Asian Development Bank (ADB)
"Making Markets Work Better for the Poor"

Labor Market Segmentation in Vietnam：
survey Evidence

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Background

As revealed in the previous studies, the earning decomposition based on secondary data has appeared less informative with respect to the actual and perceived barriers to the integration of labour markets. Hence, additional information is needed to determine what are the biggest constraints of finding 'good' jobs? What are the perceived chances of finding 'good' jobs and how stable are they? What other individual characteristics besides formal human capital increase the chances of finding 'good' jobs? Do certain labour market segments carry a 'stigma' such that it becomes more difficult to move to other segments? As such, the fieldwork has been designed to gather this additional information among a number of the poor wage workers. It is expected that this information is both corroborate the earlier market segmentation analysis based on secondary data as well as provides additional insights into the functioning of labour markets in Vietnam, especially those for the poor.

I. Socio-Economic Situation in the Surveyed Areas

Two provinces have been chosen as a location for the fieldwork execution: Da Nang city in the Central part and Binh Duong in the Southeast region of the country.

Binh Duong

Having enjoyed a relative advantage of geographical proximity to Ho Chi Minh City - the biggest business center of Vietnam - Binh Duong has recently presented itself as one of the newly emerging and the most rapidly industrialized localities, with nine industrial parks and one industrial- service-urban complex that are actively operating within the province's districts. In parallel with an advantage of a larger number of population (of 1,126,772 people) and land area (2,695 km2), Binh Duong has also progressed in having better (than many other provinces) transport facilities, other physical infrastructure and public utility conditions. All of these together makes the province one of the most attractive locations for both domestic and foreign investment.

- Economic structure:

As reported Binh Duong has recently reached a relatively high and steadily increased rate of GDP growth (around 15% annually). The GDP per capita has been increased continuously and account for 1.7-1.8 times higher for the last 5 years. The industrial and construction outputs have increased by 29-30%, agriculture by 5.5-6% and service by 12-13% for the period of the last 5 years. Out of the total number of 3,807 firms established in the province there 3,083 are of private and household ownership. Among others, foreign investment firms have been reported to be more advantageous in providing a larger proportion of gross output and in creating a new employment for labor force. In order to bring in full play of the economic potentials of the region, Binh Duong has implemented a number of new policy incentives to attract FDI and domestic investors to the locality.

- Policies and labor market:

As expected, a rapid growth in the number of FDI and domestic industrial establishments requires for more labor inputs, especially the skill workers. This explains why many workers in Binh Duong are migrants coming from other provinces. Among 590,352 as the total number of working population in Binh Duong, 231,535 are migrant workers (Table 4.1)

In order to attract more labor force from other provinces, a number of measures have been implemented by the local authority and firms. For instance, incentives in housing provision and higher pay have been given to the skill workers and the graduates with higher education, especially people with Ph.D and Master degrees. Likewise, with the aim to overcome the mismatch between labor demand and labor supply, job fairs and exhibitions have been organized in Thu Dau Mot town - the capital of the province and in some of industrial parks. With support of the provincial authorities, some of firms located in the provinces have actively contributed in investment programs on "housing for workers" or increased their contribution in social insurance for employees. It is reported that up to the end of 2004, some of 1,529 living rooms have been provided (free of charge) to 6.096 workers in 77 firms. In 11 other firms, some of 450 workers have been paid housing allowance (with the amount of VND 50,000 to 100,000 /month). In addition, procedure for (temporary) residence registration has been remarkably simplified. For some female workers with children at school age, it is strongly promulgated that their children can have an equal access to local schools as all other local children.

Despite the efforts, it is evident that there still many problem are remaining that prevent workers from having a chance of getting a good job or moving from one to another better job.

Da Nang

Situated at one of the most important cross-roads leading to the international common sea water and air routes, Da Nang has endowed with a wide range of geographical advantages for a high growth and sustainable socio-economic development. The province's total population is high and accounting for about 752,400 people that is unevenly distributed in 47communes (wards) of 7 districts; total land area is of 1,255.53 km2.

- Economic structure:

A high and stable growth rate has been reached in Danang during the last some years (12.56% in 2002 and 12.62% in 2003). As expected, industry and service take much larger proportions (than agriculture) in the total GDP of the province (43.52% and 49.75% in 2002 and 45.32% and 48.29% in 2003, respectively). Within the industrial sector, manufacturing industry comprises of a major share and accounts for 29.98% in 2002 and 21.42% in 2003. If seen from point of view of ownership, however, SOEs still

play a dominant role, accounting for more than a half of the total GDP (56.57% to GDP in 2002 and 57.32 in 2003).

Although Danang is considered as one of the far more advanced localities in the country, the foreign investment sector is still small that takes around only one fifth of the city's total industrial output. While manufacturing sector plays an important role in province' economy and requires an increasingly higher level of skill labor input, the province has failed in meeting the demand as the major part of its labor force (about 63%) stays either untrained or of very low skill. Among manufacturing industries, in 2004 textile and garment and construction employ some of 6.6% and 7.4% of total labor force of the city respectively. As reported, most of the workers employed in textile/garment are female, while construction reveals opposite picture.

Table 4.1: Factor endowment of the two surveyed provinces, 2004.

Factors	Binh Duong	Da Nang
Population (persons)	1,126,772	752,400
Land area (km2)	2,695	1,256
GDP (bill. VND)*	6,962	….
Growth rate (%)	15.2 %	12.6% **
Industrial structure (%) :	100	100
- Agriculture (%)	*10*	*6.4***
- Industry (%)	*63.3*	*45.3***
- Services (%0	*26.7*	*48.3***
Labor force (persons)	590,352	203,406
Of them, migrants	231,535	around 10,000
Unemployment rate	2,7%	5,17%**

Source:
- For Binh Duong province**:** "*Report on socio-economic development of Binh Duong in 2004*" by Provincial People Committee of Binh Duong, November 30/2004.
- For Da Nang: " *Statement on labor and employment status of Danang, 2004* " provided to the survey team by the province's DOLISA.

Note:

 * USD 1 approximately = VND 15, 750
 ** figures were taken for the year 2003.

While the country's average unemployment rate in 2003 is reported to be around 5.78%, this figure in Danang is seen a bit lower (5.17%).

- Policies and labor market:

As a consequence to the rapid urbanization process that has currently taken place in Da Nang province, a number of working people, especially peasants, loosing plots of agricultural land or business sites is visibly increased. A significant increase in migration away from rural villages is a clear evidence to the increased demand for jobs outside the

villages, and enhanced underemployment in the countryside points to the inability of the rural industry to capture the surplus of the labor force.

In order to solve the problem, Danang authorities has currently made great efforts in providing a large set of policy incentives to investors into the city. These include one-stop investment registration procedure; a partial reduction or total exemption of land and water surface rental, cheap credit provision, etc.

The efforts have brought some initial fruits: investment in the city has been steadily increased followed also by an increase in labor demand. Not to one's surprise, the city has now started seeking for migrated laboring hands. It is reported that up to date, out of 203,406 of the total number of workers employed in the industries in Danang, more than 10.000 are temporary migrants. In order to attract the labor from outside, Danang has promulgated a policy on provision of housing (e.g. plan on building living apartments for rent for migrant workers) and considers simplification of the procedures on providing residence certificates (ho khau) to longer-term migrants. Though this is considered as a big progress, a number of barriers is still encountering workers on their long way for seeking a good job within the locality.

II. Survey Description

- Choice of Segments

The fieldwork was designed to focus on the most important labour market segments that was identified as poorly paid in the decomposition analysis, including:

° Urban migrant (from rural areas) workers
° Urban female workers (vs. male employees)
° Non-state owned workers (vs. employees of SOEs)

The choice of segments was made based on the following assumptions: (i) in Vietnam urban labour markets are better developed and we therefore expect a much stronger link between labour market segmentation and poverty there than in rural areas; and (ii) our analysis focuses on workers in wage employment and does not include self-employed labour. As current data sources have pointed out, predominant number of wage employment is in urban areas while majority of self-employed workers have found their work station in the countryside. Also, it is expected that by studying segmentation and the barriers to moving from rural to urban areas, we can learn about *access* by rural job seekers to urban labour markets as well as *the barriers and the problems* they have to face with when moving. Moreover, it is a common perception that urban temporary migrant workers are often poorer, therefore urban segmentation between temporary migrant workers and other workers is seen to be a good choice for the fieldwork. Also, while gender segmentation is said to be less sensitive in stated owned enterprises (SOEs) and in the system of institutions of the government apparatus, gender discrimination is clearly felt in other segments of the labour markets. More insights are needed here to examine why and to which extent the existing gap is prevailing.

- Choice of Sectors

It was agreed upon that the survey should include low skilled labour intensive sectors as these sectors most include poor migrant and female workers. As such, the fieldwork included the three sectors*: textile and garments, shoes industry and civil construction* that were found to be most labour and low skill intensive industries in the country.

- Choice of Respondents

The fieldwork was designed to focus on *poor workers* as a main source of respondents from the above identified as "poor" segments. At the same time, as there was an argument prevailing that segmentation approach emphasised not only supply but also demand sides of the markets, then it was decided that it should be more appropriate to have some *employers* be questioned by the fieldwork team. A number of employers thus were chosen for an additional information across the three above - identified industrial sectors.

In particular, with a target of 490 questionnaires from workers, 48 from firms and 10 from representatives of the government concerned agencies to be filled, the team used a method of "random sampling" to construct a list of firms to be contacted. An original list of firms operational in the two prvinces (a basic research population) was provided to the team by the provincial Departments of Planning and Investment. Using random method, each firm from the identified locations, sectors and ownership was selected with the same chance. The fieldwork team then checked the firms' address, telephone/fax number, names of directors and/or managers in charge. It was in most cases necessary to contact firms in person, by telephoning or by face-to-face meeting. The team also studied the distribution of the firms in term of location, ownership, industrial sector, etc. to guide for data collection process. The survey then was completed with total 47 firms as shown in the Table 4.2 below.

Table 4. 2: Number of firms in sample by sector, ownership and location

Ownership Sector	SOEs	FDI/Joint Venture	Private	Total
Binh Duong	3	6	14	**23**
Textile/garments	0	3	5	**8**
Shoes	0	0	2	**2**
Civil Construction	3	3	7	**13**
Danang	9	4	10	**24**
Textile/garments	2	3	5	**11**
Shoes	1	0	0	**1**
Civil Construction	6	1	5	**12**
Total	**13**	**10**	**24**	**47**

At least 10 -11 workers and one employer were interviewed in all firms that included both migrant and native workers, as well as female and male employees. The workers were selected from the three most popular job types. If a certain type of worker was not available (for instance the firm does not employ a permanent migrant), then another type of worker was interviewed instead as long as he/she was of one of the other job types listed in the employer's questionnaire. Also, the workers were interviewed in *the same* firms as where the employers were questioned to ensure relevancy of comparison of the information provided by the two parties. The survey then actually completed with the selection of workers across segments, sectors and locations as in the Table 4.3 below.

Table 4.3: Number of workers in sample by sector, ownership and location

Ownership Sector	SOE	FDI/Joint Venture	Private	Total
Binh Duong	32	81	130	**243**
Textile/garments	0	46	55	**101**
Shoes	0	0	29	**29**
Civil Construction	32	35	46	**113**
Danang	122	25	100	**247**
Textile/garments	28	21	51	**100**
Shoes	19	0	0	**19**
Civil Construction	75	4	49	**128**
Total	**154**	**106**	**230**	**490**

Given the strong emphasis on the importance of institutional and policy influence upon the worker's employment, mobility and pay, a good and direct conversation with the respective local *government agencies and institutions* and some of representatives of *mass organisations* was conducted. It was expected that the talk could help in providing deeper insights in the real spectrum of success and/or failure of the existing institutional and policy systems in the concerned areas. Hence, in all of the two surveyed provinces, interviews were held by the team *to representatives of each* of the following agencies and organisations:

° Provincial People Committee (PPCom.)
° Provincial Department of Planning and Investment (DPI)
° Provincial Department of Labour, War Invalid and Social affairs (DOLISA)
° Women Union (WU) and Trade Union
° Provincial Department of Home Affairs (DoHA)

- Questionnaires

It was decided also that the fieldwork be conducted with different survey formats. In particular, a *full survey* with two deferent semi-structured questionnaires was designed to

pool views and opinions of employers and workers[2]. For the representatives of the respective government agencies and mass organisations, a *checklist* of questions was prepared in order to clarify the institutional and policy barriers perceived as a general or as a specific to each of region/ sector that is hard to be identified without individual and in-depth interviews[3].

