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***Firm Ownership and Internal Labor Practices
In a Transition Economy: An Exploration of
Worker Skill Acquisition in Vietnam***

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Abstract:

One feature common to many post-socialist transition economies is a relatively compressed wage structure in the state owned sector. We conjecture that this compressed wage structure creates weak incentives for work effort and worker skill acquisition and thus presents adverse consequences for the entire transition economy if a substantial portion of the labor force works in the state sector. We explore firm wage incentives and worker training, as well as other labor practices and outcomes, in a transition setting with matched firm and worker data collected in one of the largest provinces of Vietnam – Ho Chi Minh City. The Vietnamese state sector exhibits a compressed wage distribution in relation to foreign invested privately owned firms. State wage practices stress tenure over worker productivity and their wage policies result in flatter wage – experience profiles and lower returns to education. The state work force is in greater need for formal training, a need that is, in part, met through direct government financing. In spite of the opportunities for government financed training and at least partly due to inefficient worker incentives, state firms, by certain measures, exhibit lower levels of labor productivity. The private sector comparison group to state firms for all of these findings is foreign owned firms. The internal labor practices of foreign firms are more consistent with a view of profit-maximizing firms operating with no political constraints. This is not the case for Vietnamese de novo private firms that exhibit much more idiosyncratic behavior and whose labor practices are often indistinguishable from state firms. The exact reasons for this remain a topic of ongoing research yet we conjecture that various private sector constraints, including limited access to formal capital, play an important role.

Key Words: Vietnam, within-firm incentives, labor productivity, transition.

JEL Classifications: P31, J31.

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I. Introduction

Numerous studies have noted inefficient labor practices in the state owned sector in various transition economies. Such practices include the hoarding of surplus labor and the payment of wages in excess of the market wage (see Basu et al. (2000), Lee (1999), Mickiewicz and Bishop (2003)). Yet relatively few studies have looked at the incentives that workers face within state firms and how these incentives might differ from the private sector. This paper will explore the presence and consequence of one such group of incentives deriving from the compressed state sector wage structure. In the compressed wage environment of state firms, the returns to worker education and experience levels are lower in state enterprises than those typically found for private sector workers. In addition, the within education or experience group wage variation also tends to be lower. This wage compression arises from the socialist legacy of transition economies, where SOEs have long labored under the fixed wage schedules imposed on them through government regulations.

The lack of a skilled state sector labor force is another feature often mentioned in discussions of the problems facing transition economies. Jefferson (1999) ascribes the low degree of skill in the state sector to the lack of a market for labor quality under state socialism. He argues that only after the reassignment of property rights during transition did managers have an incentive to develop worker quality. This indeed has been the record in Eastern Europe where one key consequence of increased state enterprise autonomy has been the delinking of wages from the state mandated wage schedules (Munich et al., 1999). SOE managers were then able to align work incentives to better reflect the human capital requirements of the firm. The transition experience elsewhere, including Vietnam, is similar. Historically, Vietnamese state firms were beholden to fixed wage schedules and while labor market reforms have weaned most SOEs from the strict wage schedules, the legacy and influence of such schedules persist to at least the late 1990s (Goodkind et al., 1999).

This paper attempts to link these two aspects of the state sector – a compressed wage environment and a low skilled labor force – by combining two well established strands of the labor economic literature, namely the (largely empirical) literature on worker training and the (largely theoretical) literature on incentive provisions within firms. In the framework developed in this paper, a compressed wage structure provides relatively little incentive for worker effort and, in turn, these lower effort levels partially explain the lower labor productivity of SOEs. Another consequence of a compressed wage distribution is reduced incentives for workers to invest in on-the-job human capital. This second consequence of compressed wages, if it occurs in a work environment that requires repeated investments in human capital, can result in a less skilled labor force thus having negative long term consequences for the transition economy as a

whole. This paper will explore with recent manufacturing firm and worker data from Vietnam how firm ownership form affects the internal firm practices that encourage or discourage worker skill acquisition.

The next section will discuss in more detail the worker skill and productivity consequences from the differing wage policies of state and private firms. Yet the reality can be more complicated than a simple story of low powered incentives and low skill acquisition in the state sector since subsidized formal training opportunities may be relatively abundant in that sector. The extent to which training opportunities exist in the Vietnamese state sector, as well as within-firm incentives and worker outcomes, is explored in the empirical results of Section IV. Before that, however, is a section (Section III) that presents an overview of the transition in Vietnam and discusses the data used in the analysis. Section V concludes.

II. Firm Wage Policies and the Implications for Worker Skill Acquisition

State ownership and state residual control rights of the firm can have direct consequences for worker incentives through political constraints placed on the labor contracting process. These modified labor contracts can in turn affect either investment in human capital, and hence worker skill, or affect work effort- and if effort has a learning-by-doing component then worker skills are still affected. Previous theoretical work on state firms, such as Shleifer and Vishny (1994) or Prasnikař et al. (1994), views SOE behavior as determined through a bargaining process between profit minded managers and ideologically driven or constituency minded politicians (and/or the firm's own workers). This bargaining allows political concerns to influence firm behavior including SOE labor market practices. One example of this approach is that the principal in this bargaining problem, i.e. the politician, stipulates that firms follow official wage schedules that, as a result, reduce intrafirm inequality. This results from the interest of the ideology driven politician and may also be demanded by a portion of the firm's own workforce or other members of the general public. Thus political control of firm level variables enabled under state socialism results in a more compressed wage structure than what would be observed by private ownership. In return the firm receives access to state credit or other sources of support, a portion of which can be spent on worker training in an attempt to offset any disincentives for skill acquisition. The extent to which state subsidies are spent on training (and the efficacy of such training) is an empirical question.

The section discusses the consequences of the labor contract reached between firm managers and workers given the constraints, if any, created by the bargaining process between managers and the state. We can derive the optimal labor contract with a straightforward principal-agent (i.e. manager-worker) model of on-the-job human capital investment conducted in a repeated game environment of multi-period

investment decisions.¹ This approach is also consistent with the view that effort has a learning-by-doing effect and the optimal contract aims to induce maximal effort.

In each period, the agent (worker) chooses to make a skill investment that is both costly for the worker and not observable by the principal (the manager). The manager does observe the work outcome affected by the investment efforts. For convenience the work outcome is modeled as a successful/unsuccessful binary outcome although the results are fully generalizable to wider settings. The particular work outcome depends on the total sum of investments over time where the greater the total skill level of the worker, the more probable the successful work outcome. It is straightforward to show that the optimal contract sets the wage to be dependent on the observed work outcome. Hence the contract in any period offers two wages: a low wage corresponding to an unsuccessful outcome, and a high wage corresponding to a successful one. The greater the difference between the two wages in the contract, the greater the incentive for worker investment and hence the more effort a worker will expend and/or the more skills learned. Firms with greater internal wage compression will witness smaller investments in human capital or lower effort since the optimal investment level is an increasing function of the contractual wage spread.²

Over repeated periods, the mean skill level of workers in firms that offer a large wage spread will begin to diverge from the lower skill levels in firms that offer a smaller wage spread. In a mixed economy of state and private firms, the contracts with the greatest wage differences will be offered by private firms, i.e. private firms will offer as great a wage difference as is economically feasible given out-of-firm worker alternatives in order to induce maximal effort and learning. On the other hand SOEs, as a result of politician and manager bargaining will offer a labor contract with a smaller wage spread. The consequences of this lower variation in wages will be less informal learning and worker effort.

The reality of firm incentives and worker learning is more complicated than the scenario sketched above since there are two ways for workers to acquire skills while on the job. Workers can acquire skills informally, through learning-by-doing and learning-from-others, or through formal training programs either sponsored by the firm or initiated by the worker herself. Firms can either provide wage incentives to encourage learning and skill investment and/or firms can choose to actively train workers in a formal setting. Normally, we envision firms freely able to mix and match human resource strategies to suit their needs although, presumably, wage incentives are needed more when training is worker financed. However in transition economies, state firms may not be completely free to choose training policies since

¹ Further theoretical details and a model can be obtained from the author of this study. Kwon (2003) presents a similar model when investigating firm incentives for skill acquisition in a large U.S. insurance firm.

² If there are decreasing marginal returns to worker skill investments then higher promotion premiums are needed at more senior job levels in order to induce long tenure workers to continue to invest in skills. This general pattern of compensation has been noted in developed economies by Baker, Gibbs, and Holmstrom (1994).

many have inherited labor practices from pre-transition periods that limit incentives for informal learning. On the other hand, SOEs may receive state subsidies in return for their less than optimal labor allocation and wage setting practices. Typically government intervention in firm practices is often compensated through state support of one type or another (i.e. what Kornai (1979) has dubbed the “soft budget constraint”). These funds can in part be spent on worker training programs. Thus the actual stock of worker human capital in SOEs, and the efficacy of the state labor force, depends then on the degree of intra-firm wage compression, the availability of transfer funds from the central treasury, and the decisions of the firm as to how to spend those funds (or the ministerial stipulations guiding the use of those funds).

