates in different levels of schooling, and household educational expenditures.<sup>11</sup> No matter which measure we use, state households (those with at least one member working for a state firm or for the government) tend to invest more in the education of their children. Figure 2 shows that for all age groups, the average years of schooling of children from state households are higher than those of children from nonstate households. The differences in means are small at lower levels of education, but widen progressively through college. Figures 3a and 3b reveal a similar story. Net and gross enrollment rates are higher for children from state households in both rural and urban areas. Again, the differences are greatest at the college level—the level most relevant for the skilled labor market. Finally, Figure 4 confirms that state households tend to spend more on their children’s education than do nonstate households, in both rural and urban areas.

In summary, the available data point to a large premium for educated workers employed in the state sector. If the presence of a parent or other elder with a state sector job means easier access for others in the same household, then schooling decisions appear to be driven (at least in part) by access to jobs in the favored sector. There are, however, many covariates to be controlled for when analyzing educational investments. Therefore we now turn to a more rigorous examination of the determinants of household educational investment.

<sup>10</sup>And compare these differentials in similar countries, such as the PRC (Wang et al. 2011).

<sup>11</sup>Net enrollment rate is the ratio of enrolled children in the official school age group over the total number of children in that age group. Gross enrollment rate is the ratio of enrolled children of all ages over the total number of children in the official school age group.

Figure 2. Average Years of Schooling



Source: Viet Nam Household Living Standards Survey, 2006.

### III. Determinants of Household Educational Investments

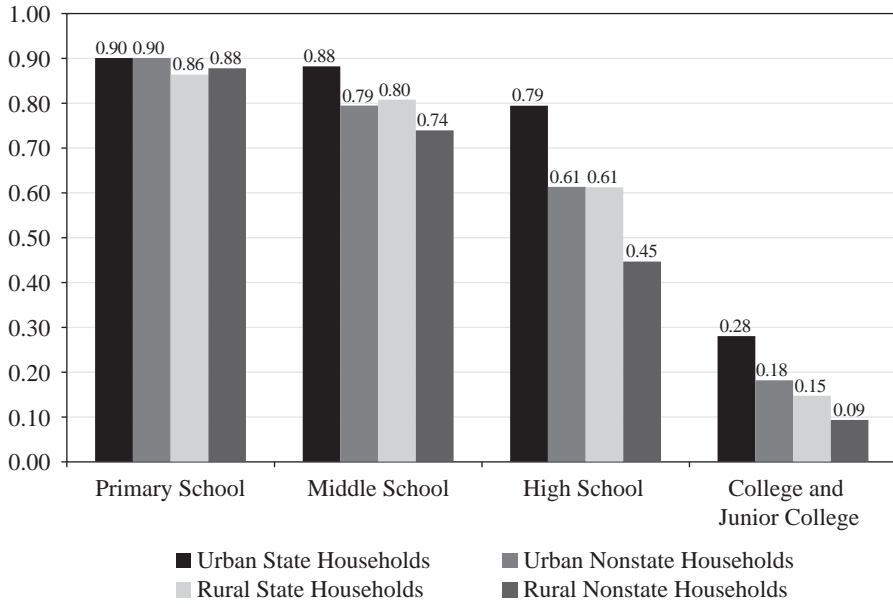
#### A. Empirical Strategy

Our goal is to understand disparities in household educational investments. As is well known, education is often terminated at discrete points such as the completion of a given level of schooling. Therefore we focus on specific schooling decisions. These are first, the decision to enroll a child in high school given completion of middle school, and second, the decision to enroll a potential student in university given that he or she has completed high school. Our empirical strategy is based on well-established human capital theory (Schultz 1960 and 1963, Becker 1964). This maintains that household demand for education is affected by expected returns ( $r$ ) and costs ( $c$ , including direct and opportunity costs) of education:

$$y_i^* = f(r_i, c_i, D_i, u_i) = a + \gamma r_i + \delta c_i + \beta D_i + u_i \tag{1}$$