In addition, *a case study* is also used to draw some work stories that illustrates labor market segmentation, in terms of low wages, lack of upward mobility, barriers to getting a good or better job.

- Fieldwork Actual Execution

A trip to Hai Phong for pre-testing of the questionnaires was organized in late October 2004 by the survey team. During the field test trip, 5 government agencies including Hai Phong's PPCom, DPI, DOLISA, WU and Trade Union have been interviewed. Three employers and some of 40 workers from textile/ garment and civil construction sectors were tested by the team. PPA within target groups as a main technique was used for gathering necessary information from the workers. A special checklist of questions was created to help facilitators in leading the conversation and interaction with workers at the meetings. Results of the field test had, however, revealed that PPA as a main tool chosen was not the best way to reach the purpose as there was a lot of heterogeneity in responses across individuals. Moreover, the initially designed size of the sampling (includes only 150 workers) seemed too small.

Hence, a new set of questionnaires for a full survey on workers and employers was revised thereafter by the team and the sample size was extended to include more than 490 respondents (as stated above).

An actual survey was carried out during the time period from December 20 to 30/2004 in Da Nang and from January 4 to 12 /2005 in Binh Duong, by the two survey sub-teams. Totally, some of 47 firms from the three sectors have been visited and interviewed, that included 25 firms from textile/garments and 19 enterprises from construction, 3 firms from shoes making sectors. Among them 13 are SOEs, 10 FDI/Joint ventures and 24 of private ownership in each sector and each location (Table 4.2). Meanwhile, there some of 490 workers has been interviewed, of them 201 are from textile/garments, other 241 come from construction and the last 58 - from shoes sector (Table 4.3). As much as 10 of the respective provincial government agencies have been asked by the team.

An important issue to consider was how representative the findings of the survey would be for Vietnam. Clearly, the survey was a relatively small in size and was not designed to be representative for all firms and all workers in all locations. Instead, the survey was designed to give an adequate picture of labor market segmentation across gender and across residence status allowing for heterogeneity across locations, sectors and ownership types.

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[2] See: Annexes I.1 and I..2
[3] See. Annex I.3

On one hand, if the sample would have been limited to one location, one sector and one ownership type, then a properly designed sample of 47 firms and 490 workers would be large enough to be representative. On the other hand, if the sample could have included many locations, many sectors and all ownership types, then it would have been too small to be representative in light of the heterogeneity across locations, sectors and ownership types.

It was therefore decided to restrict the sample to two locations and three sectors and to stratify the sample by location, sector and ownership. This implies that the observed labor segmentation for a given sector or location will not be fully representative given that reweighing of the sample with sampling weights is not feasible because of the very small number of observations in each strata (location-sector-ownership triple). However, given that the sample is limited to only two locations and three sectors the results should be relatively representative. And, most importantly, because the sample allows for a *limited* amount of heterogeneity across locations, sectors and ownership, regression techniques can be used to (1) control for the impact of strata differences and (2) to estimate the role of heterogeneity in labor market segmentation. Our sample design was therefore a compromise – between full representativeness and accounting for heterogeneity.

III. Employment Patterns Across Locations and Sectors

III.1 Employment across locations

As mentioned, 47 representatives of firms (employers) were interviewed in both Da Nang and Binh Duong and this set of information is, from now on, referred to as the results of "employer survey". 490 workers in the these firms were also interviewed. However, only 469 questionnaires provided reliable information[4] and this set of information is referred to as the results of "worker survey" from this point.

The employment pattern across locations in terms of gender (segment 1) is summarized in Table 4.4

Table 4.4 Employment pattern across location by sex

Province	Female	Male	Total
Da nang	52%	48%	100%
Binh Duong	38%	62%	100%
Total	45%	55%	100%

Source: Estimated from employer survey

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[4] This is due to the fact that 21 records have problem of missing major data.

As obviously seen from the table, the percentage of female workers of interviewed firms in Da Nang accounts for 52% of their total labour force and is larger than corresponding figure of Binh Duong which is only 38%. In general (in both province), male workers still account for a larger share (55%) than female counterparts.

Regarding *residence status*, it is needed firstly to clarify more the classification. For simplicity, in this report, the term "non-migrants" is referred to the all who is (i) of native population, (ii) who has permanent residence certificate and (iii) those who are "permanent migrants". This classification is based on the fact that "permanent migrants" are actually treated as a native in many senses and they can be soon be provided with permanent residence certificates. The composition of workers in interviewed firms by residence status obtained from survey results is presented in Table 4.5.

Table 4.5 Employment pattern across location by residence status

Province	Non-migrants	Migrants	Total
Da nang	82%	18%	100%
Binh Duong	60%	40%	100%
Total	72%	28%	100%

Source: Estimated from employer survey

As shown in Table 4.5, the share of migrants in interviewed firms in Da Nang province is much lower than that of non-migrants (18% compared to 82%) while in Binh Duong a more balanced share was witnessed. In this province, migrant workers in investigated firms accounted for 40% of their total labour force. Although the sample of investigated firms is not 100% representative for all the firms in both locations, it may reflect a trend that the flows of labor migrants to Binh Duong province are larger than in Da Nang.

In term of *the ownership* of enterprises where the workers belong to, Da Nang accounts for 77.62% of the total number SOEs, while 63.49% of the total interviewed private enterprises are in Binh Duong. At the same time, Binh Duong accounted also for 79.41% of the full foreign invested businesses but non joint-venture was interviewed there.[5]

III.2 Employment patterns across sectors/industries

The employment patterns in the interviewed enterprises by industries are put in Table 4.6. It showed that in construction sector, male workers account for majority with 83% of the total, while the situation of textile industry is opposite with 76% of female workers. The proportion of female workers in shoes industry is also over-represented with 69%.

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[5] Based on the survey estimated results.

Table 4.6 Employment patterns across sectors by gender and residence status

Sector	Gender segment		Residence status segment	
	male	**female**	**Non-migrant**	**Migrants**
Construction	83%	17%	75%	25%
Textile and garment	24%	76%	68%	32%
Shoes	31%	69%	84%	16%
Total	55%	45%	72%	28%

Source: Estimated from employer survey

With respect to residence status, the proportion of non-migrant workers is greater in shoes sector than those in the other two industries. This may be the fact that the moving cost for a migrant construction worker is greater and the risk for them is higher as their work may not be stable. The percentage of textile migrant workers is relatively high (32%) in the two surveyed provinces.

To have a quick check to see whether the estimated employment pattern in terms of gender and residence status is mostly affected by sector, ownership or location, two regressions on respective issues were estimated[6]. The regression results (see the footnote) suggested that there are relatively more females in Danang ($\alpha1=0.10$, positive), in construction (total coefficients of the other two industries is negative), but no gender differences across ownership (the corresponding coefficients are two small and insignificant). In terms of residence status, fewer migrants were found in Danang, but there are no differences across sectors and ownership types. This confirms the descriptive statistics and statements made above.

IV. Job types and job characteristics in the surveyed areas

IV.1 Job classification

In this study, the jobs can be classified based on three kinds of categories which are (a) job contents; (b) skill levels and (c) payments to the workers.

With respect to job contents, it is proposed to categorize workers into 9 job types, as follows:

        (1) Main production (workers);

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[6] The function forms of the regressions are as follow:

%female= $\alpha0 + \alpha1\ D_{Danang} + \alpha3\ D_{Textile/garment} + \alpha4\ D_{Shoes} + \alpha5\ D_{SOE} + \alpha6\ D_{FDI/joint-venture}$ and

%migrant= $\alpha0 + \alpha1\ D_{Danang} + \alpha3\ D_{Textile/garment} + \alpha4\ D_{Shoes} + \alpha5\ D_{SOE} + \alpha6\ D_{FDI/joint-venture}$, in which percentages of female workers and migrant workers are the two respective dependent variables, D_is are all dummies representing for location/province (1 dummy), sector/industry (2 dummies) and ownership (2 dummies) as stated above.

The estimated results for these two equations (across firms) are:

%female = $0.69 + 0.10D_{Danang} - 0.54D_{Textile/garmens} + 0.03D_{Shoes} - 0.005D_{SOE} - 0.05D_{FDI}$ and

%migrant = $0.25 - 0.20D_{Danang} + 0.09D_{Textile/garmens} + 0.17D_{Shoes} - 0.03D_{SOE} - 0.06D_{FDI}$

(2) Product completion (e.g: product completion workers, ironing workers, printing and decorating workers and those in the end of production chain);

(3) Production preparation (e.g: brick producers, material workers etc…);

(4) Maintenance and support;

(5) Quality control and technicians;

(6) Accountants, cashiers and store keepers;

(7) Marketing and planning staff;

(8) Administrative staff (e.g: secretaries, clerks, administrative staff etc…) and

(9) Guards, sanitary and other workers.

Table 4.7 and Table 4.8 present the structure of job types by industry and by location. The information was collected from representatives of firms (employers). With the above-stated classification on the job contents, it can be seen from the table 4.7 that in construction sector, in addition to the main production workers, marketing and planning staff and production preparation workers are two other major job types. In textile and garment sector, the second and the third largest job types (the first job type is, of course, always "main production" workers) are "maintenance and support workers" and "quality controllers and technicians" with each accounting for more than 11% of the sector total labour force. In shoe-making industry, the second largest job type is marketing and planning staff taking a considerable share of 32% of the sector labour force.

Table 4.8 performs job type structure by location. It can be seen from the table that there were not much job type difference between the firms in two provinces. The maintenance and support worker seems to possess a larger share in Da Nang (with 13.38%) compared to Binh Duong (with 8.24%). Based on the table, the proportion of marketing and planning staff in the investigated firms in Da Nang seems to be bigger as well. However, this findings may should be generated to the situation in Da Nang and Binh Duong in general as the sample may not be very representative and their structure in each province is also different.

Table 4.7 Job type structure by industry

Unit: %

Job type	Construction	Textile	Shoes	Total
(1)	28.86	41.83	44.00	36.09
(2)	2.01	9.15	4.00	5.50
(3)	9.40	3.92	0.00	6.12
(4)	12.08	11.11	0.00	10.70
(5)	3.36	11.11	4.00	7.03
(6)	6.04	3.92	4.00	4.89
(7)	21.48	9.15	32.00	16.51
(8)	10.74	6.54	0.00	7.95

(9)	6.04	3.27	12.00	5.20
Total	100.00	100.00	100.00	100.00

Source: Estimated from employer survey

Table 4.8. Job type structure by location

Unit: %

Job type	Danang	Binhduong	Total
(1)	36.94	35.29	36.09
(2)	6.37	4.71	5.50
(3)	5.10	7.06	6.12
(4)	13.38	8.24	10.70
(5)	5.73	8.24	7.03
(6)	4.46	5.29	4.89
(7)	19.11	14.12	16.51
(8)	6.37	9.41	7.95
(9)	2.55	7.65	5.20
Total	100.00	100.00	100.00

Source: Estimated from employer survey

From skill level perspectives [7], textile sector seems to have the largest proportion of professional staff with 36.10% while this figure for shoes sector is just 6.52% (Table 4.9). In this sector, unskilled labors account also for the largest share of workers (58.03%). Among locations, Binh Duong has more proportion of unskilled workers accounting for 47.43% of the total workers and less professional staff. The distribution of labors by skill is relatively even among sexes in both province as shown in Table 4.10. All these results are derived from employers' information during the fieldwork survey.