The use of state funds for general formal training may be particularly appealing for SOEs. General training, by definition, imparts skills that the worker can utilize to enhance productivity at any and every firm. In competitive labor markets, the benefits from such increased labor productivity would accrue solely to the worker. However general training has often been observed in advanced economies and Acemoglu (1997) and Acemoglu and Pischke (1999) explore why firms would provide workers with general training. They suggest that labor market imperfections, specifically the ability of the firm to claim a portion of the worker’s marginal product, due to the existence of asymmetric information or search costs, induces the firm to train workers. In essence, firms train workers so that they may maximize their own economic rents. From this viewpoint a compressed wage structure, although a disincentive for workers to invest in human capital, enhances incentives for firms to invest in worker training (at least for more skilled or educated workers). State firms earn greater rents on skilled workers than private sector counterparts since wages are more compressed and as such can claim even more residual benefits from an increase in worker skills. If state firms receive subsidies earmarked for that purpose then even better. Thus a compressed wage structure does not automatically condemn the state sector to a less skilled labor force.

Besides formal training, another factor that complicates any investigation of the effects of contract incentives on (unobservable) worker effort or investment is the issue of worker sorting. In a mobile labor market, workers have the flexibility to choose jobs they find most suitable. For example, the very risk averse may prefer to remain in a firm with a compressed wage structure while those who believe they are high ability workers may seek the challenge of a more competitive work environment. Given this possibility, it is difficult to determine empirically whether the superior labor performance of private firms is due to incentives that encourage worker learning or to the possibility that workers of higher ability select into the higher wage variance environment of the private sector. The data requirements needed to distinguish between these two cases include information on worker turnover and measures of individual

productivity over time. Unfortunately this study lacks such information although it will be able to bring indirect evidence to bear on the importance of worker selection.³

The empirical section of this paper will explore variation of within-firm worker incentives for human capital acquisition across various sectors of Vietnamese manufacturing firms, as well as investigate the potential consequences of such incentives. The three general ownership categories considered are the Vietnamese state owned sector and two types of private firms: the Vietnamese de novo private sector and the foreign-invested joint venture sector. These two private firm types are quite different across various important dimensions such as access to formal sources of capital or managerial background and will consequently be kept separate in the empirical analysis. Differences not only between SOEs and private firms but also among the two types of private firms will be explored and discussed.

The direction of empirical inquiry includes the following:

1. Since the firm's labor force has been subjected to this contractual arrangement over multiple periods, the observed wage variation in private firms should be greater than in state firms if indeed private firms offer a higher a greater contractual wage spread over repeated periods of contracting. This variation should hold true both overall and within observable worker categories such as education and experience groups.
2. If the wage distribution in a state firm is artificially compressed, this might affect the firm's choice of other internal labor practices. Results of a compressed wage structure and reliance on a state wage schedule may include a de-emphasis of labor quality as a means for wage determination and job advancement in the state firm. State firms may also be more permissive in the time new workers spend learning on the job if there was no real imperative for rapid learning in the pre-transition period. We will examine these themes empirically.
3. The wage-experience profile should be steeper in private firms than in state firms as private sector workers are repeatedly offered contracts with a greater wage spread than state sector workers are. The cumulative result of these contracts will be steeper mean wage-experience profiles as well as greater within firm wage variance among more experienced workers. In addition to differing wage-experience profiles, if there are complementarities between formal schooling and on-the-job training

³ At least in certain settings these selection issues are not trivial. Lazear (2000) follows the impacts of a change in wage policy at a US firm as it switches from salary to piece rate compensation. Lazear ascribes about half of the resulting productivity gain to the pure impact of incentives and half to worker turnover (selection). In a transition context, we might expect workers that voluntarily exit the state sector to be younger, of greater ability, or less risk averse (see Gordon and Li, 1999).

(as has been suggested in research as far back as Mincer (1962)) then the model will predict lower returns to schooling in the state sector.

4. Managerial interest in training the workforce will tend to be greater in SOEs than their private sector counterparts if SOE workers develop fewer on-the-job skills as a result of weaker within firm incentives. This need for formal training may be alleviated through training programs funded by official state transfers. Thus we would expect to observe SOE managers to state a greater need for workforce formal training as well as perhaps observe a greater incidence of formal training in SOEs. In addition, if formal training is a more important mechanism for skill acquisition in the state workforce, wages may be more responsive to formal training for state sector than private workers.
5. With appropriate controls for firm level information such as firm capital, firm age, and industry, the higher skill and effort levels found in private firms should translate into higher estimated levels of labor productivity.

All of these possibilities mentioned above will be investigated in the empirical analysis presented in Section IV. Before that, however, the next section will discuss some salient aspects of the Vietnamese transition.

III. The Vietnamese Transition and the Vietnamese Data

Starting in 1954 in the north of Vietnam, and 1975 in the south, Vietnam utilized a planned economic system based on the Soviet model. This system, characterized by agricultural collectivization and an emphasis on investment in heavy industry, failed to achieve the high levels of growth hoped for after national reunification and was adversely affected by the cessation of Soviet subsidies (Fforde and DeVylde, 1996). Increased calls for economic reform were first raised in 1981 and eventually resulted in a spate of reforms collectively known as Doi Moi. These reforms included the liberalization of the price system and the decollectivization of agriculture. Another main branch of reform, enterprise reform, resulted in three main ownership categories for firms operating in Vietnam: SOEs, de novo private firms, and foreign joint ventures.⁴

Various SOE reforms included the elimination of direct government subsidies, increased managerial autonomy over firm policies, and increased competition among firms by removing restrictions on inter-provincial trade. The state also undertook nascent attempts to equitize smaller and less strategic

⁴ In fact there are numerous ownership categories in Vietnam which fall under the tripartite distinction of state, private, and foreign: national SOEs, provincial SOEs, local cooperatives, joint-stock companies, limited responsibility companies, sole proprietorships, foreign joint-ventures, and entirely foreign owned firms. The 1999 Enterprise Law also legalized private partnerships, however this new enterprise form has not yet proven to be a popular option for entrepreneurs.

SOEs while combining SOEs operating in strategic areas into business groups or conglomerates. These large groups enabled firms to take advantage of economies of scale previously denied under central planning and sometimes resulted in virtual monopolies in certain industries (Beresford & Fforde, 1996). It is important to note these state sector reforms were neither an attempt to loosen state claims over the ultimate control rights of state enterprises nor an attempt to reduce the economic activity of the state owned sector. In fact the Vietnamese government hoped to create a vibrant state sector to lead the national economy. After the restructuring of the state sector, the surviving SOEs, about 6500 total, constituted a large economic presence controlling 80% of the fixed assets in the economy and up to 90% of all technical workers (Tran, 1996).

In contrast to the large state firms, private firms, first deemed legal by the VII Party Congress in 1991, are mostly small or medium sized enterprises in retail trade or other services. By the mid-1990s only 28% of industrial firms were privately owned (Vo, 96). This relatively small presence reflects the continuing difficulties the private sector faces such as burdensome registration procedures and, until recently, the inability to import or export without the aid of a state trading firm. Due to the difficulties private firms face in obtaining formal credit, since state and newly established private banks are unaccustomed to lending at the high levels of risk carried by de novo private firms, retained earnings are the main source of investment funds. Informal credit, which includes family loans, money lenders, and credit associations, is also extensively utilized.

The third main category of ownership, foreign owned and co-owned firms, encounter few of the difficulties faced by domestic de novo private firms, partly due to the fact that foreign firms typically enter into partnership with Vietnamese state firms.⁵ However these joint ventures constitute a category of ownership distinct from state ownership since in these ventures the state party has little control over operations, with land typically being their main capital contribution to the venture. The foreign firm, which contributes the production technology and managerial staff, usually has control over production and marketing decisions.

The Vietnamese government's attempts to insure a predominant role for the state sector, through market protection and the use of state credit, helped to maintain the state sector share in industrial production in spite of the rapid growth in the de novo private and especially the foreign invested sector. For example, as total industrial output increased 92% in real terms over the 1995-2000 period, the output in the foreign invested sector increased 181% and the de novo private sector output increased 74% (both de novo and foreign firms began from a very small base). The much larger state industrial sector managed to increase its output almost at the same rate as the de novo private sector - 59% - even though there are

⁵ The Law on Foreign Investment, passed in December 1987, allowed foreign direct investment (FDI) in the hopes to increase total investment as well as to facilitate the transfer of technologies and managerial skills.

virtually no new entrants in the state sector and thousands of new entrants in the private sector (General Statistical Office, 2002).

The figures quoted above are national, but the situation in Ho Chi Minh City Province (the province of analysis) is similar. In 1999, 48% of industrial output in Ho Chi Minh City province was attributable to state firms, 22% to domestic private firms, and 30% to foreign invested firms. The proportion of SOE to domestic private output has been constant over the 1995-2000 period, yet the overall share of both has fallen as the output of foreign invested firms has rapidly grown (Statistical Office of Ho Chi Minh City, 2000).⁶ It is difficult to find a parallel for the relatively strong growth performance of Vietnamese SOEs in other transition economies. For example in China, which also gave state firms greater autonomy in production and finance decisions, total SOE output increased an average of 7.7% annually from 1978 to 1992 (Groves et al., 1995). In contrast other firm types, notably the newly established Township and Village Enterprises (TVEs), developed much more rapidly so that the SOE share in industrial output decreased from 78% of the total industrial output in 1978 to 48% in 1992 (Naughton, 1994). Privatized firms in Eastern Europe also grew substantially faster than state firms (Frydman et al., 1999).