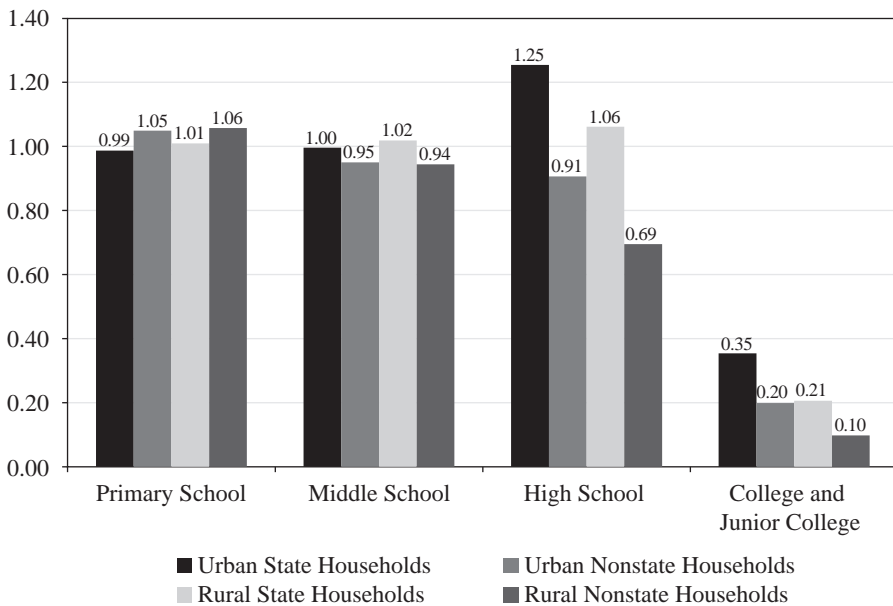
where  $y_i^*$  is a latent variable capturing the decision to enroll in university or high school by potential student  $i$ ;  $D_i$  is a vector of controls including demographic variables such as gender, age, ethnicity, geographic variables, and other exogenous influences; and  $u_i$  is a random error term that is assumed to be independently and identically distributed with expected value  $E(u_i) = 0$ . We have assumed a linear functional form for the explanatory variables.

Figure 3a. Net Enrollment Rate



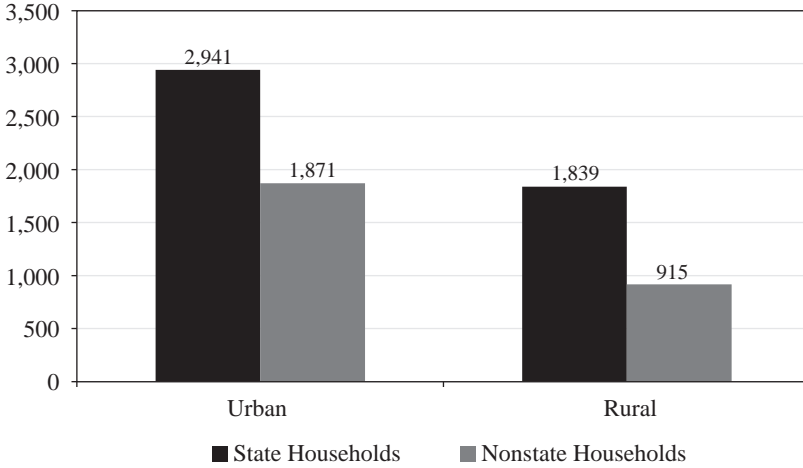
Source: Viet Nam Household Living Standards Survey, 2006.

Figure 3b. Gross Enrollment Rate



Source: Viet Nam Household Living Standards Survey, 2006.

Figure 4. Mean Household Educational Expenditure (D thousand)



Source: Viet Nam Household Living Standards Survey, 2006.

The observed variable is  $y_i$ , which is a dummy indicating whether the potential student  $i$  enrolls in university (or high school). Specifically,

$$y_i = 1 \quad \text{if } y_i^* > 0, \quad \text{and} \\ = 0 \quad \text{otherwise.}$$

Thus, the frequency of the observed outcome, or the probability of enrolling in university or high school is equal to

$$\begin{aligned} P_i &= \text{Prob}(y_i = 1) = \text{Prob}(y_i^* > 0) \\ &= \text{Prob}(\alpha + \gamma r_i + \delta c_i + \beta D_i + u_i > 0) \\ &= \text{Prob}(u_i > -\alpha - \gamma r_i - \delta c_i - \beta D_i) \\ &= 1 - G(-\alpha - \gamma r_i - \delta c_i - \beta D_i) \end{aligned}$$

where  $G(\cdot)$  is the cumulative distribution of the error term (Maddala 1983).