Table 4.9 Classification on skill levels by sectors

Skill levels	**Construction**	**Textile**	**Shoes**
Unskilled	39.63	28.52	58.03
Skilled	36.08	35.38	35.45
Professional	24.29	36.10	6.52
Total	100.00	100.00	100.00

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[7] As there is no direct information on the skill levels, the proxies for unskilled, skilled and professional workers are (1) primary and lower secondary educated; (2) upper secondary school educated and (3) vocational/technical training and higher educated graduates respectively.

Source: Estimated from employer survey

Table 4.10 Classification on skill levels by location

Skill levels	Locations	
	Da Nang	**Binh Duong**
Unskilled	33.79	47.43
Skilled	32.91	41.75
Professional	33.30	10.83
Total	100.00	100.00

Source: Estimated from employer survey

In terms of payments, workers are categorized by 4 levels with monthly payment of less than VND (Vietnamese dong) 500,000, VND 500,000-1,000,000, over 1 million to 1.5 million and above VND 1.5 million. The information provided by employers of interviewed enterprises in both Da Nang and Binh Duong is summarized in Table 4.11.

Table 4.11 Salary scales by industries

Unit: VND 1000/month

Salary	Construction	Textile	Shoes	Total
(a) Less than 500	0.00	1.25	0.00	0.54
(b) From 500-1000	22.92	70.00	10.00	42.47
(c) From 1000-1500	38.54	16.25	50.00	29.57
(d) More than 1500	38.54	12.50	40.00	27.42
Total	100.00	100.00	100.00	100.00

Source: Estimated from employer survey

It is clearly observed from the table that the major share of workers receive a pay in the range of VND 500,000-1,000,000 accounting for 42.47% of the total employees. Among industries, textile and garment industry seems to have the lowest level of payments for workers with 70% of the workers in the salary range (b) (and even 1.25% of workers received less than VND 500,000 per month). It is not the case of construction and shoes sectors where the highest share of workers is paid in the range of VND 1-1.5 million. In this two sectors, even almost 40% of workers received more than VND 1.5 million which is relatively high compared to that of textile and garment industry.

IV.2 Job characteristics

A number of job characteristics has been investigated during the survey. In this section, only main job characteristics are analysed to give a broad view of the job types in the surveyed firms. The analysis is also taken for three main job types (Job types (1), (2) and (3)) with respect to both views of employers and employees (interviewed workers). The results for the other job types are provided in the appendices.

Workers' pay

The most important characteristics observed here is the monthly payment/income of workers, including the salary as well as all other allowances. The average monthly incomes of the workers in the Da Nang and Binh Duong are provided in the Table 4.12

Table 4.12: Average monthly income of workers in Da Nang and Binh Duong by industries

Unit: VND 1000

Province	Construction		Textile and garments		Shoes	
	Employer view	Worker response	Employer view	Worker response	Employer view	Worker response
Da Nang	1208	1339	778	760	796	793
Binh Duong	1572	2093	1071	1200	1776	1001

Source: Estimated from employer and worker surveys

It can be seen from the table that in general, the monthly incomes in Da nang seem to be lower in Binh duong in all industries both in terms of employer and worker views. Workers in textile/garment and shoe-making sectors have lower pay compared to their counterparts in civil construction sector. Basically, there is no large difference in the information provided by the employers and workers in textile and garment sector (in both Da Nang and Binh Duong), in shoes sector as well as construction sector in Da Nang. There is some difference though in shoes and construction sector in Binh Duong. The difference in the results, on the one hand, reflects the difference in the views of these two types of respondents, but may arise also from sample differences. Despite, some insights can be drawn from the results. The average level of income in textile sector seems to be low especially in Da Nang province with just VND 778,000/month (based on employer view) and VND 760,000/month. The worker income in shoes industry is also almost the same in textile sector in Da Nang, however, the corresponding figures for workers in Binh Duong are substantially better. Among three sectors, construction workers have received higher income compared to those in the two other sectors.

Across job types, the weighted average monthly incomes of workers from the employer views are presented in Table 4.13. The comparisons were made by industries give clearer picture of workers' payment.

Table 4.13: Weighted average monthly income of workers by industries from the employer view

Job type	Construction	Textile	Shoes
(1)	1.045	876	1.077
(2)	1.000	774	1.100
(3)	1.370	762	
(4)	930	968	

(5)	1.650	721	3.800
(6)	1.209	981	1.600
(7)	1.471	1.384	1.843
(8)	1.288	1.640	
(9)	1.583	859	1.293

Source: Estimated from employer survey and weighted by number of workers of various job types.

The income of "main production" workers (job type 1) of textile industry is the lowest with just 876.000 VND per month and there exists a gap to the other two sectors. The "product completion" workers in textile industry earned even less with 774.000 VND per month, while their counterparts in shoe-making and civil construction sectors were paid about 30% higher with VND 1-1.1 million.

Table 4.14 showed the difference in views of employers and their workers in terms of payment for some main workers' job types. The income of workers from the viewpoints of employers in textile/garments and shoe-making sectors is often higher than their workers' responses. However, the difference is not large. Significant difference was seen in construction sector for "main production" and "product completion" workers. Surprisingly, workers (in comparison with their employers) provided higher figures of payment for these two job types in the sector, but also significant lower (more than 30%) figure for "production preparation" workers. In this case, the construction workers give an average payment of VND 1.016 million while the employers estimated a level of VND 1.319 million.

Table 4.14: Weighted average monthly incomes (mean) of workers of selected job types by sectors

Unit: VND 1000,

Job type	Construction		Textile and garments		Shoes	
	Employer view	Worker response	Employer view	Worker response	Employer view	Worker response
(1)	1045	1567	876	756	1077	1003
(2)	1000	1626	774	821	1100	875
(3)	1370	1016	762	725	-	-

Source: Estimated from employer and worker survey

It may be interesting to look at median income of the workers. Table 4.15 showed the median worker incomes across job types. Once again, it confirms the statement made above that income of textile sector is the lowest across almost all job types. The income of the median worker in this sector was just VND 700.000 per month. However, the gap in job type 6, for example, (accountants, cashiers and store keepers) may not be that much. The situation for the view difference between employers and workers is also confirmed with the fact that workers assumed higher payment compared to their

employers in construction sector for "main production" and "product completion" workers (job types 1 and 2). A significant gap is also shown for the case of shoe-making sector. However, this time employers assumed higher (35-40%) payments for job types 1 and 2.

Table 4.15. Median incomes across job types by sectors

<div align="right">Unit: VND 1000</div>

Job type	Employer view			Worker view		
	Construction	Textile	Shoes	Construction	Textile	Shoes
(1)	820	800	1.200	1.200	700	900
(2)	1.000	730	1.100	1.500	693	800
(3)	1.300	760		1.000	625	
(4)	750	990		6.000	1.264	
(5)	2.000	702	3.800	1.500	795	1.000
(6)	1.000	1.100	1.600	1.500	1.000	
(7)	1.500	1.500	1.600	2.000	1.000	1.200
(8)	1.350	1.500		1.600		700
(9)	1.758	860	1.400	3.200		900

Source: Estimated from employer and worker survey

A graphical demonstration for the difference in views of employers and workers on average income of main production workers is shown in Figure 4.1.

Fig. 4.1: Average monthly income of main production workers by sector
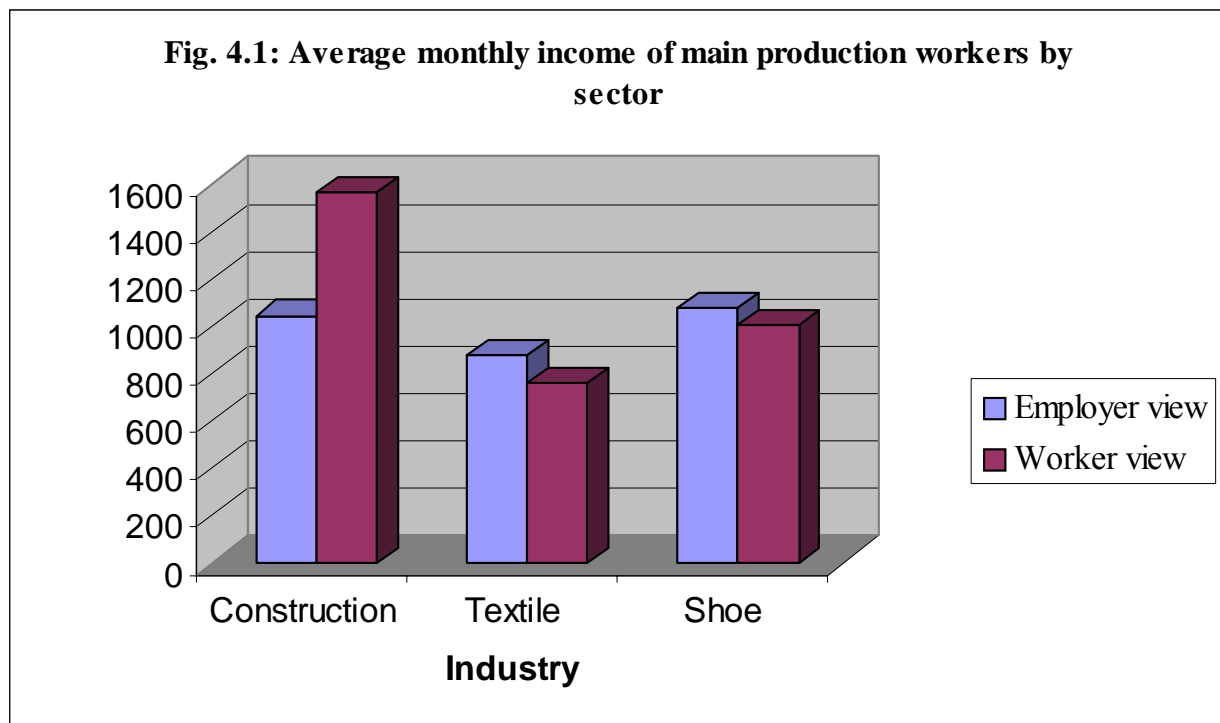
Source: Employer and worker surveys

By ownership, the view of both types of respondents is presented in Table 4.16. It is surprising that in the state-owned sector, workers provided quite different information on the income level compared to those of the employers, while this difference is not so much in the private and FDI/Joint-venture sectors.

Table 4.16: Monthly incomes of workers by job types and ownership

Job type	State-owned		Private-owned		FDI/Joint-ventures	
	Employer view	Worker response	Employer view	Worker response	Employer view	Worker response
(1)	1006	1609	1067	974	882	910
(2)	860	1500	800	1012	798	891
(3)	1300	1200	1279	900	876	1200

Source: Employer and worker surveys

It is surprising that the income in the state-owned sector is a bit higher than those of the other two sectors. For the main production workers, for example, the monthly income was just about VND 900,000 in foreign invested sector, while the figures for private and state-owned sectors were around VND 1 million and more than VND 1 million respectively. The reason for this may be that in the state-owned sector, workers can still receive some other benefits in addition to their salary.

The wage/income of workers also depend on the skill levels. It is expected that higher skilled workers receive higher pays although extent to which different skilled workers are paid is also dependent on the industries and locations as well. The detail survey results on this information is given in Table 4.17 There are clear differences in pay in construction sector among skill levels, while it is not the case in shoes sector. In textile sector, professionals have significant higher pay (with VND 1.247 million) compared to the skilled and unskilled workers. Across provinces, the workers with the same skill level in Binh Duong receive substantial higher pay compared to their counterparts in Da Nang. For example, unskilled workers in Binh Duong are paid about 1.5 times of the same type of workers in Da Nang.