The relatively poor growth performance of Vietnam's private firms in relation to private firms in other transition economies most likely reflects, in part, the constraints in entry and investment mentioned earlier. As one example of these constraints we note that throughout much of the 1990s an entrepreneur needed a letter of character reference from a local police official in order to establish and register a private firm. In addition to entry barriers, existing private firms had much less access to sources of formal credit than SOEs and were comparatively undercapitalized. The ratio of outstanding debt to total revenue in a 1996 sample of Vietnamese firms stood at .46 for SOEs and .13 for private firms even though private firm managers stated that one of the greatest obstacles to growth is a lack of available credit (Friedman, 2003). SOEs typically borrowed from state banks while private firms were equally likely to borrow from friends, relatives, and other credit sources as they were from state banks. Foreign joint ventures had no such capital constraints since investment capital typically comes from the parent company able to raise funds on the international market.

There are certainly other constraints that have limited the de novo private sector in Vietnam. McMillan and Woodruff (1999a,b) document how Vietnamese private firms adapt their behaviors in absence of legal institutions that would enforce interfirm contracts and mediate potential disputes. These coping strategies impose greater costs on private firms than would otherwise arise in a non-opaque legal environment. When discussing private firms, subsequent analysis will always distinguish between

⁶ Foreign sector growth rates have reached as high as 65% per annum, albeit this growth originated from a very small base.

domestic private and foreign joint-venture firms. The very different environments in which these firms operate should be kept in mind and the laggard performance and relative burdens of the domestic private sector should help inform the analysis of the survey data to follow.

Data description

This study uses data from a matched survey of firms and workers in Ho Chi Minh City Province, a largely urban province that also includes some rural areas.⁷ The survey was conducted in the fall of 2000 as a collaborative effort between the Ho Chi Minh City Institute of Economic Research and both the William Davidson Institute and the Population Studies Center at the University of Michigan. This joint study focused on labor demand issues among industrial firms with at least ten employees. A total of 350 firms operating in 1999 were surveyed. The sample was designed to be representative across both ownership forms and industries with respect to firm employment, but the relatively high number of SOEs, due to their large employment presence in the province, prompted a slight oversampling of private firms and foreign joint ventures.⁸ The survey sought information on a variety of topics including firm history, finances, hiring practices, and wage policies. Relevant to subsequent analysis, retrospective annual data over the three year period 1997-99 was sought on the firm's labor force size, labor force characteristics, and financial performance. The questionnaire was designed to be compatible with a similar survey of 400 firms conducted in Ho Chi Minh City in 1997 (this earlier survey lacked a worker component). When relevant, the analysis will pool data from both firm surveys in order to maximize the degrees of freedom.

In addition to the firm level information, an average of 4.4 production workers were randomly selected and surveyed at each firm for a total of 1553 respondents. A greater number of workers were surveyed at larger firms to ensure greater representativeness of the worker sample. Information was sought along the dimensions of education, training, contract form, and employment history, as well as questions inquiring into the prevailing labor practices at the employing firm. Both the firm level and worker level data will be utilized where relevant. The next section presents the results of the empirical analysis.

⁷ Ho Chi Minh City is, perhaps, the most important economic region in Vietnam due to its large share of national output and trade. However it should be noted that Ho Chi Minh City is not representative of the country as a whole. Indeed there is a high prevalence of light (and hence relatively successful) industry in Ho Chi Minh City while, for example, there is a concentration of heavy industry in the Red River Delta regions surrounding Hanoi.

⁸ Sampling weights were developed to enable representative analysis but, since all of the subsequent analysis entails contrasting the state with the private sector, these firm weights are not employed.

IV. Analysis of Matched Firm and Worker Data

We turn now to the analysis of the Vietnamese data, bearing in mind the direction of empirical inquiry discussed in Section II. We begin with an overview of both the firm and worker data. We then turn (in order discussed) to discussions of internal firm practices, wage returns to human capital, firm training needs, and, finally, estimates of firm labor productivity.

Summary firm and worker characteristics, including variation in wages

Table 1 presents certain firm level summary statistics in Panel A, and worker level information in Panel B, in order to impart greater context to the discussion of the results. Not surprisingly, given the history of transition, SOEs are substantially older than either domestic de novo firms or foreign joint ventures. The vast majority of SOEs were founded in the pre-transition period while most private and foreign firms were established in the mid 90s or later. SOE firms are relatively very large and employ many more workers than other firm types. For example, industrial SOEs employed an average of 575 workers in 1999, almost three times the average labor force of private firms and fifty percent more than foreign joint ventures. SOEs also tend to be widely distributed across the broad industrial categories listed in the table while foreign invested firms tend to be concentrated in two industries- garments and textiles, and machinery and equipment (including electronic assembly). Private domestic firms are also somewhat concentrated in garments and textiles.

Table 1. Summary statistics of select variables by firm ownership form, firm and worker level data

Panel A, firm level data	State owned enterprises (SOEs)	Private (domestic)	Foreign joint-venture
Number of firms (unweighted N)	121	163	59
Mean age of firm in 2000 (years)	17.5	7.0	6.4
<i>Firm industry (percentage of firms in each industrial category)</i>			
Utilities, energy, & steel	6.6%	7.2%	6.8%
Food & food processing	15.7%	12.1%	6.8%
Industrial & construction materials	7.4%	14.5%	5.1%
Chemicals, pharmaceuticals, plastics, & rubber	13.2%	19.9%	13.6%
Equipment & machinery	14.9%	6.6%	22.0%
Garments & textiles	15.7%	33.1%	35.6%
Printing & publishing	8.2%	1.8%	0.0%
Other manufactures	4.1%	1.8%	5.1%
Construction	14.1%	3.0%	3.4%
Other industry	0.0%	0.0%	1.7%
<i>Workforce characteristics</i>			
Mean number of workers	575	203	398
Percent female	40.4%	45.8%	54.0%
Percent skilled ^a	39.8%	28.4%	54.5%
Mean number of production workers	490	176	349
Percent female	40.6%	46.7%	54.7%
Percent skilled ^a	35.6%	22.9%	52.8%
<i>Workforce compensation</i>			
Mean annual compensation (million Dong)	14.56	11.08	19.89
Mean annual production worker compensation (million Dong)	13.25	9.85	16.58
Percent of workforce receiving the following benefits:			
Meals	90.4%	87.3%	92.1%
Housing	0.6%	2.4%	0.0%
Health insurance	95.6%	79.2%	98.6%
Worker's compensation coverage	36.7%	21.9%	35.3%
Pension	66.5%	19.4%	64.5%
<i>Within firm wage dispersion</i>			
Maximin salary ratio ^b - all workers	4.12	4.42	10.17
Maximin salary ratio ^b - production workers only	2.19	2.22	2.43

Table 1. (continued)

Panel B, worker data	State owned enterprises (SOEs)	Private (domestic)	Foreign joint-venture
Number of workers (unweighted N)	586	676	291
Mean age (years)	31.5	28.7	27.7
Percent female	36.7%	45.9%	46.7%
Mean years of education	10.3	10.0	10.9
Mean years of full-time work experience	8.8	5.5	5.2
Mean years of tenure at current firm	7.0	3.5	3.7
Mean monthly salary in 1999 ('000 Dong)	965	857	1026
Mean amount of last bonus payment ('000 Dong)	462	493	506
<i>Work history</i>			
Percent who have only worked for current employing firm	66.2%	61.5%	78.4%
Of those who have worked elsewhere, sector of previous work for last job:			
State sector	32.8%	19.6%	38.1%
Domestic private sector	33.3%	51.5%	39.7%
Foreign joint venture sector	5.1%	4.2%	4.8%
Self-employed	23.7%	20.0%	12.7%
<i>Within sector wage dispersion^c</i>			
Standard deviation of wage ('000 Dong)	69501	52460	90942
Coefficient of variation of wage ('000 Dong)	71.98	61.05	88.90
Standard deviation of predicted wage ^d ('000 Dong)	9521	6467	15182
Coefficient of variation of predicted wage ^d ('000 Dong)	9.86	7.53	14.84
Standard deviation of wage residual ^d ('000 Dong)	59949	45993	75759

Source : 2000 Ho Chi Minh City Firm and Worker Survey

^a Skilled workers are defined as: a) university graduate or higher if non-production worker, b) certified technician or having attained level 4 or higher on a 7 point scale of technical skill if production worker.

^b The maximin salary ratio is the mean ratio (calculated across firms) of each firm's maximum to minimum monthly salary.

^c The sample measures of dispersion have been rescaled to control for the differing sample sizes in each sector.

^d The predicted wage is conditioned on years of education, years of experience, experience squared, marital status, and sex of worker.