If we use the logistic cumulative distribution function and take the log of the odds ratios, then we have a logit model:

$$\text{logit}(P_i) = \log[P_i/(1 - P_i)] = \alpha + \gamma r_i + \delta c_i + \beta D_i. \quad (2)$$

Our primary focus is on explaining differential incentives to invest in education, given differences in expected returns to education in private and state sector

jobs. That is, the decision to progress from middle to high school, or to enroll in tertiary education, takes into account the trajectory of returns to education in state and nonstate employment adjusted by the probabilities of employment in either sector. From Phan and Coxhead (2013) we know that the average rate of return to education in the state sector ( $r^S$ ) is higher than in the nonstate sector ( $r^N$ ). If  $\rho_i$  is the probability of state sector employment for potential student  $i$ , then his expected returns to education is  $r_i = r^S \rho_i + r^N (1 - \rho_i)$ . Under the assumption of uniformity within each employment sector, we can normalize  $r^N = 1$  and rewrite  $r_i = 1 + [r^S - 1] \rho_i$ . Substituting this into the previous equation, our logit model becomes:

$$\text{logit}(P_i) = (\alpha + \gamma) + \gamma(r^S - 1)\rho_i + \delta c_i + \beta D_i. \quad (3)$$

Equation (3) is our estimating equation.<sup>12</sup> The variable of interest is  $\rho_i$ , the probability of getting a state sector job. Lacking direct observations on this, we use two proxies: an “SOE” dummy which equals 1 if household head works for a state firm, and a “civil” dummy equal to 1 if the head of household works in public administration. These dummies aim to capture a household’s connection to the state sector, whether state-owned enterprises or government. The null hypothesis is that these dummies are not statistically different from zero; that is, the sector of employment of a potential student’s household head has no effect on probability of high school or university enrollment. Rejection of the null is evidence of state employment as a source of household differences in educational incentives. We discuss the implications of such a finding in Section IV.

We include three other sets of explanatory variables:

- (i) household characteristics, specifically log of household income,<sup>13</sup> household composition by age, urban or regional dummies, ethnic minority dummy (1 if household is not of Kinh or Chinese ethnicities);
- (ii) household head characteristics, namely age, gender (1 if male), years of schooling, and skill dummy (1 if household head holds a skilled job); and
- (iii) child characteristics, comprising gender (1 if male) and age.

Among the control variables, those of greatest economic interest are the household’s ability to finance education, as measured by household income, and the household head’s years of schooling. Obviously, wealthier households are more able to pay for education and to keep children out of the labor force until a later age. A

<sup>12</sup>The model is estimated using maximum likelihood method using Stata.

<sup>13</sup>We also ran a series of regressions using household expenditure, which yield similar results. Details are available from the authors.

large empirical literature confirms that more educated parents tend to invest more in the education of their own children.<sup>14</sup> Controlling for parents' education also helps reduce (although not completely eliminate) omitted variable biases, because this variable serves as proxy for many monetary and nonmonetary factors that affect schooling decisions. For example, we have no information on children's intelligence or ability: smarter children do better in school and are more likely to attend high school and college, other things equal. Another omitted variable is preferences: some children may love schooling for the sake of knowledge, not for the monetary returns. If these omitted variables are correlated with employment sector of household head, their omission causes upward biases in estimates of the SOE and civil dummies. But it is reasonable to assume that parents who are smarter and who love education tend to transfer their intelligence and love of schooling to their children. Such parents also tend to attain more education. So parents' education partly proxies and controls for the two omitted variables, children's ability and love of schooling.

In estimating determinants of school enrollment probability, we look only at the children and grandchildren of household heads. We do this intentionally to avoid potential endogeneity due to reverse causality. Since we examine the impact of the older generation's employment on educational investments for the younger generation and it is not plausible that the younger generation's educational achievement increases the likelihood of state employment by the older generation, there is no reverse causality problem.

In addition to estimating the probability of university or high school enrollment, we also estimate household educational expenditures, another measure of household educational investment. Since many households have zero educational expenditure, our sample suffers from censoring. As a result, we use a Tobit model for this estimation.

## B. Results

Estimation results are presented in Tables 6 through 9 (a table of summary statistics of key variables is in the Appendix). In Tables 6 and 7, we use logistic regressions to estimate school enrollment probabilities (see equation 3). We report both estimated coefficients and odds ratios. Standard errors are robust and adjusted for clustering at the commune level. In both Tables 6 and 7, most variables have coefficients of expected signs and statistical significance. For brevity, we restrict our discussion to the main variables of interest, the civil and SOE dummies. In Table 6, these dummies are not statistically significant. The household head's employment does not seem to affect children's probability of enrolling in high school. But in Table 7, both dummies are positive and statistically significant. The estimated odds ratios imply that the university enrollment probability of a potential student whose

<sup>14</sup>A recent study of rural households in southern Viet Nam confirms that as agricultural incomes increase, the schooling years of children (especially daughters) increase. See Edmonds (2005).