Table 4.17: Monthly incomes of workers by skill across sector and location

	Sector			Locations	
	Construction	Textile	Shoes	Da nang	Binh duong
Professional	1288	1247	937	1259	2667
Skilled	1132	787	904	1100	1393
Unskilled	1057	652	922	815	1243

Source: Worker survey

During the survey, other characteristics such as number of working hours per week, overtime working hours per week, the chance to move to a better job, whether or not to have salary negotiation etc… Selected characteristics are dealt with in the following.

With respect to number of working hours per week, the information is gathered in Table 4.18. by three main job types of the investigated industries. The responses from workers are often higher than that of employers. Especially in textile and garment sector, workers in job types (1) and (3) have a significant higher figures with 53.7 hours and 58 hours per week than responses of their employers. The differences in the answers were 4.5 hours and 9 hours respectively. In the construction sector, there was not much difference in the answers. The information in shoes industry is somehow blur for the second job type. The answer of 60 hours working hours per week seems to fit with the reality.

Table 4.18: Number of working hours per week by job types and sectors

Unit: hours

Job types	Construction		Textile and garments		Shoes	
	Employer view	Worker response	Employer view	Worker response	Employer view	Worker response
(1)	48.4	51.1	49.1	53.7	54.1	53.2
(2)	49.3	49.6	45.5	49.0	60.0	51.7
(3)	50.7	52.3	49.4	58.0		

Source: Worker survey

Another characteristic which is related to the indicator of number of working hours is the overtime working hours per week. The information is presented in Table 4.19. In general, workers have to work on average from 8-9 hours per week according to workers' view and from 7-8 hours per week in the view of employers. The difference in the answers presents in job type (1) ("main production workers") and (3) for construction sector. It is also the case for all three main job types of textile and garment industry and job (1) and (2) of shoes industry.

Table 4.19: Over-time working hours per week by job types and sectors

Unit: hours

Indicators	Construction		Textile and garments		Shoes	
	Employer view	Worker response	Employer view	Worker response	Employer view	Worker response
(1)	6.8	9.2	7.4	9.7	7.2	10.0
(2)	7.3	7.0	7.6	11.4	5.0	7.5
(3)	4.3	9.6	9.3	12.0		

Source: Worker survey

Two other interesting characteristics of jobs are "chance to move to a better job" and "whether to have salary negotiation". The derived results on the issues are presented in Table 4.20.

For the chance to move to a better intra-firm job, employers often estimate substantial higher chance compared to the view of their workers. In general, the chance from the view points of workers is low. For the main production job type, workers in shoes sector don't think they have high chance to move to a better job. The corresponding proportion for textile and construction sectors are 1.92% and 16.67% respectively.

For the answer for the question "Did you negotiate with the firm on the salary/payment?", the views of employers and their workers are quite different. Employers suppose that their workers actually negotiated on the salary, while the workers responses were almost opposite. The situation is most contrast in shoes sector (100% of the employers said "yes" but almost all workers interviewed answered "No".). In construction industry only about half of the workers said that they did negotiate with their employers, however, the 97%-100% of employers assumed there have been negotiations on the salary/payment to their workers.

Table 4.20: Evaluation on the chance to move to better jobs and whether to have wage negotiation

Unit: a) Percentage of "high chance" answers; b) percentage of "yes" answers

Indicators	Construction		Textile and garments		Shoes	
	Employer view	Worker response	Employer view	Worker response	Employer view	Worker response
a) *Move to better jobs* Job type (1)	31.5	16.6	16.9	1.9	0.0	0.0
- (2)	33.3	20.0	18.1	18.7	-	0.0
- (3)	25.0	8.1	25.0	0.0	-	0.0
b) *Salary negotiation?* Job type (1)						
- (2)						

- (3)	97.6	47.7	77.7	53.3	100.0	5.2
	100.0	40.0	78.5	93.7	100.0	0.0
	100.0	54.0	83.3	100.0	100.0	0.0

Source: Worker survey

IV.3 Correlation among job characteristics

Job characteristics may correlate to each other as one job may contents both good and bad characteristics. Furthermore, one may compromise to work in a specific job judging or compensating differentials among good or bad jobs. It is therefore rational to make correlation matrices among job characteristics to see a possible relationship among them as well as the extent of their relationship. First, *the main production job type is examined to see the possible correlation among job characteristics*. It is rational as the job type includes the largest number of workers. Consequently, different job types by industry are also examined in this relationship.

In the following tables (Table 4.21, 4.22, and 4.23), correlation matrices were constructed based on the ownership of the surveyed firms. The information was provided by the employers of the firms.

The state-owned sector, the wage/pay to the workers was positively correlated to their overtime working hours, promotion potential and possibility to move to a better job. The correlation between the wage and promotion potential and potential to move to a better job are quite high in the state-owned sector. It is also the case with the correlation between promotion potential and the possibility to move to a better job of the workers.

Table 4.21: Correlation matrix of selected job characteristics of state-owned sector

	Wage	Working hrs	overtime hrs	promotion	better job
Wage	1				
Working hrs	.	1			
overtime hrs	0.076	.	1		
promotion	0.252	.	0.294	1	
better job	0.368	.	0.272	0.563	1

Source: Estimated from employer survey

In the private sector, wage was strongly correlated to the number of working hours as shown in Table 4.22 with the correlation coefficient of 0.47. The "overtime hours" variable was also positively correlated to the payment but the relationship seems to be not very strong. This may be because the proportion of overtime hours of private workers is small compared to the total number of working hours that the workers in this sector really had. According to the estimated results, wage seems to be negatively correlated to the

promotion potential of the workers in the private sector. However, this relationship is weak and thus in reality, it may not be very significant.

Table 4.22: Correlation matrix of selected job characteristics of private sector

	Wage	Working hrs	overtime hrs	promotion	better job
Wage	1				
Working hrs	0.470	1			
overtime hrs	0.163	-0.048	1		
promotion	-0.186	-0.049	0.095	1	
better job	-0.298	0.071	0.036	0.686	1

Source: Estimated from employer survey

In the FDI/Joint-venture sector, wage was again positively correlated to the number of working hours and promotion chance of the workers with correlation coefficients of 0.596 and 0.193 respectively. The correlation relationship between promotion potential and the possibility for the workers to move to a better job is also positive and relatively strong with the value of coefficient of 0.449.

Table 4.23: Correlation matrix of selected job characteristics of FDI/Joint-venture sector

	Wage	Working hrs	overtime hrs	promotion	better job
Wage	1				
Working hrs	0.596	1			
overtime hrs	-0.211	-0.252	1		
promotion	0.193	0.207	-0.121	1	
better job	-0.394	0.462	-0.226	0.449	1

Source: Estimated from employer survey

Taking the view of the workers, Table 4.24 shows that the monthly income of construction workers was positively correlated to the number of working hours, the stability and safety of the job. However, the strengths of the relationships were small except the case of safety of the work. This may show the importance of safety characteristic in construction industry from the viewpoint of the workers.

Table 4.24: Correlation matrix of selected job characteristics of construction sector from workers' view

	Income	Working hrs	overtime hrs	Stability	Safety
Income	1				
Working hrs	0.077	1			
overtime hrs	-0.086	0.402	1		
Stability	0.198	0.193	-0.064	1	
Safety	0.335	0.211	0.233	0.065	1

Source: Estimated from worker survey

In textile and garment sector and from the workers' point of views, their monthly income was slightly correlated to the number of overtime working hours. It may be interpreted that the rate of overtime working hours in this sector is not very high. The correlation between the monthly income and number of working hours was somehow stronger and positive with a coefficient of 0.202. The stability was also similarly correlated to the income. The correlation relationship between monthly income variable and the work safety in this case is not very clear with a coefficient that has a very small absolute value of 0.032.

Table 4.25: Correlation matrix of selected job characteristics of textile sector from workers' view

	Income	Working hrs	overtime hrs	Stability	Safety
Income	1				
Working hrs	0.202	1			
overtime hrs	0.112	0.230	1		
Stability	0.260	0.344	0.061	1	
Safety	-0.032	0.033	0.117	-0.022	1

Source: Estimated from worker survey

The correlation between income and other job characteristics across selected job types is presented in Table 4.26. It is shown that in construction sector the monthly income seems to have positive relationship to number of working hours in job (1) but have negative correlation with job type (3) and (4). Having insurance is negatively related to income (correlation coefficient is equal to -0.11) in job type (1) but the relationship is positive in job type (3). In textile and garment sector, the nature of relationship (whether positive or negative) is different among job types. In other words, the theory of

compensating differentials may not be true in these cases and there are 'good jobs' (high pay with good non-pay benefits) and 'bad jobs (low pay with poor non-wage benefits).

Table 4.26: Correlation between income and other job characteristics across selected job types

Job characteristics	Job type in construction sector			Job types in textile/garment sector			
	(1)	(3)	(9)	(1)	(2)	(3)	(8)
Working hrs	0.1	-0.54	-0.9	-0.18	0.27	-0.68	0.73
overtime hrs	-0.25	-0.39	0.72	0.17	-0.17	0.8	-0.22
Stability	0.06	-0.47	-	-0.45	0.09	-	-
Insurance	-0.11	0.44	-	0.46	0.42	-	0.57

Source : Estimated from worker survey

V. Job/Occupational Segregation

V.1 Index of Dissimilarity

It is perhaps useful first to look at the first sign of labour market segmentation which is the distribution of females/males, migrants/natives across job types. This is presented in Table 4.27 and 4.28.

Table 4.27 Classification on job contents for construction sector

Job types	Male	Female	Non-migrants	migrants
(1)	84.16	15.84	76.35	23.65
(2)	100.00	0.00		
(3)	83.43	16.57	77.32	22.68
(4)	86.30	13.70	93.93	6.07
(5)	88.00	12.00	71.43	28.57
(6)	44.44	55.56	92.59	7.41
(7)	73.95	26.05	93.23	6.77
(8)	81.25	18.75	84.56	15.44
(9)	60.85	39.15	89.39	10.61

Source: Estimated from employer survey

Table 4.28 Classification on job contents for textile and garment sector

Job types	Male	Female	Non-migrants	Migrants
(1)	14.40	85.60	62.51	37.49
(2)	19.93	80.07	59.35	40.65
(3)	23.79	76.21	52.69	47.31
(4)	17.54	82.46	73.93	26.07
(5)	3.67	96.33	73.96	26.04
(6)	62.99	37.01	87.40	12.60
(7)	52.88	47.12	90.94	9.06
(8)	41.30	58.70	62.10	37.90
(9)	44.68	55.32	53.93	46.07

Source: Estimated from employer survey

As seen from Table 4.27, male and non-migrant workers dominate in comparison with female and migrant workers respectively in civil construction. This is true for all job types in the sector. For "main production" workers for example, males account for 84.16% and non-migrants took up 76.35%. The situation in textile and garment sector is somehow opposite in terms of gender. Female workers here account for the major share of the labour force especially for "main production" workers and those in job types 2-5. Only job type 6 is exceptional with more male workers taking up 62.99% of all workers in that job type. It is more balanced in textile/garment sector compared to civil construction in terms of residence status of the workers. The proportion of migrant workers in this sector for major job types is considerable. Migrant worker share in "main production" section is 37.49% and the corresponding figures for "product completion" and "production preparation" workers are 40.65% and 47.31% respectively.

Secondly, to see whether the labor market is segmented, the Index of Dissimilarity (ID) is used. This index measures the level of occupational segregation among market segments as described in Ducan and Ducan (1955). The formula for ID measuring occupational segregation by sex is as follows (summation over all occupations (or job types)):

$$ID_g = \tfrac{1}{2} \sum \left| F_i/F - M_i/M \right| \qquad (4.1)$$

where IDg is the index by gender, F_i/F is the proportion between the number of females in occupation i and the total females, M_i/M is the proportion between the number of males in occupation i and the total males. The index has a minimum value of 0 when males and females are equal in each occupation, and a maximum value of 1 when each occupation is completely female or completely male. In the earlier case, no segregation is held and in the latter case, complete segregation is present. It is worth noting that this index can also be used to measure other types of segregation. More generally, the index is utilized as well in various types of inequality analyses.