The survey data allow a partially disaggregate inspection of labor force composition, both for the total workforce, as well as separately for production workers. As expected, production workers are by far the most numerous group in the firm's total labor force, constituting approximately 85% of the total employment in each of the three ownership categories. The labor force as a whole is 45% female. This proportion is slightly higher for foreign joint ventures, where 54% of the total labor force and 55% of direct production workers are female. This difference may be due to the high incidence of foreign joint ventures in the textile and garment industry where female representation in that labor force is high. The survey also sought educational and training background. From this information it is possible to classify workers as skilled or unskilled using the Vietnamese government worker classification system.⁹ Using these definitions, the survey reveals the SOE workforce is substantially more skilled than de novo private firms but foreign joint-venture firms are most skilled of all. More than half (53%) of foreign sector production workers are skilled, compared to only 23% of workers in de novo private firms and 36% in SOEs. Clearly the firm's overall skill level should be an important factor in determining firm level outcomes such as labor productivity levels.

The higher skill levels in the foreign sector surely partly explain the significantly higher levels of mean worker compensation observed in that sector. Another factor behind this difference in compensation is that the minimum wages are higher for foreign firms than for domestic. This mean measure is computed simply by dividing total firm labor compensation (i.e. salary, bonus payments, and other labor expenditures) by total firm labor force. The foreign sector production worker compensation is 25% higher than their state counterparts and nearly 70% greater than that for private sector workers.¹⁰ Thus, in spite of the youth of foreign sector workers, which will be shown in Panel B, they are the most handsomely compensated. Private sector workers, the least skilled labor force on average, receive the lowest wages. Not only do domestic private workers receive lower wages, but they also receive fewer benefits. In particular private workers are much less likely to receive health insurance and future pension coverage.

Finally, the firm level data does not enable detailed measures of intra-firm wage distribution. However the surveys did record the maximum and minimum monthly salaries paid for several different workforce categories. The simple ratio of the maximum and minimum salaries, either for all workers or for production workers alone, does give a sense of the range of wages offered by the firm. The maximum

⁹ A skilled worker is defined as either: a) a university graduate, or higher, for non-production workers or b) a production worker with a training certificate or one that has attained level 4 or higher on a 7-point worker grade scale.

¹⁰ If mean wages are higher in state firms than private firms, these higher wages may induce greater worker effort a la standard efficiency wage models. However higher than market wages can only deter shirking or reduced effort if accompanied with the threat of worker release. Traditionally, it is very difficult if not impossible for SOEs to fire workers. Thus any higher mean wages paid should not impact on worker effort through the mechanisms suggested by the efficiency wage model. This model, however, may be applicable in the foreign invested sector where threat of worker separation is real.

- minimum salary ratio of 10.17 for foreign firms is much greater than either the state or private firm ratio while the private firm ratio of 4.42 is modestly higher than the ratio of 4.12 for state firms. Looking solely within the occupation of production worker, the maximum – minimum ratios are much more similar, as we might expect given the narrowing of occupation categories. Still, foreign firms exhibit the highest ratio of 2.43, compared with ratios of roughly 2.2 for both state and private firms. This limited evidence suggests that the wage variation, especially the cross-occupation wage variation, is greatest in the foreign owned firms while domestic private firms exhibited modestly more wage variation than state firms do. Although these findings are suggestive, the limited nature of the measure prevents us from drawing too firm a conclusion, however the worker level data can offer more precise measures of the wage variation within firms in each ownership sector.

Panel B of Table 1 reports relevant summary statistics from the worker level data. Some simple facts are readily apparent. State sector workers are approximately 4 years older than foreign sector workers and 3 years older than private workers. The older ages of the state workers are reflected in the higher levels of work experience and tenure, where state workers have approximately 3 additional years of both work experience and tenure than either of the other two worker categories. While the foreign workers tend to be younger, they also have slightly higher levels of schooling with a mean of 11 years of formal schooling in comparison with the 10 years of both state and private sector workers. These findings echo those of Panel A, where the foreign sector workforce was also found to be the more skilled.

Also consistent with the firm level findings, foreign sector workers earn higher wages than state workers who, in turn, earn significantly more than private workers do. Foreign sector workers report monthly earnings of 1,000,000 Dong for 1999, compared with 960,000 Dong for state workers and 860,000 Dong for private workers.¹¹ Bonus payments (which are typically given twice a year) are also largest in the foreign sector, although in contrast to wages, private workers report a slightly larger bonus than state workers.¹²

Worker sorting can potentially be an important factor in interpreting the analytic results, and one measure of the importance of sorting is the degree of inter-firm and inter-sectoral worker mobility. The worker survey did seek information on worker experience at other firms and found the vast majority of workers in the sample have only worked for their current employing firm. This is especially true for the foreign sector workers where 78% of respondents report never having worked elsewhere. Even though private sector workers are younger than their state counterparts, a slightly greater proportion of private workers than state workers (38% to 34%) have worked in a previous setting. Among those workers who

¹¹ In 1999, approximately 11,000 Dong equated one US dollar.

¹² The survey records contract type in terms of piece rate versus salary. Much of the theoretical incentive literature is concerned with the tradeoffs between piece rate and salary. However this concern is not relevant in this context since there is little variation in the incidence of piece rates across sectors – the rates are uniformly very low.

have worked elsewhere, there appears to be a good deal of cross sectoral mobility in every direction. Roughly equal proportions of mobile workers currently in the state sector have previously worked at other firms in the state sector or the private sector. Almost a quarter of mobile state sector workers were self-employed in the last job before their current state sector employment. Among private sector workers, the transition from private firm to private firm dominates other such transitions, although 20% of mobile workers entered from state firms and another 20% from self-employment. Few mobile workers originate from the foreign sector, presumably reflecting both the relatively recent presence of this sector and the relative desirability of foreign sector jobs. The data demonstrate some degree of worker mobility, certainly higher than that found by Boeri and Flynn (1999) for Eastern Europe, yet there is no clear prevailing direction of these worker flows either into or out of the state sector and the overall mobility rates still appear low. The potential impact of selection issues should be kept in mind when interpreting the results, however the fact that the strong majority of workers remain in their sector of origin may serve to allay selection concerns.

Finally, in the last section of Table 1, the worker level data enable a more careful look at wage variation across sectors.¹³ First reported are the standard deviation and the coefficient of variation of the monthly wage. These figures have been rescaled to adjust for the differing sample sizes of each sector. The expected greater variation in wages for the private sector is clearly apparent in the foreign sector, which reports both the highest wage standard deviation and highest coefficient of variation. Interestingly, the next highest sectoral variation in wages is found among state workers, while private sector workers report the lowest degree of sectoral variation in wages. The important differences between the two categories of private ownership – foreign owned and domestic firms – mentioned earlier is quite clear here. While foreign firms behave as expected, domestic private firms clearly do not.

The last few rows of Panel B distinguish between variation in wages that can be attributed to worker observables, such as education and experience, and residual wage variation. We accomplish this decomposition by predicting wages from a simple regression of worker salary on standard wage regression covariates such as education, experience, worker gender, marital status, and firm industry. We then estimate the variation of both these predicted wages as well as of the wage residual. In both cases, the variation for foreign sector workers is the greatest of the three sectors. This suggests that not only do foreign sector wages vary the most across relevant human capital and background variables, but even after controlling for the influence of such variables the wage variation is greatest in the foreign owned

¹³ Ideally we would like to look at wage variation within firms as opposed to within sectors, however the small number of worker observations per firm prevents us from doing so. However the sectoral differences in wage variation reported below are significantly different from each other even after controlling for firm industry, size, and age.

sector. Once again, and contrary to expectations, the wage variation for both the predicted wage and the wage residual is smallest in the domestic private sector.

Internal labor practices

Given that wage variation between workers in the state and foreign sector behave as expected (although this is not the case for domestic private firms) we may expect to observe important differences in firm labor practices along the lines discussed in Section II. The survey data does shed some light on various firm labor policies such as wage determination and job promotion and this policy relevant information is summarized in Table 2. Questions were posed to each firm regarding the most important criteria used by the firm when establishing a worker's starting wage and when deciding on a wage increase. Even though state firms are no longer constrained by law to the state mandated wage schedules, the influence of such schedules is still apparent in the responses. For determining starting wages, SOEs were most likely to report either the state wage schedule or the legal minimum wage. Since the two categories are essentially equivalent in wage levels, we have combined them for the purposes of Table 2. Even by the year 2000, several years into the Vietnamese transition, SOEs still report the influence of state wage schedules in setting firm labor policies. For private firms, the legal minimum is the most prevalent criteria, although a substantial portion of private firms also list other market driven factors such as the prevailing market wage and the expected efficacy of the new hire. Foreign firms overwhelmingly list the legal minimum wage as the most important wage setting criteria for new hires. This finding is not unexpected as by law a higher minimum wage applies to foreign firms than to domestic firms that almost always binds for new hires.