Table 6. Determinants of High School Enrollment Probability

	Odds Ratio	Coeff.	S.E.	p-value
<b>Household Head Characteristics</b>				
Head works for SOE (SOE dummy)	1.264	0.234	0.161	0.146
Head works for gov't (civil dummy)	0.998	-0.002	0.117	0.984
Head has a skilled job (skill dummy)	1.392	0.331**	0.113	0.003
Head years of schooling	1.080	0.077**	0.009	0.000
Gender of household head (male = 1)	0.918	-0.086	0.065	0.185
Age of household head	1.011	0.011**	0.003	0.000
<b>Household Characteristics</b>				
Log of household income	1.224	0.202**	0.036	0.000
Ethnic minority dummy = 1	1.481	0.393**	0.099	0.000
<b>Controls</b>				
Family demographic structure		Yes		
Child's age and sex		Yes		
Region		Yes		
Year		Yes		
Constant		3.348**	0.448	0.000
N		12,333		
Pseudo R-squared		0.299		

\*\* = statistically significant at 5% level or less, \* = statistically significant at 5%–10% level.

Notes:

1. Estimates are from logit regressions with robust standard errors adjusted for clustering at commune level.
2. Dependent variable: dummy equals 1 if potential student was currently enrolling in high school during survey year; sample includes children and grandchildren (who already obtained middle school diploma) of household heads.
3. Controls: family demographic structure (number of children  $\leq 5$  years old, children 6–10 years old, children 11–14 years old, children 18–22 years old, family members 23–65 years old); region (8 administrative regions); year (dummies for 2006 and 2008).

Source: Author's computations using data from Viet Nam Household Living Standards Survey 2004, 2006, and 2008.

household head works in an SOE is 1.3 times greater than that of someone whose household head works elsewhere. For someone whose household head works in public administration, the probability is 1.4 times greater.

That connection to the state sector is not a source of influence in schooling decisions at lower levels of education is consistent with a theoretical model in Phan and Coxhead (2013). In that paper, we argue that the rising wage premium of state sector jobs is a result of government intervention in both capital markets and the market for skilled labor. As the government allocates capital to the state sector, this raises the demand for skilled labor in that sector (because of skill–capital complementarity). But since access to state sector jobs is restricted, the increase in demand for skilled labor translates to higher earnings for skilled workers in this sector. These distortions do not apply to unskilled labor markets, which require lower education. Therefore we do not expect a relationship between state connection and investment in lower levels of schooling.

In Tables 8 and 9, we estimate the determinants of households' educational expenditures and the share of education in total household expenditures. Once again, employment of the household head is influential. In Table 8, the SOE and civil dummies have positive and statistically significant impacts on (log of) household

Table 7. Determinants of University or College Enrollment Probability

	Odds Ratio	Coeff.	S.E.	p-value
<b>Household Head Characteristics</b>				
Head works for SOE (SOE dummy)	1.332	0.287*	0.148	0.053
Head works for gov't (civil dummy)	1.438	0.363**	0.145	0.012
Head has a skilled job (skill dummy)	1.210	0.191	0.117	0.102
Head years of schooling	1.115	0.109**	0.012	0.000
Gender of household head (male = 1)	0.922	-0.081	0.087	0.352
Age of household head	1.018	0.018**	0.005	0.000
<b>Household Characteristics</b>				
Log of household income	1.325	0.281**	0.044	0.000
Ethnic minority dummy = 1	0.546	-0.604**	0.177	0.001
<b>Controls</b>				
Family demographic structure		Yes		
Child's age and sex		Yes		
Region		Yes		
Year		Yes		
Constant		-4.585**	0.558	0.000
N		8,531		
Pseudo R-squared		0.106		

\*\* = statistically significant at 5% level or less, \* = statistically significant at 5%–10% level.

Notes:

1. Estimates are from logit regressions with robust standard errors adjusted for clustering at commune level.
2. Dependent variable: dummy equals 1 if potential student was currently enrolling in high school during survey year; sample includes children and grandchildren (who already obtained middle school diploma) of household heads.
3. Controls: family demographic structure (number of children  $\leq 5$  years old, children 6–10 years old, children 11–14 years old, children 18–22 years old, family members 23–65 years old); region (8 administrative regions); year (dummies for 2006 and 2008).

Source: Author's computations using data from Viet Nam Household Living Standards Survey 2004, 2006, and 2008.

education expenditure, after controlling for household income and other characteristics. In Table 9, the civil dummy has a positive and statistically significant impact on the share of household education expenditure in total expenditure.

To summarize these results, even after controlling for the usual determinants of educational investments we decisively reject the null hypothesis of no effect of state employment of parents on investments in the education of children. The implication is that due to underlying distortions that give rise to state sector wage premia and labor market segmentation, factors other than ability are helping determine who among children receives more and better educational opportunities. This has consequences for both equity and growth in the long run.