Similarly, segregation by residence status is also tested in this analysis. Similar to formulas (1), the index of dissimilarity by residence status is as follows[8]:

$$ID_{st} = \tfrac{1}{2} \sum \left| N_{non\text{-}mi}/N - M_{mi}/M \right| \qquad (4.2)$$

The information from 47 employers on their employees is used to estimate these indexes of dissimilarity. The indexes were first estimated for each firm, then they were estimated for each of the three investigated industries. The resulted IDs for the firms are demonstrated in Figure 4.2. The index values are given in the appendices. The estimated indexes at the industry level are presented in Table 4.29.

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[8] IDst = Index of Dissimilarity on residence status segregation, $N_{non\text{-}mi}$ is the number of non-migrants, N_{mi} is the number of migrants; ID_{own} = Index of Dissimilarity on ownership segregation, L_s is the number of workers in the state sector and $H_{non\text{-}s}$ is the number of workers in the non-state sector etc...

Fig. 4.2 Indexes of dissimilarity of firms by gender and residence status
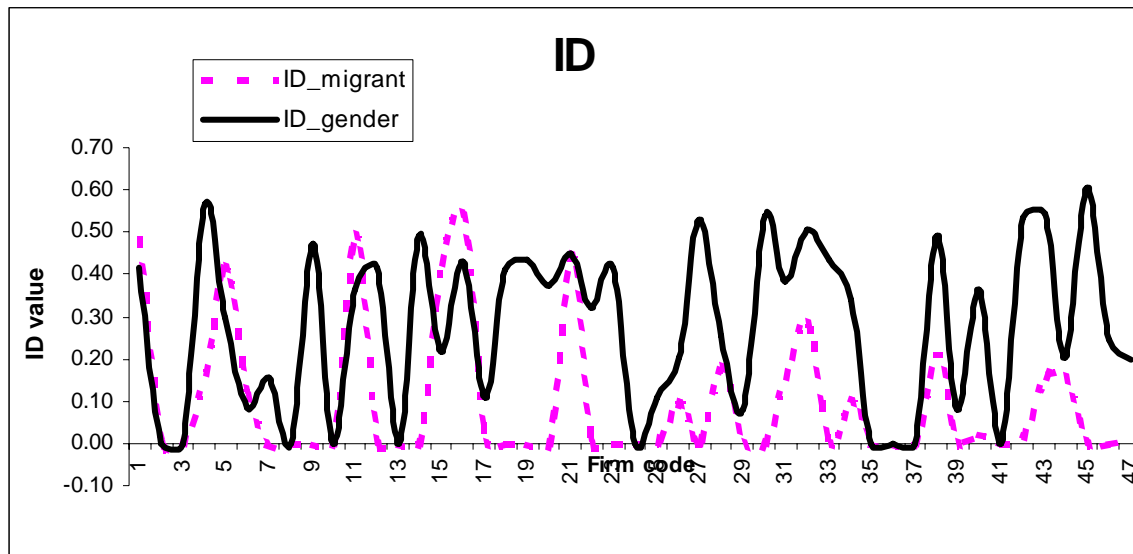
Source: Estimated and demonstrated from employer survey.

Table 4.29: Segregation degrees (Indexes of dissimilarity) at industry level by gender and residence status

Sector	Segregation by sex	Segregation by residence status
Construction	0.14	0.20
Textile and garments	0.16	0.15
Shoes	0.07	0.002
All three industries	*0.17*	*0.10*

Source: Estimated and demonstrated from employer survey.

It can be seen from the figure and the table that jobs are highly unevenly distributed within individual firms are more equally distributed within the industry. There are some firms with almost no segregation by sex (firms No. 2,3,8,10, 13) and some other with almost no segregation by residence status (e.g firms No. 2,3,7,8,9 …), while significant segregation were witnessed in many other firms. Firms 1, 16, 21 possess both kinds of index high. In other words, the levels of segregation in terms of both gender and residence status in these firms are high. In contrast, the segregation degree at industry level is more modest as firms are compensated for each other.

The estimated ID_gs are relatively small with the highest figure (0.16356) in textile and garment sector. It means that in this industry there is higher level of segregation among females and males. In the shoes industry the index is very low meaning that in this industry there is almost no occupational segregation by sex. Construction industry is something in between in this sense.

The resulted ID_{st} in construction is the highest (with 0.20392) showing that in this production sector there is a relatively clear occupational segregation by residence status (between non-migrant labors and migrant labors). It is once again not the case in shoes industry while in the textile and garment sector the segregation is present at a modest level (ID_{st} = 0.1522).

In general, the segregation by sex is somewhat higher than that by residence status.

V.2 Graphical presentation of segregation (Lorenz curves) and GINI coefficients

In terms of migrant distribution among firms, the Lorenz curve can present the level of this inequality and presented in Figure 1 and Figure 2. Given the fact that firms vary in size and thus their number of migrant can also vary with sizes. It is therefore more appropriate to compare the *percentage* of migrants of different firms and to check whether this percentage is unequally distributed across firms. The Lorenz curve serves for this purpose and is presented in Figure 4.3. The curves are not close to 45-degree lines, therefore, it can be said that the distribution of migrants among firm is not equal. This is true for both state-owned and non-state owned, however, the distribution of non-state owned sector is even more unequal across firms. Figure 4.4 showed the level of unequal distribution in terms of percentage of migrant workers across all firms.

Figure 4.3: Lorenz curve for percentage of migrant workers across firms in two ownership sectors
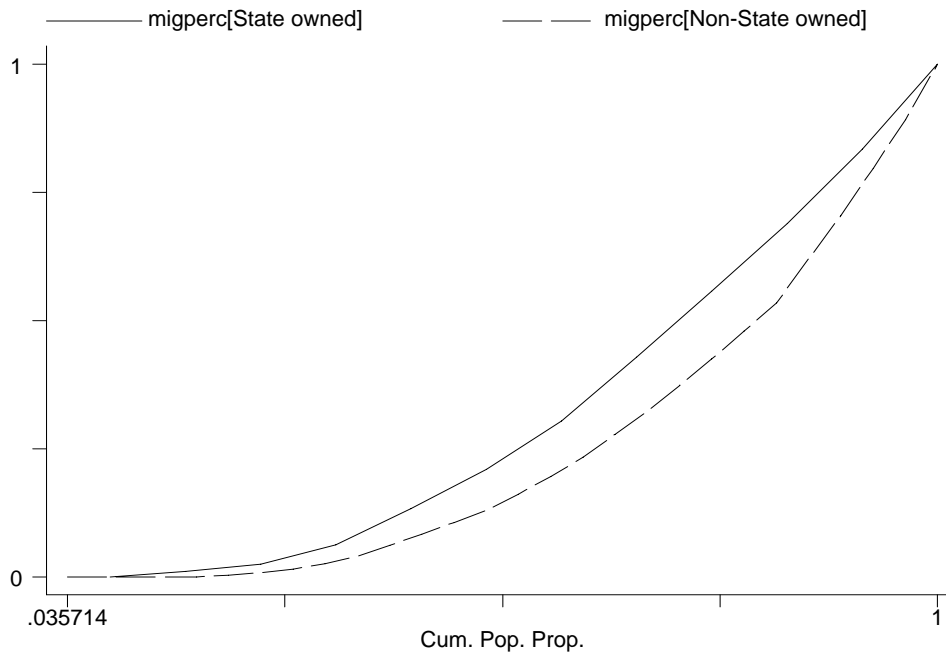
Figure 4.4: Lorenz curve for percentage of migrant workers across all firms
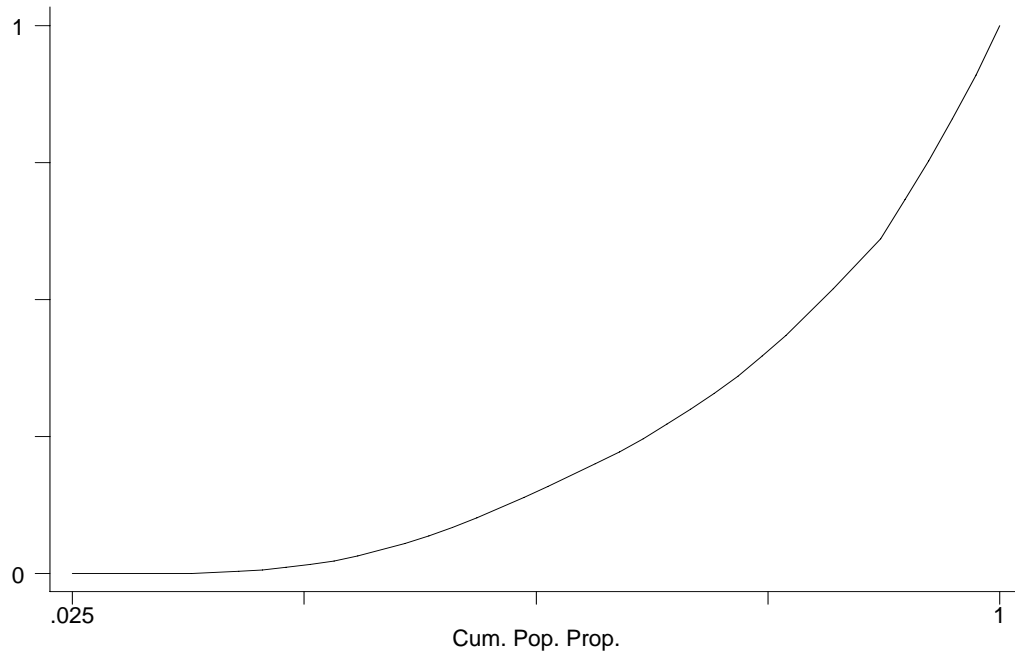
Source: Estimated and demonstrated from employer survey (for both Fig. 4.3 & 4.4)

Another inequality measuring coefficient is Gini index. The distribution of monthly payment of surveyed workers is given in Table 4.30.

Table 4.30: Gini coefficients of monthly payments to workers

	Construction	**Textile**	**Shoes**	**All 3 sectors**
Both sexes	0.21	0.30	0.14	0.26
Male	0.20	0.36	0.19	0.25
Female	0.21	0.22	0.07	0.24

Source: Estimated from worker survey

The coefficients show that the level of inequality in terms of monthly payments to workers in textile and garment industry seems to be larger than those of the other two sectors. The Gini indexes of this sector are 0.30, 0.36 and 0.22 for all, male and female groups respectively. In shoes sector the wage differences seem to be minor within each of male, female as well as all workers groups. The corresponding Gini coefficients of these groups are smallest with 0.19, 0.07 and 0.14. Especially, in the female shoes worker group, the payments have relatively equal distribution. Overall, income distribution is somehow unequal among groups (Gini indexes for all three sectors as a whole are 0.26), however, the extent of inequality is not large.