Table 2. Internal firm labor practices by ownership form, firm and worker level data

Panel A, firm level data		State owned enterprises (SOEs)		Private (domestic)		Foreign joint-venture	
<i>Most important criteria for wage determination^a</i>							
For determining starting wages	State wage schedule/ legal minimum	State wage schedule/ legal minimum	Legal minimum, prevailing market wage, expected efficacy of worker	Legal minimum		Legal minimum	
	Worker characteristics (education and experience), state wage schedule	Worker characteristics (education and experience), state wage schedule	Worker characteristics (education and experience), efficacy of worker	Worker characteristics (education and experience), efficacy of worker	Worker characteristics (education and experience), prevailing market wage	Worker characteristics (education and experience), prevailing market wage	
For determining wage increases							
Panel B, worker level data		State owned enterprises (SOEs)		Private (domestic)		Foreign joint-venture	
<i>Most important determinant of job promotion</i>							
Educational and training certification	12.1%		9.8%	7.9%			
Work effort	49.3%		50.9%	71.8%			
Attendance and punctuality	4.4%		6.1%	8.3%			
Tenure at firm	22.9%		20.7%	7.6%			
Ability to learn new skills	10.6%		12.4%	4.5%			
<i>On-the-job learning requirements:</i>							
Worker estimates of time a typical worker needs in order to learn how to do the particular worker's job well (in days) ^b	286		225	177			

Source : 2000 Ho Chi Minh City Firm and Worker Survey

^a The most prevalent criteria (up to three) listed by at least 20% of respondent firms.

^b Estimates corrected for the differential distribution of firm types across industries.

In terms of determining wage increases for workers with some tenure at the firm, all three firm types consistently list worker characteristics (such as education and experience) as the most important criteria. Interestingly, the next most commonly listed criteria differ across the firm classifications. State firms next most commonly list the state wage schedules as the guiding criteria, while domestic private firms list worker efficacy and foreign firms list the prevailing market wage. Both worker efficacy and the prevailing market wage are not unexpected criteria to have listed by private firms operating in a competitive labor market. The influence of state wage schedules in SOE wage determination is striking since their use is no longer mandated by law.

Certain firm labor practices can also be gleaned from the worker level data. Most notably, workers were asked to give the determinant of job promotion that they perceive to be the most important to their advancement. In a firm environment where individual worker productivity determines advancement, worker effort should be a commonly listed determinant of job promotion. Work effort is indeed the most important element listed by workers at all three firm types, with about half of workers at state and domestic private firms claiming that effort will be the most important determinant of advancement. A substantially greater number of foreign sector workers (72%) list effort as the most important element of promotion, thus suggesting a salient difference in the practices of Vietnamese and foreign owned firms. In contrast firms that may promote workers solely with regard to seniority, and without regard to work performance, are likely to have a less efficient allocation of workers across positions within the firms. These seniority based promotion rules are quite evocative of pre-transition SOE practices and, not unexpectedly, a substantial minority, 23%, of state sector workers list firm tenure as the most important determinant of job promotion. Somewhat surprisingly, domestic private workers are also next most likely to list tenure as the important criteria (20% of private sector workers choose this criteria), while only 8% of foreign sector workers list tenure as a relevant criteria.

Another factor through which we may measure the relative emphasis firms place on worker skill or effort is the typical time a worker is expected to need to learn how to satisfactorily execute a particular job. In firms where individual workers are expected to produce, and will be evaluated on their productivity, managers may expect to observe rapid improvement and workers may expend much effort to meet those expectations. In the same occupations, and in firms that de-emphasize individual productivity, managers may not impart the same high expectations, and workers may move along the learning curve at a more leisurely pace. These differing work environments are indeed suggested by the survey data. Workers were asked to estimate the time a typical worker needs in order to do their particular job well, and the reported mean amount of time was corrected for differences in the distribution of firms across industries. Foreign sector workers report the shortest time span, only 177 days, while state sector

workers report needing the longest amount of time, 286 days. Private sector workers were somewhere in the middle reporting a necessary time span of 225 days.¹⁴

These three aspects of labor practices discussed imply some salient differences across firms of different ownership forms. State firms still report a reliance on state wage schedules for wage determination while private firms, both foreign and domestic, report criteria that reflect worker efficacy or prevailing market practices. Foreign workers are also more likely to view their own effort as the most important determinant of job promotion, while a substantial minority of state and private domestic workers list tenure as the most important determinant. The relative similarity in the determinants of job promotion between Vietnamese private and state firms may indicate human resource management practices that managers in both firm types share. Indeed, many private managers once worked in the state sector (Friedman, 2003). Lastly, the expectation for new workers to learn rapidly on the job appears to be highest for workers in the foreign sector, and much lower for state workers.

The next section explores how these differences in practice translate into differences in worker compensation for standard human capital measures such as education and experience.

Estimated returns to education and experience

The discussion in Section II predicts workers in firms that offer contracts over a wide wage range will face steeper wage – experience profiles. In addition, if educational attainment and subsequent on-the-job learning are complements, then the returns to formal education should also be higher for workers in such firms. We now investigate this prediction with empirical estimates of the returns to various human capital measures. Utilizing the worker level data, we adopt a standard Mincerian wage regression of the following form:

$$\ln W_i = \beta_0 + \beta_1 E_i + \beta_2 X_i + \beta_3 X_i^2 + \beta_4 \mathbf{D}_i + \varepsilon_i$$

Our dependent variable is the log of the monthly wage and we assess formal education, E , with both continuous and discrete measures. Also included in the regression is a vector \mathbf{D} of industry dummy variables as well as binary measures of worker gender and marital status. Our experience measure, X , is a direct measure of total years worked. The coefficients of interest will be identified by the within sector co-variation of the dependent variable and the controls. Since workers were surveyed at their firm site, the reported standard errors are Huber-White corrected for cluster effects.

¹⁴ These sectoral differences in the estimated time required to learn on the job are significantly different from each other even after we control for firm industry, size, and age.

The first panel of Table 3 presents the results of the wage regression using years of total education as the education measure. Certain intersectoral differences are readily apparent. First and foremost, the estimated return to formal education, while positive and statistically significant among the private and foreign sector workforce, is statistically indistinguishable from zero for state sector workers. (The estimates are also not statistically different from each other due to the relatively small sample sizes.) The overall finding that the returns to education are lower for state sector workers is unsurprising given other studies on educational returns in Vietnam (World Bank, 1996) however a finding of zero returns is a bit striking.¹⁵ Nevertheless the overall result that education returns are lower in the state sector is in consistent with the discussion in Section II as well as that state wage schedules compress wage returns to education.

¹⁵ A re-estimation of the state sector wage equation without industrial dummies does find a positive and significant return to years of schooling. This suggests that state sector workers with high formal education are sorted into high wage industries.

Table 3. Estimated returns to education and experience^a, worker level data

	SOEs	Private (domestic)	Foreign joint-venture
<i>Continuous measure of education</i>			
Years of education	0.0064	0.0285	0.0352
	0.0079	0.0075	0.0143
Years of experience	0.0294	0.0249	0.0348
	0.0081	0.0082	0.0148
Experience squared	-0.0006	-0.0006	-0.0005
	0.0003	0.0003	0.0006
Unweighted N	581	665	288
<i>Discrete measure of education^b</i>			
Post-secondary training	0.1100	0.1993	0.4779
	0.0550	0.0543	0.1120
Secondary school graduate	0.0381	0.1023	0.0800
	0.0358	0.0383	0.0324
Experience	0.0303	0.0226	0.0314
	0.0082	0.0081	0.0132
Experience squared	-0.0007	-0.0006	-0.0005
	0.0003	0.0003	0.0006
Unweighted N	581	665	288
<i>Measure of technical capability^c</i>			
Technical level ranking	0.0155	0.0809	0.0588
	0.0186	0.0261	0.0289
Experience	0.0228	0.0042	0.0225
	0.0130	0.0079	0.0133
Experience squared	-0.0004	-0.0002	-0.0002
	0.0004	0.0002	0.0006
Unweighted N	241	310	173

Source : 2000 Ho Chi Minh City Firm and Worker Survey

^a The dependent variable is log monthly wage ('000 Dong). Besides education and experience measures, regressions include marital status, sex of worker and industry dummies. Huber-White standard errors corrected for cluster effects (since workers are surveyed at sample firms) are reported below the estimated coefficients.

^b Excluded education category is primary school graduate or less.

^c Technical levels vary along a 7 point official scale.

As opposed to the education returns, state sector returns to experience are positive and precisely estimated. The point estimates of the experience coefficients are also greater than those estimated for the domestic private sector. This finding runs contrary to the theoretical expectations but is consistent with the general findings regarding the private sector, i.e. little observable difference in labor practices and outcomes between Vietnamese state and private firms. What is consistent with expectations is that the estimated returns to experience are highest in the foreign sector thus implying that foreign sector workers face the steepest wage - experience profiles. Figure 1 projects these parameterized returns to experience into wage-experience profiles for each of the three sectors. The estimated profile is steepest for foreign firms, followed by state firms, while the flattest profile is reserved for domestic private firms. Unfortunately there are not enough observations to estimate and compare the range of wages offered by years of worker experience, which would be another direction of inquiry as suggested in Section II. In contrast to the foreign - state firm comparison, the wage – experience profiles for the private domestic firms are contrary to expectations. This is yet another result suggesting that the internal labor practices of the domestic private sector do not align with overall expectations.