#### IV. Discussion

##### A. Inequality

When there is rationing in the market for skills, discrepancies in the household distribution of assets, including claims on state sector jobs, can be transmitted across



Table 8: **Determinants of Household Educational Expenditure: Total Spending**

Dep. var: h'hold educational expenditure (D)	Coeff.	S.E.	p-value
<b>Household Head Characteristics</b>			
Head works for SOE (SOE dummy)	0.495**	0.128	0.000
Head works for gov't (civil dummy)	0.503**	0.101	0.000
Head has a skilled job (skill dummy)	0.313**	0.099	0.000
Head years of schooling	0.190**	0.009	0.000
Gender of household head (male = 1)	-0.414**	0.068	0.000
Age of household head	-0.045**	0.003	0.000
<b>Household Characteristics</b>			
Log of household income	0.812**	0.036	0.000
Ethnic minority dummy = 1	-0.937**	0.107	0.000
<b>Controls</b>			
Family demographic structure	Yes		
Child's age and sex	Yes		
Region	Yes		
Year	Yes		
Constant	-6.726**	0.401	0.000
N	27,563		
Pseudo R-squared	0.115		

\*\* = statistically significant at 5% level or less, \* = statistically significant at 5%–10% level.

Notes:

1. Estimates are from Tobit regressions with robust standard errors adjusted for clustering at commune level.
2. Dependent variable: log of educational expenditure.
3. Controls: family demographic structure (number of children  $\leq 5$  years old, children 6–10 years old, children 11–14 years old, children 18–22 years old, family members 23–65 years old); region (8 administrative regions); year (dummies for 2006 and 2008).

Source: Author's computations using data from Viet Nam Household Living Standards Survey 2004, 2006, and 2008.

generations. It follows (although we do not address this directly) that unequal access to education and an unequal distribution of incentives to enroll in tertiary education could both exacerbate initial inequality and increase the rate at which the fortunes of favored and less favored households diverge during the course of economic growth and transition to a market economy.

Our main result elaborates a point that has been made before in other settings. Becker and Tomes (1993), for example, explore the potential of capital market imperfections to lower parents' investments in their children's acquisition of human capital. The data from Viet Nam suggest two potentially interesting twists on this account. First, it is not only widely-studied constraints such as access to credit that distinguish the fortunes of one family from those of another. Labor market segmentation may also give rise to a structural disparity that is hard for households to bridge. Second, and related to this, in our data it appears that a key asset that parents can bequeath to their children is access to state jobs, and this in turn influences the expected rate of return to the latter's education. But access, like human capital itself, does not function well as collateral. Two implications follow. First, even if a household could self-finance a higher level of education for its children, that investment might still not pay off in the labor market. Second, public policies aimed

Table 9. **Determinants of Household Educational Expenditure: Expenditure Share**

Dep. var: share of education in total h'hold expenditure	Coeff.	S.E.	p-value
<b>Household head characteristics</b>			
Head works for SOE (SOE dummy)	0.004	0.003	0.228
Head works for gov't (civil dummy)	0.007**	0.003	0.009
Head has a skilled job (skill dummy)	0.010**	0.003	0.000
Head years of schooling	0.004**	0.000	0.000
Gender of household head (male = 1)	-0.011**	0.002	0.000
Age of household head	-0.001**	0.000	0.000
<b>Household Characteristics</b>			
Log of household income	0.008**	0.001	0.000
Ethnic minority dummy = 1	-0.023**	0.002	0.000
<b>Controls</b>			
Family demographic structure	Yes		
Child's age and sex	Yes		
Region	Yes		
Year	Yes		
Constant	-0.091	0.009	0.000
N	27,563		
Pseudo R-squared	-0.396		

\*\* = statistically significant at 5% level or less, \* = statistically significant at 5%–10% level.

Notes:

1. Estimates are from Tobit regressions with robust standard errors adjusted for clustering at commune level.
2. Dependent variable: share of education in total household expenditure.
3. Controls: family demographic structure (number of children  $\leq 5$  years old, children 6–10 years old, children 11–14 years old, children 18–22 years old, family members 23–65 years old); region (8 administrative regions); year (dummies for 2006 and 2008).

Source: Author's computations using data from Viet Nam Household Living Standards Survey 2004, 2006, and 2008.

at broadening access to education might not raise enrollments if incentives are reduced by distortions that lower the probability of getting a suitably rewarding job.

## B. Growth

In low-income countries, and especially in those undergoing transition, aggregate growth can be sustained for a time through mobilization of underutilized resources and efficiency gains due to economic policy reforms. But in the longer run, continued growth relies on increases in total factor productivity and investments in reproducible factors of production, most notably human capital. Developing economies that underinvest in human capital risk landing in a middle-income trap in which their continued progress up the product quality ladder or participation in global production networks is constrained by human capital shortages. This leaves them reliant on other sources of income, typically natural resource extraction or low-skill manufactures, for which global competition among suppliers is intense.