Graphically, income inequality by various categories is presented in the following figures:

Figure 4.5: Lorenz curves for female and male workers
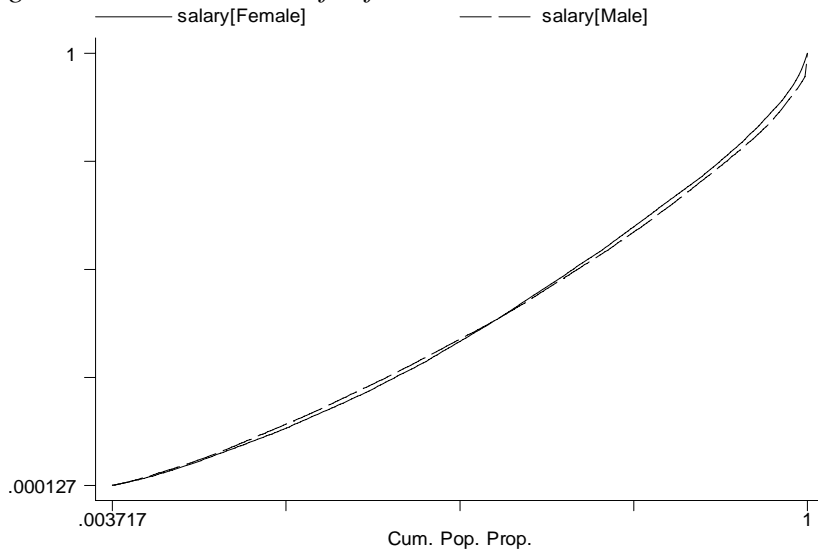
Figure 4.6: Lorenz curve for all workers
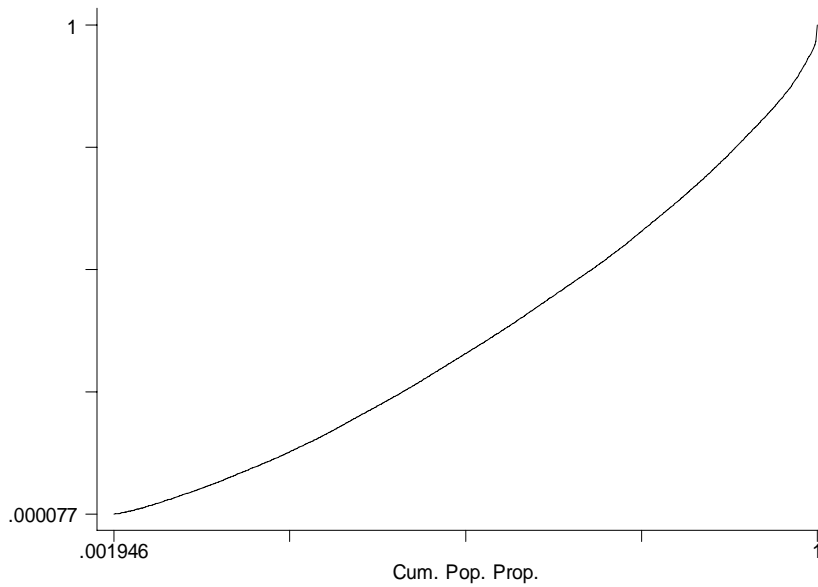
Figure 4.7: Lorenz curves by industries

construction
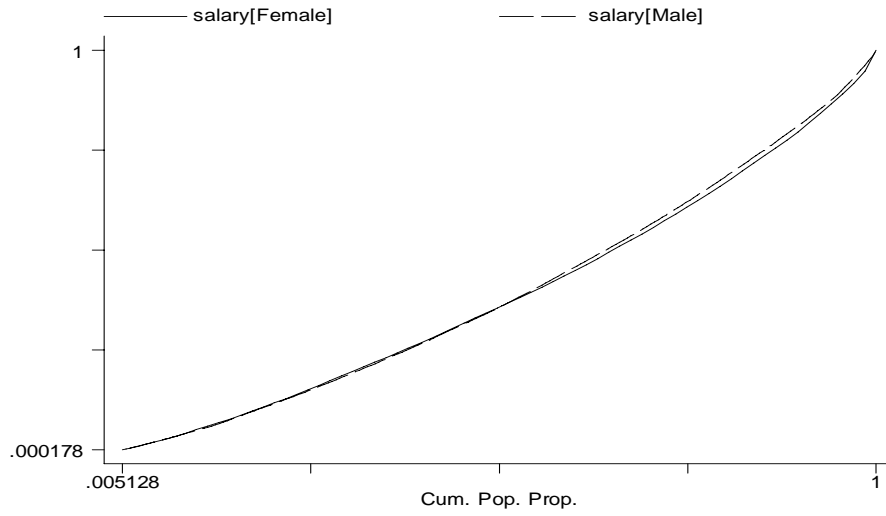
Textile
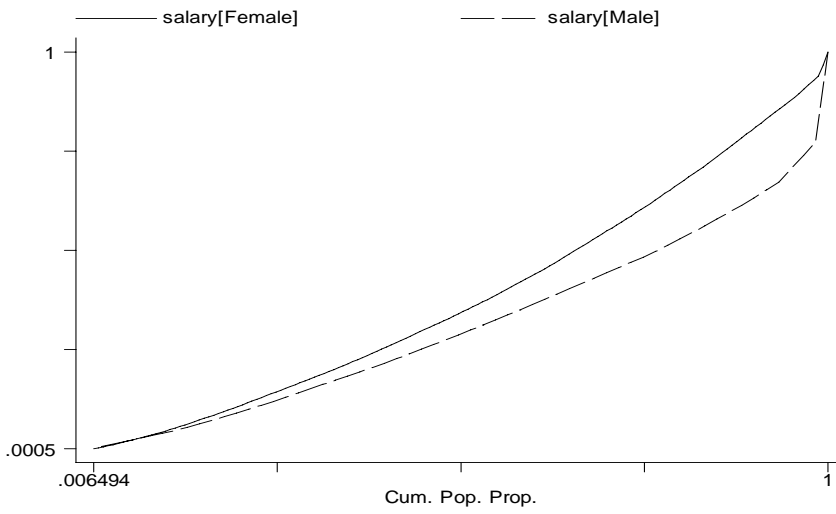
Shoes
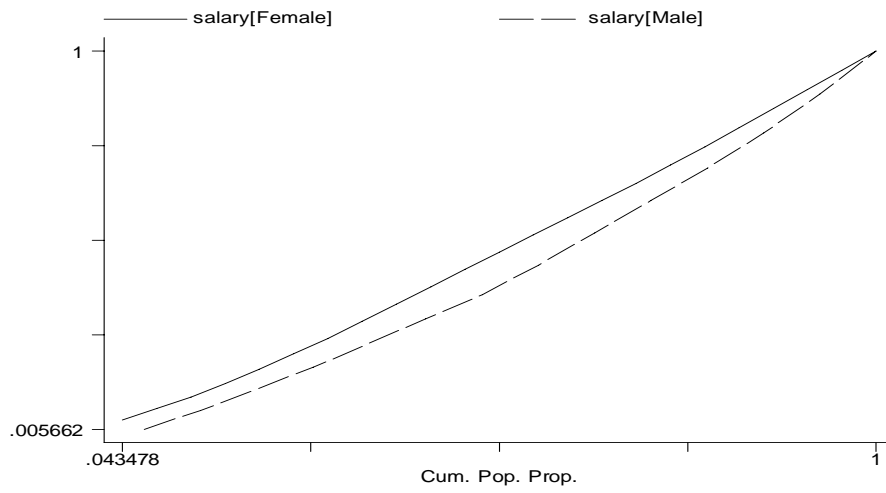
Figure 4.8: Lorenz curves by ownership and residence status
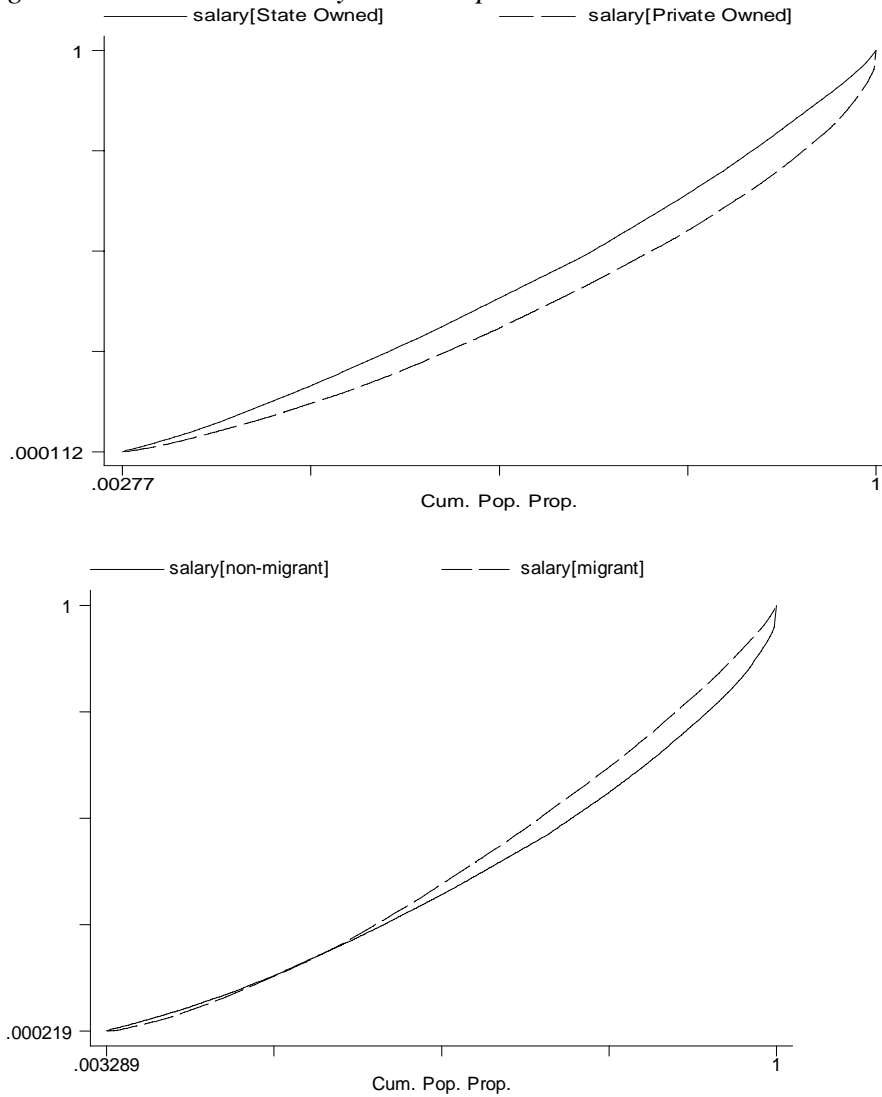
It can be seen from figure 4.5 that the income distribution among female and male workers is relatively equal. The corresponding Lorenz curves are quite close to 45-degree lines and the two Lorenz curves are almost identical. It means that there is not much difference in income distribution among men and women workers.

Sector-wide and as shown in Figure 4.7, the situation is similar in construction industry with small income inequality. However, income distribution seems to be larger in textile and garment industry with more inequality in male worker group. The distribution is also more unequal within private sector and non-migrant groups. These are all evidences of labour segmentation.

V.3 Determinants of job segregation

The major issue in searching for determinants of job segregation in this section is to answer the question: Is segmentation based on human capital differences or on other factors?. The multinomial logit model is used to estimate the job segregation effects of

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human capital (education, age…) and possible segment factors (gender, resident status, ownership). In nature, this is a multi-equation model. The dependent variable in this model is job type which receives different categorical values (from 1 to 9 corresponding to the job type number). As the estimated results are too long to put it in the text, only main results are given in the analysis here, other results are provided in the appendix.

As the job of "main production workers" is used as a comparison group (baseline category), the results are presented for the next job types. Table 4.31 shows the model results for job attainment probability and the model is run for all workers.

It is shown from the table that for job type (2) gender, education residence status, ownership and location are main factors affecting attainment probability of this job type. More exactly, the odds of handling job (2) instead of job (1) is mainly affected by these factors. Experience and age have also influence but at lesser extent.