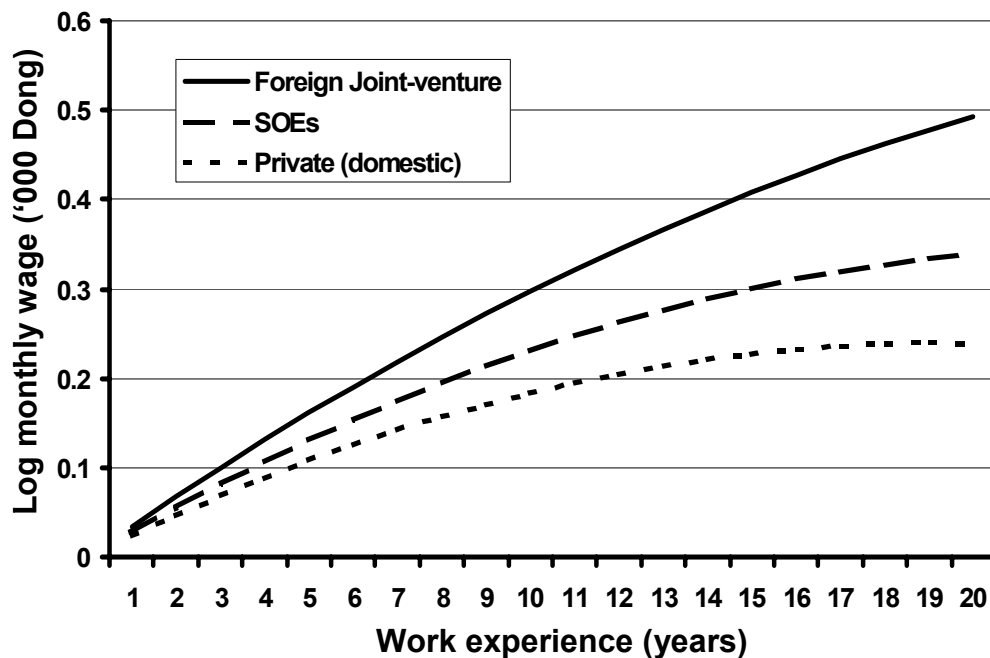


Figure 1. Estimated log wage - experience profiles, by firm ownership form

The bottom two panels of Table 3 report wage regressions with alternative measures of education. The middle panel employs a discrete measure of education, where attainment is separated into three categories: workers with post-secondary training, workers who have only graduated from secondary school, and primary school graduates or less. The findings here reflect the earlier findings in the top panel, where the returns to education are greatest in the foreign sector (a foreign sector worker with post-secondary training earns approximately 50% more than a primary school graduate). The next highest returns are found in the private sector. The state sector still exhibits the lowest returns to education, although the returns to state workers with post-secondary training are now significantly different from primary school graduates at standard significance levels. With regards to the estimated returns to experience, when formal education is measured in discrete terms the estimated returns to experience are somewhat modified resulting in more similar estimates between the state and the foreign sector.

Workers in certain occupations are assigned a technical skill level that varies along an official seven point scale. This scale is adopted as the final human capital measure. Approximately half of the worker sample is in occupations with such a scale, so the sample sizes for these regressions are substantially less than those reported above. Consistent with the top two panels in the table, private sector returns are estimated to be substantially larger than state sector returns. Although now in a reversal, the returns to technical capability are greater in the private domestic sector than in the foreign sector. Once again the returns to technical capability are lowest in the state sector and statistically indistinguishable from zero.

Formal worker training

The results presented in the previous section suggest that foreign firms present their workers with greater incentives for informal learning by offering a steeper wage - experience profile and rewarding formal education to a greater degree than state firms. Private domestic firms find themselves in a hybrid position by also rewarding formal education but not rewarding experience to as large a degree. Nevertheless, as mentioned previously, firms can compensate for the lack of informal learning incentives by actively training workers themselves. Table 4 explores the extent to which firms of different ownership form feel they need formal training as well as the extent to which formal training occurs. Both the firm and the worker surveys contained sections devoted to various aspects of training, and results from both sources are reported.

Table 4. Information on worker training, firm and worker level data

Panel A, firm level data		SOEs	Private (domestic)	Foreign joint-venture
<i>Firm assessments of training needs</i>				
Percent of managers needing training		23.3%	16.9%	22.2%
Duration of needed training (months)		11.0	8.3	7.7
Percent of office staff needing training		24.1%	15.7%	13.4%
Duration of needed training (months)		8.2	6.8	5.8
Percent of engineers and design personnel needing training		21.4%	13.0%	20.6%
Duration of needed training (months)		10.0	7.0	5.1
Percent of direct production workers needing training:		37.7%	24.5%	28.9%
Duration of needed training (months)		5.4	4.3	3.6
Percent of indirect production workers needing training		22.8%	9.7%	16.0%
Duration of needed training (months)		4.2	4.2	6.6
Panel B, worker level data		SOEs	Private (domestic)	Foreign joint-venture
<i>Incidence, characteristics, and results of worker training</i>				
Percent of workers reporting receipt of training at current firm		23.2%	16.9%	22.7%
Years since last formal training		3.9	2.7	2.3
<i>Location of training</i>				
At place of employment		65.4%	77.2%	80.3%
Government training institute		11.0%	5.3%	6.1%
Vocational/technical school		12.5%	1.8%	6.1%
Other		11.0%	15.8%	7.6%
Duration of training (weeks)		8.1	8.1	6.2
<i>Percent of workers with training paid by</i>				
Self		5.2%	8.8%	4.6%
Employer		64.0%	87.7%	89.4%
Government		28.7%	2.6%	4.6%
Other		2.2%	0.9%	1.5%
Percent increase in wage after completion of training		6.9%	8.6%	4.4%

Source : 2000 Ho Chi Minh City Firm and Worker Survey

Panel A of Table 4 presents the reported mean training needs for firms in the three ownership categories. There are two measures of need, the first is the firm assessed percentage of workers in need of training (either retraining or additional new training) by five worker categories. The second measure of need is the estimated mean duration of such necessary training. In general, state firms report the greatest need for training as assessed by both need measures. In the direct production worker category, the largest workforce category, state firms report that 38% of the workforce needs further training, compared with 29% in the foreign sector and 25% in the private sector. State firms also believe that their direct production workers require the most amount of time spent in training, with an average of five and a half months compared to four months for private sector direct production workers and three and half months for foreign sector workers. While the sectoral distinctions are most clear for direct production workers, the general story is consistent across the other worker categories: perceived training needs are greater in the state sector than in either category of private ownership. Among privately owned firms, when training need is measured by percent of workforce in need of training, it appears that foreign firms are in greater need of training. However the time of training measure generally yields the opposite conclusion, i.e. domestic private firms suffer in relative terms from an under trained workforce.

The worker level data is able to shed some light on the incidence of individual training across firm types as the worker surveys seek formal training histories at the current firm of employ. In terms of overall incidence, state and foreign sector workers report roughly equal incidences of formal training – 23% of workers in both sectors report such training, although the formal training experience is more recent for foreign sector workers.¹⁶ Presumably, this recency in part reflects the simple fact that foreign sector workers are younger and thus “at risk” for training over a shorter time span. Private sector workers report the lowest incidence of formal training (only 17% of the workforce). This result reflects both the fact that, apparently, private firms do not assess their training needs as particularly high, and private firms may also lack the means in relation to state and foreign firms to institute formal training programs.

Worker training is most likely to take place at the firm, although a substantial minority of state workers train directly at a government training institute or a vocational/technical school. This difference may partly be due to differing sources of funding for such training. Recall that in the discussion in Section II, state firms can receive state transfers in return for their less than optimal labor policies, and these transfers can be spent on formal training to partly compensate for the lower wage incentives imposed by the state. The worker data is utilized to explore this prediction since it asks each recipient of training to identify the source of training funds. The majority of workers in all three sectors claim to have the training funded directly by the employing firm. However a substantial minority of state sector workers (29%) have the training costs paid directly by the government, suggesting that state firms have a greater

¹⁶ Unfortunately the survey is unable to shed light on the quality of formal training.

array of financing options for worker training than either type of private firm. That private firms in particular lack the means for formal training may be suggested by the fact that private sector workers contain the largest proportion of workers (9%) across all three firm categories to fund their own training.

The last row of Table 4 reports the mean wage sensitivity to training programs for each of the three ownership categories. The conjecture here is that for firms where formal training is a more important mechanism of human capital acquisition, the wage response to training should be greater. Since wage increases also provide informal incentives for on-the-job learning, firms that already provide such informal incentives have less need to provide wage incentives for formal training. As is becoming the standard pattern in this paper, these predictions hold when comparing the state with the foreign sector. Workers in the state sector, where fewer informal incentives are provided, report a mean wage gain of 7% after formal training whereas foreign sector workers report a gain of only 4.5%. Domestic private firms, once again, present another pattern. Private sector workers report the highest wage gains of all (8.5%).

Certain generalizations are now becoming clear. The theoretical predictions for internal labor practices of firms of different ownership forms – i.e. that private firms exhibit greater wage variation, state firm practices are influenced by the legacy of state wage schedules, wage – experience profiles are steeper for private sector workers, and formal training needs as well as the means to satisfy those needs are greater in state firms – fit the data quite well when comparing foreign and state owned firms.¹⁷ Domestic private firms are more of an enigma, exhibiting some features in line with expectations and some quite contrary to them. The final discussion point in Section II hypothesizes that, since private firms are more likely to offer efficient incentives to workers, they should also exhibit higher levels of labor productivity. Thus we would expect to observe greater labor efficiency among foreign firms than state firms. The relative productivity of private domestic firms is more difficult to predict given the findings up till this point.