Our results suggest that at present, a large majority of workers in Viet Nam have a low probability of finding employment in an industry or occupation where returns to higher-quality education or tertiary credentials will justify the cost of

their acquisition. Even if other constraints (such as access to credit) do not bind, some fraction of high school and college age children are rationally opting out of education to join the unskilled or semi-skilled labor force.

It may be possible for these individuals to acquire additional skills later in life, for example through vocational training or on-the-job training, but at present, neither of these channels appears promising in Viet Nam. Vocational training is not widespread nor is it respected by employers in Viet Nam (Chirot and Wilkinson 2010). Due to the crowding out of banking sector capital for small and medium enterprises, capital intensity outside of the state sectors and a few other well-connected industries is very low. Accordingly, returns to education and skills are also low in these industries (Baulch, Dat, and Thang 2012). Viet Nam therefore confronts a medium-run future in which a large part of its adult labor force is inadequately prepared to support a move up the product quality ladder, from assembly to innovation.

Finally, as discussed at the start of this paper, inequality and long-run economic growth are increasingly widely regarded as positively linked, with access to education and incentives to acquire human capital as key conduits. This was succinctly stated in a recent report on rising inequality around the world:

If income gaps get wide enough, they can lead to less equality of opportunity, especially in education. Social mobility in America, contrary to conventional wisdom, is lower than in most European countries. The gap in test scores between rich and poor American children is roughly 30%–40% wider than it was 25 years ago. And by some measures class mobility is even stickier in [the People’s Republic of] China than in America.<sup>15</sup>

The report’s primary proposed remedy is to dismantle monopolies and vested interests, be they state-owned enterprises in the PRC, India’s “unequal oligarchy or worse,” or big banks on Wall Street.<sup>16</sup> Although by the usual measures inequality in Viet Nam is much lower than in most economies, so too is its per capita income. Therefore, the prospect of a lower growth rate due to inequality in human capital investments must be treated very seriously.

### C. Generalizability

Our data are drawn from just one developing economy, but there are strong indications that the analysis is relevant to a larger group. In many countries with less restrictive regimes than Viet Nam, SOEs enjoy qualitatively similar positions in terms of their access to domestic capital, dominance in domestic markets, and

<sup>15</sup>“Crony Tigers, Divided Dragons,” *The Economist*, 13 October 2012.

<sup>16</sup>“True Progressivism,” *The Economist*, 13 October 2012. The quote is attributed to Raghuram Rajan.

connections to political decision makers. State involvement in developing economies is not disappearing as quickly as was perhaps expected in the post-Cold-War, Washington Consensus era. In fact there are some recent signs of a resurgence of state engagement.<sup>17</sup> Thus the role of personal connections, so highly significant in the case of one rather heavily distorted developing economy, may well be present, albeit less starkly so, in many others.

Our results are necessarily conditional on a set of parameters that is subject to change along with the economic policies of Viet Nam. In particular, the state–nonstate gap in labor productivity (and thus in returns to skills and earnings) could be reduced or eliminated by structural reforms that reduce or eradicate the special economic status of state sector enterprises. Alternatively, greater access by firms, and especially by small and medium enterprises, to foreign capital would be influential since it would offset the productivity-reducing effects of capital crowding-out by SOEs. Whether either of these changes is sufficient to reverse the trend toward greater disparity that we have documented remains an open question. Further analysis with the most recent rounds of VHLSS (2010 and 2012), once they become available, will help answer this question.

## V. Conclusion

In this paper we have explored a hitherto neglected dimension of inequality—that arising in a transitional economy between households with access to rationed, rent-yielding state sector jobs and those without. Data from several rounds of Viet Nam’s household living standards surveys confirm a substantial difference in per capita incomes across this divide. Our research then reveals that the state–nonstate dichotomy also marks a significant discrepancy in households’ educational investments in their children. When state employers are the largest demanders of skills, and when they compensate those skills far more generously on average than do nonstate employers, there is competition among workers to win state jobs. These jobs are effectively rationed by public sector budget constraints and limited domestic markets for the goods and services produced by state-owned corporations.