Table 4.31: Multinomial logit regression results of job attainment using "main production" job as baseline category

Variables	Job (2)		Job (3)		Job (4)	
	Coef.	SE	Coef.	SE	Coef.	SE
Sex	.250	.439	1.145	.444	21.644	3.782
Experience	.002	.005	-.014	.008	.009	.008
Age	.005	.033	.064	.023	-.067	.065
Education	.081	.267	-.226	.244	2.014	.528
Status	-.027	.455	.521	.448	-.302	.697
Ownershipd1[9]	-2.291	.838	-2.739	1.109	-.820	1.010
Ownershipd2[10]	-1.334	.480	-.522	.466	.339	.704
Province	.196	.475	-.123	.429	2.490	.956
Constant	-1.961	1.917	-3.166	1.680	-34.158	

Variables	Job (5)		Job (6)		Job (7)	
	Coef.	SE	Coef.	SE	Coef.	SE
Sex	.012	.345	-.527	.486	0.683	.395
Experience	.0007	.003	-.004	.005	.003	.003
Age	.038	.025	.082	.033	-.027	.028
Education	1.027	.223	2.629	.473	1.051	.245
Status	.160	.361	.337	.487	-.379	.421
Ownershipd1	.157	.497	1.048	.799	.292	.558
Ownershipd2	-.105	.446	1.248	.723	.239	.490
Province	.477	.390	1.209	.540	1.072	.431
Constant	-7.546	1.685	-18.598	2.923	-8.496	1.885

Variables	Job (8)		Job (9)	
	Coef.	SE	Coef.	SE
Sex	-.321	.457	-2.013	.768
Experience	.004	.003	.0004	.004
Age	.046	.036	.159	.039
Education	1.407	.352	-.296	.356
Status	-.520	.576	.422	.746
Ownershipd1	1.454	.744	1.977	1.187
Ownershipd2	-.079	.818	.633	1.168
Province	.754	.552	2.452	.785
Constant	-10.452	2.659	-14.092	3.384

Source: Estimated from worker survey.

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[9] Ownershipd1 is the dummy for state-owned sector

[10] Ownership2 is the dummy for private sector

The probability of handling job (3) ("production preparation workers") instead of job (1) is also mainly affected by gender, education, residence status, ownership and location. Otherwise, age variable seems to have more effects (coefficient=.064)compared to the odd of handling job (2) instead of job (1). Experience variable is less influential in this sense.

The factors and extents of effect can also be seen for other job types. However, *a general conclusion can be drawn from here is that the job segregation is not only affected by human capital factors such as education, age and experience, but also by other factors such as gender, residence status, ownership of the firm and even location (province) of workers' firms.*

To exclude all possible factors that may result in correlation bias to probability of job attainment, conditional logit models with fixed effects were estimated, for example, for the probability that a worker has a high skill job. The checks were conducted for two cases to see whether there is any segmentation for migrant workers or for female workers with respect to job types 4-8 (relative to the other job types). The results suggest that if this is the case then it would be for job types 7 and 8 (marketing and planning staff / administrative staff). If we combine these job types, then we find that the probability that a migrant has a job of type 7 or 8 relative to having any other job is twice as low as it is for any, otherwise similar, non-migrant worker (odds ratio of exp(-0.77)=0.46). Note that this is true even while we control for education and other human capital characteristics. No such segmentation is observed for female workers. The specific results are presented in the appendices.

Table 4.32: Conditional (fixed-effects) logistic regression for job type (7) and (8) as a whole (skilled jobs)

```
-------------------------------------------------------------------------
  highskill |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
------------+------------------------------------------------------------
        sex |  -.0155173   .3266651    -0.05   0.962    -.6557693    .6247346
 experience |   .0078424   .0032187     2.44   0.015     .0015338    .014151
        age |  -.0195456   .0256278    -0.76   0.446    -.0697752    .0306839
  education |   .6402344   .2261211     2.83   0.005     .1970451   1.083424
     status |  -.7709839   .4355436    -1.77   0.077    -1.624634    .082666
-------------------------------------------------------------------------
```
Source: Estimated from worker survey

VI. Job Mobility and Career Expectation

VI.1 Job mobility

In the survey, a number of questions were used to investigate the job mobility of the workers. The most direct question (question No-49 in the workers' questionnaire) is that "How many times have you changed your employers after leaving school?" However, the answer to the question depends much on the workers age as well as other factors such as the possibility that the workers would get a better job in the firm they are currently working in (information from question 31 in the workers' questionnaire). This is because they may stay with the firms if this possibility is high.

Another test for job mobility objective is to find the answer to the question: "If you lose a job, how long does it typically take to find a similar/better job?". This variable is

expected to depend on the age and their education levels. Based on the survey data, linear regressions were undertaken with the following scenarios: (1) All workers; (2) Female workers; (3) Male workers; (4) non-migrant workers; (5) Migrant workers (6) ownership. The results can be summarized as follows:

Table 4.33: Regression results of job mobility (a)

Variables	All workers		Female workers		Male workers	
	coef.	P>|t|	coef.	P>|t|	coef.	P>|t|
Intercept	0.57	0.707	-.88	0.384	1.67	0.534
Age1	-2.44	0.011	-1.76	0.006	-3.10	0.114
Age2	-1.96	0.029	-1.56	0.018	-2.08	0.159
Education	1.12	0.002	1.366	0.000	0.90	0.164

<u>Note</u>*:*

° *Dependent variable: "If you lose a job, how long does it typically take to find a similar/better job?";*

° *The age 1 is a dummy variable for the workers under 25, age2 is a dummy for those who are 25<=age<35.*

<u>Source:</u> Estimated from worker survey

It can be seen from the table 4.33 that the younger workers need less time to find jobs. (coefficients of two age dummies are negative and the absolute values of the coefficients of age1 (less than 25 years old) are larger than those of age2 variable). This is true for every case of all workers, female and male workers. Workers with higher education levels seem to have longer time to find jobs. It means that in both provinces, the demand for low skill workers is higher.

The regression results by resident status are presented in Table 4.34. For non-migrant workers, the younger once again need less time to find a similar job and higher educated non-migrant workers need more time in this sense compared to the lower educated ones. For migrant workers, those who are in between 25 and 35 years of age seem to have less time to find a similar job. This may be because they have more experience in finding jobs compared to younger migrants. The situation for higher educated migrant workers is the same as non-migrant workers.

Table 4.34: Regression results of job mobility (b)

Variables	Non-migrants		Migrants	
	coef.	P>|t|	coef.	P>|t|
Intercept	-2.56	0.853	2.17	0.457
Age1	-1.72	0.049	-4.08	0.046
Age2	-0.97	0.152	-4.14	0.052

Education	1.16	0.001	1.13	0.111

Source: Estimated from worker survey

The regression was also run for different locations namely Da Nang and Binh Duong. The estimated results are presented in Table 4.35.

Table 4.35 Regression results of job mobility (c)

Variables	Da nang		Binh duong	
	coef.	$P>|t|$	coef.	$P>|t|$
Intercept	-0.89	0.553	2.31	0.369
Age1	-1.14	0.201	-3.54	0.036
Age2	-0.73	0.359	-3.19	0.054
Education	1.38	0.000	0.756	0.245

Source: Estimated from worker survey

The results suggest that it is much harder for the old workers (or easier for young workers) in Binh duong to find a similar job in case they lose the current job. The coefficient for education variable of Binh duong is smaller than that of Da nang (0.756 compared to 1.38) and this shows that the gap in terms of time to find job between higher educated workers and the lower ones in Binh Duong is smaller.

VI.2 Career Expectation

VI.2.1 Stability of workers and chance for promotion

During the survey, the information on the career expectation of workers was collected also in both perspectives: from the employers as well as from workers views.

On the question: "Do you think migrant workers are less stable than non-migrant workers?"(Question 16 of the employers' questionnaire), the answers of representatives/employers from 47 surveyed firms can be summarized in Table 4.36. The question is used to test the expectation of employers on their workers.

Table 4.36. *Answer to the question: "Do you think migrant workers are less stable than non-migrant workers?"*

Industry	Answer: The same		Answer: Less stable		Total	
	Number	%	Number	%	Number	%
Construction	16	64.00	9	36.00	25	100.00
Textile	7	36.84	12	63.16	19	100.00
Shoes	1	33.33	2	66.67	3	100.00

Total	24	51.06	23	48.94	47	100.00

Source: Estimated from employer survey.

Generally, the stability of workers (in terms of staying in the jobs they are working) depends on the characteristics of their work and thus should depend on the industries in which they are working. The answers to the question are estimated thus by the industries.

As shown in the Table 4.36, 64% of the construction employers assumed that migrant and non-migrants are the same in terms of stability. It is not the case in both textile and shoes industries where only 36.84% and 33.33% respectively of the employers in each industry have the same opinion. It also means that more than 60% of them think that migrant workers are less stable then their non-migrant colleagues. However, with the perspective of industries as a whole, the opinion on the stability of workers from employers view is relatively balanced (almost 50% answers were attributed to each categories of "stable" and "less stable" answers).

Let's take the view of workers to another "perceived barriers" question: "Do you think it is harder for a migrant worker to be promoted than for a similar non-migrant worker?". This is because the answer to this question also gives the views of workers themselves about their position by their resident status. The statistical results of the answers to the question are presented in Table 4.37.

Table 4.37: Answer to the question: "Do you think it is harder for a migrant worker to be promoted than for a similar non-migrant worker?" by industry

Industry	Answer: The same		Answer: Harder		Total	
	Number	%	Number	%	Number	%
Construction	143	60.85	92	39.15	235	100.00
Textile	149	78.84	40	21.16	189	100.00
Shoes	35	94.59	2	5.41	37	100.00
Total	327	70.93	134	29.07	461	100.00

Source: Estimated from worker survey.

The results show that in textile and shoes sectors, the majority of workers assumed that there is no difference in the positions of non-migrants and migrants in terms of promotion. The discrimination between these two categories of workers seems to be larger in construction sector with almost 40% workers think that it is harder for migrant workers to be promoted in comparison to non-migrant workers.

To the same questions, the view from different groups by resident status, sex and ownership is shown in Table 4.38.

Table 4.38: *Answer to the question: "Do you think it is harder for a migrant worker to be promoted than for a similar non-migrant worker?" by resident status, by sex and by ownership*

Group	Answer: The same		Answer: Harder		Total	
	Number	%	Number	%	Number	%
Non-migrants	65	23.81	208	76.19	273	100
Migrants	37	19.07	157	80.93	194	100
Female	47	20.98	177	79.02	224	100
Male	55	22.63	188	77.37	243	100
State-owned	36	25.17	107	74.83	143	100
Private	41	18.72	178	81.28	219	100
FDI/Joint-ven.	25	23.81	80	76.19	105	100

Source: Estimated from worker survey.

It is interesting that the reaction of workers on the issue is almost opposite to the view of their employers. Around 80% of migrant as well as non-migrant workers assumed that the position of migrant and non-migrants is really different in terms of promotion. The results are similar for the cases of female and male groups. In terms of workers in different ownership sectors, those in state-owned sector evaluated the difference a little lighter compared to other groups. However, the message delivered is still clear (with 74.83%, 81.28% and 76.19% for state-owned, private and FDI/Joint-venture. respectively) that it is actually harder for a migrant worker to be promoted than for a similar non-migrant worker.

This discrimination is more clearly revealed in regard of the migrant professional workers loosing an opportunity to upward promotion due to the lack of possibility of futher education.

VI.2.2 Age-earning profile

The age-earning profile helps to find out how earnings of workers are affected by their age or seniority for different groups. In particular, this analysis is interested in the question whether (1) the earnings of migrants/females are lower than those of non-migrant/males, and whether (2) the earnings differential becomes smaller or larger over time. The earning of the workers is dependent on their seniority and this relation can be typically modeled as follows:

$$\ln W \;=\; \alpha \;+\; \beta * Age \;+\; \gamma * Age^2 \qquad (4.4)$$

Where W: is wage or income/earning of workers

Age: the real age of workers (years)

In the survey, the wage/earning is estimated by summing-up the monthly salary and all other allowances paid to the workers. Of course, the extent of the seniority impact on the earnings to the workers may be also up to the characteristics of the industries, sex, resident status, ownership etc…. It is necessary to test this statement by running equation (4.4) for these segments. The estimated results for this test is given in Table 4.39.