Firm labor productivity

This final subsection estimates the mean labor productivity of firms of different ownership forms. Controlling for relevant covariates, we predict that firms that create a work environment with greater incentives for learning and effort should exhibit significantly higher levels of labor productivity. Given that foreign firms exhibit the highest degree of sectoral wage variation, the highest returns to both

¹⁷ The data also contain some information on the quality of informal learning on the job. Workers in the foreign invested sector are much more likely to report lessons from supervisors as the most important source of improvement in skills (other options include learning through observation and on-the-job practice) [results not shown]. As argued by Lowenstein and Spletzer (1999) supervisor-given lessons are the most effective form of informal training, thus perhaps suggesting that foreign firms are more attentive to the informal training needs of their workforce.

education and experience, promotion policies that most emphasize worker effort, and the least reported need for formal training, we would predict foreign firms to exhibit the highest levels of worker productivity. Predicting the relative labor productivities for state and domestic private worker firms is a more difficult task since at different points in the analysis either firm type exhibits behavior that is more consistent with the theoretical expectations. State sector workers report greater wage variation, even after controlling for relevant observables, while private sector workers face higher returns to education, yet lower returns to experience. Because of these ambiguities, we refrain from making predictions regarding the relative labor productivities of domestic firms. We should note at the outset, however, that firms vary across numerous dimensions and only some of these dimensions are observed in the data. Other characteristics possibly related to labor productivity, such as quality of production technology or managerial ability, are unobserved. Thus the analysis will be able to estimate sectoral differences in labor productivity but not able to ascribe such differences to labor practices to the exclusion explanations related to unobserved characteristics.

The specification of labor productivity derives from a standard Cobb-Douglas production function where the unit of analysis is a firm-year observation. Total output Y_{it} is a function of labor inputs, L_{it} , and capital inputs K_{it} :

$$Y_{it} = AL_{it}^{\alpha} K_{it}^{\gamma}$$

Dividing all factors in the above equation by L_{it} , and then converting the expression to log form results in the following:

$$\text{Log}(Y_{it}/L_{it}) = \text{Log}A + \gamma\text{Log}(K_{it}/L_{it}) + (\alpha + \gamma - 1)\text{Log}L_{it}$$

We will estimate an extended version of the above specification that also allows for sector specific intercepts and other firm characteristics believed to affect labor productivity. In particular we estimate:

$$y_{it} = \beta_0 + \beta_{own} own_i + \beta_k k_{it} + \beta_l l_{it} + \beta_a a_{it} + \beta_s s_{it} + \beta_D \mathbf{D}_{it} + \varepsilon_{it}$$

where y_{it} is the log measure of firm labor productivity for firm i in year t . To ensure the robustness of any findings, four different productivity measures are used in the analysis - revenue per worker, value added per worker, revenue per production worker, and value added per production worker. The ownership variable, own_i , is a tripartite categorical variable covering the familiar ownership categories of state,

domestic private, and foreign joint-ventures. State firms constitute the excluded category. Four relevant control variables are measured in log values and enter as linear terms – the book value of firm capital per worker, k_{it} , total firm labor size, l_{it} , the age of the firm, a_{it} , and the proportion of the work force deemed skilled based on observable information, s_{it} .¹⁸ The vector \mathbf{D} contains various other control variables such as dummy variables for industry and year of observation as well as categorical measures of firm market power (based on the number of firm competitors in the primary product market) and the importance of exports in total revenue. The productivity regressions are estimated on the pooled sample of firm information incorporating the firm level information from the 1997 survey along with the firm data from the 2000 survey. In order to reduce the influence of extreme outliers, an iterative process that minimizes first Huber weights and then bi-weights was utilized. In addition, since each firm contributes more than one observation, standard errors were Huber-White corrected for cluster effects.

The first vertical panel of Table 5 reports various regression specifications with labor productivity proxied by revenue per worker. The initial regression controls only for the firm capital to labor ratio, total labor, age, industry, and year of observation. We find, somewhat surprisingly, that revenue per worker is significantly lower in both the domestic and foreign private sectors than in state firms. Thus once we control for firm size and capital per worker, state firms earn more income per worker than other firm types. As expected, capital per worker has a large and significant impact on labor productivity, as does firm age- the older the firm the higher the revenue per worker. Firm size itself may have a positive influence on revenue per worker although this coefficient is not precisely estimated.

¹⁸ Following Olley and Pakes (1996) and Levinsohn and Petrin (2003), we also experimented with a semi-parametric specification where firm capital, age, and worker skill level were specified as a fourth order polynomial. Since the ownership coefficients were not substantially changed in this specification, we only report results with the simpler linear terms.

Table 5. Labor productivity regressions^a, firm level data

Independent variables	Revenue per worker	Value added per worker	Revenue per production worker	Value added per production worker
<i>Ownership form</i>				
SOE	--	--	--	--
Private (domestic)	-0.2434	-0.1478	-0.2945	-0.2451
	0.0822	0.0623	0.0890	0.0720
Foreign joint venture	-0.2332	0.0529	-0.1817	0.0925
	0.0988	0.0779	0.1066	0.0912
<i>Other controls</i>				
Capital/worker ^b	0.4380	0.3037	0.4486	0.3254
	0.0249	0.0197	0.0274	0.0215
Total number of workers	0.2474	0.2593	-0.0849	-0.1084
	0.1423	0.1096	0.1557	0.1251
Firm age (years)	0.1123	0.1340	0.1279	0.1616
	0.0379	0.0375	0.0414	0.0340
Skill of labor force ^c	--	0.1127	0.1510	--
	--	0.0309	0.0328	--
Export revenue ^d	--	--	--	--
Number of competitors ^e	--	--	--	--
Industry dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
<i>Degrees of freedom</i>				
Number of observations	1690	1674	1662	1645
Number of firms	682	676	665	659

Source : 1997, 2000 Ho Chi Minh City Firm and Worker Surveys

^a The dependent variable is the log of annual revenue (million Dong) or annual value added (million Dong) per worker. Huber-White standard errors that correct for cluster effects (since firms may contribute more than one observation) are reported below each estimated coefficient. Potential bias from extreme outliers is minimized through an iterative process that determines Huber weights and bi-weights.

^b Capital per worker is measured by the log book value of total capital (million Dong) divided by the firm total labor force.

^c The labor skill variable is the proportion of the total firm workforce deemed skilled by the following binary measures: a) university graduate or higher if non-production worker, b) certified technician or having attained level 4 or higher on a 7 point scale of technical skill if production worker.

^d The export revenue measure is a categorical variable with the following values: 0 if firm has no export revenue, 1 if export revenue < 50% of total revenue, 2 if export revenue > 50% but < 100%, 3 if export revenue is 100% of total revenue.

^e The number of competitors is a categorical variable with the following values: 0 if firm reports no competitors in the main product market, 1 if firm faces 1-3 competitors, 2 if firm faces 4-5 competitors, 3 if firm faces 6 or more competitors.

When we control for the observed overall skill level of the firm labor force, we see that the proportion of skilled labor force itself does have a large and significant impact on labor productivity, verifying that our measure of aggregate firm labor skill is indeed a meaningful measure. However the coefficients for ownership form are unchanged. The third specification also controls for market structure and export revenue. When these controls are included the revenue per worker among foreign firms is no longer significantly different than that for state firms. Private firms still exhibit labor productivity levels statistically indistinguishable from state firms. This change in the results for foreign firms arises because foreign owned firms are concentrated in markets that have many competitors. State firms with few or no competitors presumably earn higher rents per worker and these higher rents obscure the labor productivity measures by inflating revenue per worker. Once we control for market structure we can more precisely compare relative labor productivity.

The second vertical panel in Table 5 reports the same sequence of regression specifications, only this time using worker value added as the productivity measure. Value added is typically seen as a more desirable measure of labor productivity since it controls for cross-firm variation in expenditures for raw materials; these expenditures are generally expected to be uncorrelated with true firm productivity. Similar to the first panel, estimates of domestic private firm labor productivity are significantly lower than those for state firms in each of the three regression specifications although the estimated difference is somewhat attenuated in comparison with the revenue per worker estimates. However with the value added measure of productivity, foreign firms are either estimated to have the same productivity levels as state firms or, when market structure is controlled for, foreign firms are estimated to attain labor productivity levels 15% greater than state firms. Apparently state firms with high levels of revenue per worker also have large expenditures for raw materials and energy. Once these input expenditures are netted out, then a labor productivity advantage in foreign firms emerges, as expected given the previous discussion. The coefficient for the capital to worker ratios are somewhat attenuated in relation to the revenue per worker estimates, as would occur if material inputs are correlated with firm capital stock, and the coefficient for firm size actually increases. The estimated influence of firm age and labor force skill are largely unchanged from before.

The same essential story is observed in the last two panels of Table 5, where labor productivity is now measured by revenue or value added per production worker. In all specifications, domestic private sector labor productivity is significantly lower than that estimated for state firms while labor productivity in the foreign sector is either lower, the same, or higher, than the state sector depending on the productivity measure and specification. The fullest specification with the value added measure of labor productivity suggests that foreign firms exhibit productivity levels 19% higher than state firms while the level for private firms are 20% lower in relation to state firms.