As a result, connections based on family ties become important factors raising the probability of winning a state sector job. Households for which these connections are strong tend to invest more heavily than others in education and credentials for their offspring. In other households, the data suggest that opportunity cost drives

<sup>17</sup>“The Great Slowdown, *The Economist*, 21 July 2012. The article comments on this as follows: “Sadly, many emerging-world governments have interpreted the crisis in rich-world finance as a reason to preserve a more muscular role for the state. [The People’s Republic of] China has reserved some sectors for state-owned enterprises. In Brazil the big state-controlled oil company, Petrobras, and the state-controlled banks have become virtual appendages of government policy. Having so much leverage over the economy is indeed helpful during a crisis, but in the long run it will stifle competition, starve the private sector of capital, deter foreign investment and know-how, and breed corruption.”

children whose parents cannot help them win lucrative state sector jobs out of education earlier and at lower levels, and that those households invest less overall in education of their children. These divisions depend on policy, not on secular development trends, and so could well persist across generations, creating a two-track labor market of “princelings” and “paupers.”

International evidence suggests further that unequal incentives to invest in human capital will in the long run lead to slower rates of aggregate economic growth. If so, then Viet Nam could face an earlier onset of the middle income trap than would be the case under the counterfactual of a more level playing field for labor and education. Prior experience of other regional economies like Indonesia, Malaysia, and Thailand pinpoints underinvestment in human capital formation as a key contributing factor to growth slowdowns and vulnerability to economic crises (Booth 2003, Warr 2005, Coxhead and Li 2008). These are important lessons for policymakers in Viet Nam. The insight from our study is that skills shortages will not necessarily be resolved simply by increasing the supply of schools and teachers. There is a potentially binding demand-side constraint on human capital deepening, and this can be eliminated only by deeper structural reforms.

## References

- Adamchik, Vera, and Arjun Bedi. 2000. Wage Differentials between the Public and Private Sectors: Evidence from an Economy in Transition. *Labour Economics* 7(2): 203–24.
- Athukorala, Prema-chandra. 2006. Trade Policy Reforms and the Structure of Protection in Viet Nam. *World Economy* 29(2): 161–187.
- Baulch, Bob, Vu Hoang Dat, and Nguyen Thang. 2012. Do Vietnamese Schools Provide the Right Education for an Industrializing Country? *Young Lives Project Working Paper* No. 81.
- Becker, Gary S. 1964. *Human Capital: A Theoretical Analysis With Special Reference to Education*. National Bureau for Economic Research, Columbia University Press, New York and London.
- Becker, Gary, and Nigel Tomes. 1993. Human Capital and the Rise and Fall of Families. In Gary Becker, ed. *Human Capital*. 3rd edition. Chicago: University of Chicago Press.
- Berg, Andrew, and Jonathan Ostry. 2011. Inequality and Unsustainable Growth: Two Sides of the Same Coin? *IMF Staff Discussion Note* No. SDN 11/08. Washington, DC: International Monetary Fund.
- Booth, Anne. 2003. Education and Economic Development in Southeast Asia: Myths and Realities. In Kwama Sundarman Jomo, ed. *Southeast Asian Paper Tigers? From Miracle to Debacle and Beyond*. London: RoutledgeCurzon.
- Chiot, L., and B. Wilkinson. 2010. The Intangibles of Excellence: Governance and the Quest to Build a Vietnamese Apex Research University. <http://www.ash.harvard.edu/extension/ash/docs/Apex.pdf>, accessed 15 May 2103.
- Coxhead, Ian, and Muqun Li. 2008. Prospects for Skills-based Exports in Resource-rich Developing Economies: Indonesia in Comparative Perspective. *Bulletin of Indonesian Economic Studies* 44(2): 199–228.
- Edmonds, Eric. 2005. Does Child Labor Decline with Improving Economic Status? *Journal of Human Resources* 40(1): 77–99.

- Griliches, Zvi. 1969. Capital–Skill Complementarity. *Review of Economics and Statistics* 51(4): 465–68.
- Grosh, Margeret E., and Paul Glewwe. 2000. *Designing Household Survey Questionnaires for Developing Countries: Lessons From 15 Years of the Living Standards Measurement Study*. Washington, DC: World Bank.
- Hakkala, Katariina, and Ari Kokko. 2008. The State and the Private Sector. In Ari Kokko, ed. *Viet Nam: 20 Years of Doi Moi*. Ha Noi: Gioi Publishers.
- International Monetary Fund. 2012. 2012 Article IV Consultation. *IMF Country Report* No. 12/165. Washington, DC: International Monetary Fund.
- Jensen, Robert. 2010. The (Perceived) Returns to Education and the Demand for Schooling. *Quarterly Journal of Economics* 125(2): 515–548.
- . 2012. Do Labor Market Opportunities Affect Young Women’s Work and Family Decisions? Experimental Evidence from India. *Quarterly Journal of Economics* 127(2): 753–792.
- Leung, Suiwah. 2009. Banking and Financial Sector Reforms in Viet Nam. *ASEAN Economic Bulletin* 26(1): 44–57.
- Maddala, G. S. 1983. *Limited Dependent and Qualitative Variables in Econometrics*. New York: Cambridge University Press.
- Munich, Daniel, Jan Svejnar, and Katherine Terrell. 2005. Returns to Human Capital under the Communist Wage Grid and During the Transition to a Market Economy. *Review of Economics and Statistics* 87(1): 100–123.
- Nixon, Frederick, and Bernard Walters. 2010. *Vietnamese Enterprises: Toward Global Competitiveness*. Hanoi: United Nations Development Programme.
- Phan, Diep, and Ian Coxhead. 2013. Long-run Costs of Piecemeal Reform: Wage Inequality and Returns to Education in Vietnam. *Journal of Comparative Economics*, published online 16 April 2013. doi: <http://dx.doi.org/10.1016/j.jce.2013.04.001>
- Pincus, Jonathan, Vu Thanh Tu Anh, Phan Duy Nghia, Benjamin Wilkinson, and Nguyen Xuan Thanh. 2012. Structural Reform for Growth, Equity and National Sovereignty. Ho Chi Minh: Fulbright Economics Teaching Program Discussion Papers. Available: <http://www.fetp.edu.vn/en/policy-papers/discussion-papers/>
- Schultz, Theodore W. 1960. Capital Formation by Education. *Journal of Political Economy* 68(6): 571–583.
- . 1963. *The Economic Value of Education*. New York: John Wiley.
- Sjöholm, Fredrik. 2008. State-owned Enterprises and Equitisation in Viet Nam. In Ari Kokko, ed., *Viet Nam: 20 Years of Doi Moi*. Ha Noi: Gioi Publishers.
- Stiglitz, Joseph. 2012. *The Price of Inequality: How Today’s Divided Society Endangers Our Future*. New York: W.W. Norton.
- United Nations Development Programme. 2006. The State as Investor: Equitization, Privatization, and the Transformation of SOEs in Viet Nam. *UNDP Viet Nam Policy Dialogue Paper* No. 2006/3. Ha Noi: UNDP.
- Vu, Hoang Linh. 2012. An Overview of Access to and Inequality in the Education System of Viet Nam. *Asia-Pacific Development Journal* 19(1): 37–62.
- Warr, Peter. 2005. Boom, Bust and Beyond. In Peter Warr, ed. *Thailand Beyond the Crisis*. London and New York: RoutledgeCurzon.
- Wang, Xiaobing, Chengfang Li, Linxiu Zhang, Renfu Luo, Thomas Glauben, Yaojiang Shi, Scott Rozelle, and Brian Sharbono. 2011. College Education and the Poor in China: Documenting the Hurdles to Educational Attainment and College Matriculation. *REAP Working Paper* no. 213. Available: [reapchina.org/reap.stanford.edu](http://reapchina.org/reap.stanford.edu)

World Bank. 2005. Viet Nam Business: Viet Nam Development Report 2006. *World Bank Report* No. 34474-VN. Washington, DC.

Xin Meng. 2000. *Labour Market Reform in the People's Republic of China*. Cambridge: Cambridge University Press.

Yi, Hongmei, Linxiu Zhang, Renfu Luo, Yaojiang Shi, Di Mo, Xinxin Chen, Carl Brinton, and Scott Rozelle. 2011. Dropping Out: Why are Students Leaving Junior High in the People's Republic of China's Poor Rural Areas? *REAP Working Paper* No. 227. Available: [reapchina.org/reap.stanford.edu](http://reapchina.org/reap.stanford.edu)

Appendix: **Summary Statistics of Main Variables**

	2004	2006	2008
No. households	9,188	9,192	9,189
HH head works for civil admin (%)	6.92	6.17	6.26
HH head works for SOE (%)	3.17	3.23	2.83
HH Head education (years)	7.01	7.13	7.35
(s.d.)	(3.99)	(3.99)	(4.16)
Ethnic minority HH (%)	14.30	15.06	15.00
HH per capita income (million VND)	11,887	15,710	24,596
(s.d.)	(24,726)	(40,801)	(67,443)
HH per capita expenditure (million VND)	4,927	6,130	8,233
(s.d.)	(4,410)	(5,019)	(6,451)
HH expenditure on education (million VND)	1,121	1,397	1,987
(s.d.)	(2,167)	(2,521)	(4,028)
HH with zero educ. expenditure (%)	28.50	32.04	34.01
No. individuals	40,439	39,071	38,253
Completed middle school (%)	22.21	18.69	19.60
– Of which, attended high school (%)	19.60	26.03	21.49
Completed high school (%)	11.14	10.63	12.02
– Of which, attended tertiary inst'n (%)	13.78	19.25	20.13

Notes: Data are from VHLSS 2004, 2006, and 2008.

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