The finding that foreign sector labor productivity is higher than that in the state sector is certainly consistent with the notion that foreign sector internal labor practices and wage policies promote greater worker effort and worker skill acquisition. Of course other unobserved firm characteristics such as differential technology and managerial ability can also contribute to this finding. Future work and data collection efforts will hopefully be able to further distinguish among the possibilities that this current study suggests are important. In a similar vein, the findings that domestic private firms have lower labor productivity than the state sector is consistent with some of the other empirical findings, namely that Vietnamese de novo private firms offer a flatter wage tenure profile than state firms and actually exhibit the smallest within sector wage dispersion. However, as suggested earlier, Vietnamese private firms in the 1995-2000 period operated under comparatively severe constraints in terms of poor access to formal credit, barriers to market entry, and an insecure regulatory environment. These constraints, in addition to the observed internal labor practices and wage policies, would also contribute to the relative underperformance of the private sector.

Conclusions

This paper is concerned with the consequences of the compressed wage structure of the state owned sector, a relatively under-investigated aspect in many transition economies. This topic is a specific example of how political influences affect internal firm policies which, in turn, may affect work force incentives. In this instance, the compressed wage structure affects worker incentives for work effort and skill acquisition. There are two consequences of these weak labor incentives in the state sector. The first is low worker effort that leads to low within period productivity profit. The second is less investment in human capital that leads to lower future productivity and lower future profit. This dynamic effect of political intervention in firm policy can thus have negative ramifications for the entire transition economy since it can restrict learning and skill acquisition for a substantial portion of the labor force. There may even be further consequences from such inefficient policies if new production technologies and worker skill levels are complementary. In this case the low skill levels of the state work force give SOEs fewer incentives to innovate.

We discussed the human capital consequences of a compressed within firm wage structure and then explored a number of empirical implications with recent matched firm and worker data from Vietnam. As expected, Vietnamese state firms exhibit compressed wage distributions in relation to foreign owned firms. State wage practices stress tenure over worker productivity and their wage policies result in flatter wage – experience profiles and lower returns to education. The state work force is in greater need for formal training, a need that is, in part, met through direct government financing. In spite

of the opportunities for government financed training, state firms exhibit significantly lower levels of labor productivity as determined by a full regression specification with value added per worker as the measure of labor productivity.¹⁹ The counterpart to state firms for all of these comparisons are foreign invested joint ventures. These foreign firms behave in relative terms as expected. This is not the case for Vietnamese private firms that, at least in the aggregate, exhibit much more idiosyncratic behavior. The exact reasons for the unique position of Vietnamese private firms remain a topic of ongoing research, yet we conjecture that constraints, in terms of poor access to formal credit, barriers to entry, and an uncertain regulatory environment play an important role in addition to private firms internal labor practices and wage policies.

¹⁹ We should note that two caveats are in order. First, the data does not contain information on unobserved worker quality or ability and, as discussed previously, possible worker selection makes it more difficult to interpret certain findings as resulting solely from the influence of within firm incentives. Second, the data does not contain information on the firm's quality of production technology or managerial ability, which can vary across firms of different ownership form and perhaps even within the same industry and among firms with the same age and capital stock. Potential differences in production technology or managerial ability can also contribute to some of the empirical findings. Future work, including additional data collection efforts, is needed to address these issues.

References

- Acemoglu, D. (1997). "Training and Innovation in an Imperfect Labor Market". *Review of Economic Studies*, 64(220), pp. 445-464.
- Acemoglu, D., and Pischke, J.-S. (1999). "The Structure of Wages and Investment in General Training". *Journal of Political Economy*, 107(3), pp. 539-572.
- Baker, G., Gibbs, M. and B. Holmstrom, B. (1994). "The Wage Policy of a Firm". *The Quarterly Journal of Economics*, 109(4), pp. 921-955.
- Basu, S., Estrin, S., and Svejnar, J. (2000). "Employment and Wages in Enterprises Under Communism and in Transition". The William Davidson Institute Working Paper Series, No. 114b, Ann Arbor, MI.
- Beresford, M. and Fforde, A.. (1996). "A Methodology for Analyzing the Process of Economic Reform in Vietnam: the Case of Domestic Trade." Australian Vietnamese Research Project, Working Paper Series #2, Macquarie University, Australia.
- Boeri, T. and Flynn, C. (1999). "Returns to Mobility in the Transition to a Market Economy". *Journal of Comparative Economics*, 27(1), pp. 4-32.
- Fforde, A. and de Vylder, S. (1996). *From Plan to Market: The Economic Transition in Vietnam*. Westview Press, Boulder, CO.
- Friedman, J. (2003). "Wage and Employment Behavior Among Firms in Vietnam: Results from a Ho Chi Minh City Survey". Manuscript, The World Bank Group.
- Frydman, R., Gray, C., Hessel, M., and Rapaczynski, A. (1999). "When Does Privatization Work? The Impact of Private Ownership on Corporate Performance in the Transition Economies". *Quarterly Journal of Economics*, 114(4), pp. 1153-1191.
- General Statistics Office of Vietnam. (2002). *Statistical Yearbook*. Statistical Publishing House, Hanoi.
- Goodkind, D., Truong S.I. and Bui T. C. (1999). "Reforming the Old Age Security System in Vietnam." *Southeast Asian Journal of Social Sciences*, 27(2), pp. 139-162.
- Gordon, R., and Li, D. (1999). "The Effects of Wage Distortions on the Transition: Theory and Evidence from China." *European Economic Review*, 43(1): 163-183.
- Groves, T., Hong, Y., McMillan, J. and Naughton, B. (1995). "China's Evolving Managerial Labor Market." *Journal of Political Economy*, 103(4), pp. 873-92.
- Jefferson, G.H. (1999). "Missing Market in Labor Quality: The Role of Quality Markets in Transition". The William Davidson Institute Working Paper Series, No. 260, Ann Arbor, MI.
- Kornai, J. 1979. "Resource-Constrained versus Demand-Constrained Systems". *Econometrica*, 67(4), pp. 801-820.
- Kwon, I. (2003). "Incentives, Wages, and Promotions: Theory and Evidence". Manuscript, University of Michigan, Ann Arbor, MI.

- Lazear, E. P. (2000). "Performance Pay and Productivity". *American Economic Review*, 90(5), pp. 1346-1361.
- Lee, Y. (1999). "Wages and Employment in China's SOEs, 1980-1994: Corporatization, Market Development, and Insider Forces". *Journal of Comparative Economics*, 27(4), pp. 702-729.
- Levinsohn, J. and Petrin, A. (2003). "Estimating Production Functions using Inputs to Control for Unobservables". *Review of Economic Studies*, 70(243), pp. 317-341.
- Lowenstein, M. and Spletzer, J. (1999). "General and Specific Training: Evidence and Implications." *Journal of Human Resources*, 34(4), pp. 710-733.
- Mincer, J. (1962). "On the Job Training: Costs, Returns, and Some Implications". *Journal of Political Economy*, 70(5, Part2), pp. 50-79.
- McMillan, J. and Woodruff, C. (1999a). "Interfirm Relationships and Informal Credit in Vietnam". *Quarterly Journal of Economics*, 114(4), pp. 1285-1320.
- McMillan, J. and Woodruff, C. (1999b). "Dispute Prevention Without Courts in Vietnam". *Journal of Law, Economics, & Organization*, 15(3), pp. 637:658.
- Mickiewicz, T. and Bishop, K. (2003). "Wage Determination: Privatised, New Private, and State Owned Companies. Empirical Evidence from Panel Data." William Davidson Institute Working Paper No. 584, University of Michigan.
- Munich, D., Svejnar, J. and Terrell, K. (1999). "Returns to human Capital under the Communist Wage Grid and During the Transition to a Market Economy". William Davidson Institute Working Paper No. 272, University of Michigan.
- Naughton, B. (1994). "What is Distinctive about China's Economic Transition? State Enterprise Reform and Overall System Transformation". *Journal of Comparative Economics*, 18(4), pp. 470-490.
- Olley, S. G. and Pakes, A. (1996). "The Dynamics of Productivity in the Telecommunications Equipment Industry". *Econometrica*, 64(6) pp. 1263-1297.
- Prasnikar, J., Svejnar, J., Dubravko, M. and Prasnikar, V. (1994). "Behavior of Participatory Firms in Yugoslavia: Lessons for Transforming Economies." *Review of Economics and Statistics*, 76(4), pp. 728-741.
- Shleifer, A. and Vishny, R.W. (1994). "Politicians and Firms". *Quarterly Journal of Economics* 109(4), pp. 995-1025.
- Statistical Office of Ho Chi Minh City. 2000. *Statistical Yearbook*. Ho Chi Minh City, Vietnam.
- Tran H.K. (1996). *Vietnam's Economy: The Period 1945-1995 and its Perspective by the Year 2020*. Statistical Publishing House, Hanoi, Vietnam.
- Vo D.L. (1996). *Vietnam's Industrialization, Modernization, and Resources*. Institute of World Economy. Social Sciences Publishing House, Hanoi, Vietnam.
- World Bank. (1996). *Vietnam: Education Financing Sector Study*. Washington, D.C.

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