Table 4.39 Regression results for age-earning function by labor segments

All workers	lnW = 5.278109 + 0.0906146* Age − 0.0010381*Age^2
	(20.84) (5.82) (-4.76)
Female workers	lnW = 5.254203 + 0.0819633* Age − 0.0008763*Age^2
	(12.05) (2.83) (-2.00)
Male workers	lnW = 6.274008 + 0.0471635* Age − 0.0005617*Age^2
	(18.02) (2.38) (-2.11)
Non-migrant workers	lnW = 5.404442 + 0.0870235* Age − 0.0010029*Age^2
	(14.28) (4.02) (-3.50)
Migrant workers	lnW = 5.499819 + 0.0740631* Age − 0.0008374*Age^2
	(14.12) (2.92) (-2.21)
State-owned workers	lnW = 5.785012 + 0.0747938* Age − 0.0008325*Age^2
	(12.20) (2.73) (-2.28)
Private workers	lnW = 5.549306 + 0.075032* Age − 0.0009635*Age^2
	(17.80) (4.06) (-3.82)
FDI/Joint-venture w.	lnW = 5.271396 + 0.0796613* Age − 0.0007124*Age^2
	(9.53) (2.28) (-1.49)

Note: t-statistics are in parentheses

All the coefficients of the regression are statistically significant at different levels. The effect of seniority on the earning to female workers is stronger than in the case of male workers (β = 0.0819633 compared to β = 0.0471635). However, there is not much difference between non-migrant and migrant workers in this relationship. Among different ownership sectors, the age factor seems to have lesser impact on the earning in state-owned sector (β = 0.0747938) compared to private and FDI/Joint-venture sectors. The effect of age is largest in the FDI/Joint-venture sector. This is because in the state-owned sector, wage is often set in fixed scales. In these wage scales, the seniority is, of course, taken into account. However, the change in two consecutive wage levels in this sector is not much. This is one of the major difference between wage policies among ownership sectors. Another factor is that private and FDI/joint-venture sectors in Vietnam seem to be more "sensitive" to the worker age or seniority in terms of payment.

The graphical demonstration of selected results can be seen in the following figures:

Figure 4.8: Regression results by sex
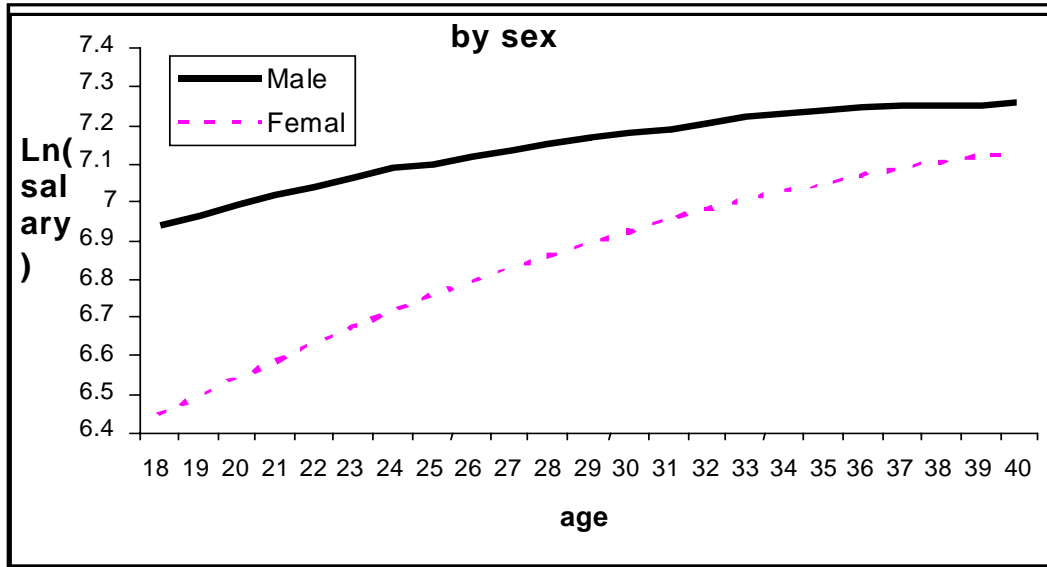
Figure 4.9: Regression by resident status
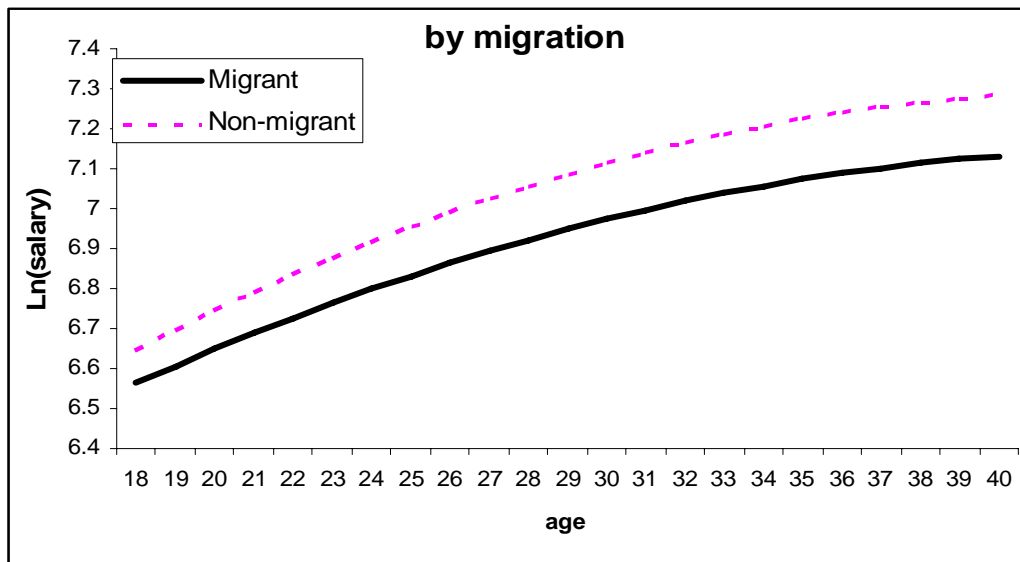
Figure 4.10: Regression results by ownership
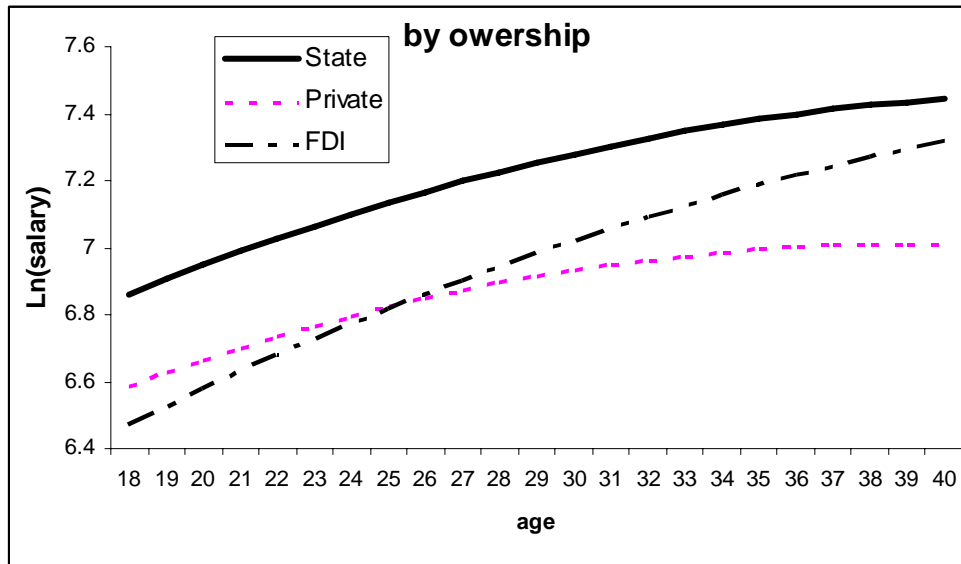
VII. Barriers to find a job

During the survey, the issue of discovering barriers to find jobs for workers was also covered in both employers' survey and workers' survey.

Question 6 in the workers' survey was used to get the perception of workers on the barriers to find an acceptable job in the case they lose the job. The barriers are scored depending on their level of influence. The selected statistical responses to the question is presented in Table 4.40.

Table 4.40: Average evaluation scores of barriers to find an acceptable job (a)

Unit: score (3 = not important (not a real barrier); 2 = important; 1 = very important)

Issues/barriers	By sex		By ownership		
	Female	Male	State-owned	private	FDI/Joint-v.
Lack of jobs?	1.79	1.83	1.81	1.76	1.90
Bad working conditions	1.93	1.97	2.11	1.94	1.85
Locations	2.40	2.58	2.55	2.55	2.34
Lack of information about market	2.05	2.23	2.19	2.17	2.05
Resident status	2.30	2.40	2.54	2.34	2.21
Low pay	1.54	1.63	1.60	1.61	1.51
Lack of recommendation	2.33	2.32	2.22	2.38	2.30
Lack of contract Gender problem ?	2.24	2.12	2.09	2.29	2.02
Age	2.73	2.76	2.79	2.80	2.61

	2.23	2.26	2.28	2.27	2.16

Source: Estimated from worker survey

As shown in the table, "*lack of jobs*" and "*low pay*" are the main two reasons for fail in finding an acceptable job for both female and male workers (the lower the score, the higher the barrier). In contrast, "location of the firm" and "gender problem" were not an issue at all. The average scores for these two issues are 2.4 and 2.73 respectively for the case of female answers and 2.58 and 2.76 for the case of male answer. "Low pay" is also the most serious barrier in all three sectors in terms of ownership with an average scores of 1.6, 1.61 and 1.51 for state-owned, private and FDI/Joint-venture sectors respectively. This implies that in both Da Nang and Binh Duong, the difficulty for workers to find a job is not very serious than the fact that the pay is low.

To the same question, the survey results by resident status and industries are provided in Table 4.41.

Table 4.41: Average evaluation scores of barriers to find an acceptable job (b)

Issue/Barrier	Industries			Resident status	
	Construction	Textile	Shoes	Non-migrant	Migrant
Lack of jobs?	1.94	1.74	1.30	1.81	1.80
Bad working condition	2.08	1.86	1.62	1.94	1.96
Location	2.56	2.39	2.76	2.47	2.52
Lack of information about market	2.32	1.99	1.90	2.08	2.22
Residence status	2.46	2.26	2.14	2.36	2.33
Low pay	1.70	1.42	1.89	1.59	1.58
Competition with migrant	2.65	2.54	2.79	2.55	2.69
Competition with resident	2.60	2.63	2.71	2.57	2.69
Health issue	1.94	1.85	1.59	1.91	1.83
Lack of recommendation	2.39	2.31	2.07	2.30	2.36
Lack of contract	2.08	2.28	2.21	2.07	2.34
Gender issue	2.79	2.72	2.57	2.75	2.74
Age	2.18	2.35	2.00	2.18	2.33

Source: Estimated from worker survey

"Lack of job" is still a serious problem, however, the workers in shoes sector consider it most serious (with the score of 1.3) compared to their counterparts in construction and textile sectors. On this problem, there is no difference between the views of non-migrant and migrant workers. "Low pay" and "health issue" are the other two factors considered to be high barriers to find an acceptable job in all workers' groups. The problem of "low pay" is considered to be most serious (with a score of 1.42) by textile and garment workers. "Bad working conditions" is the next barrier to be taken into account in all groups of workers. However, there is again no difference in the opinions of non-migrants and migrants (with a score of around 1.95). "*Lack of information about (labor) market*" is another barrier and is considered more serious with migrant workers compared to non-migrant counterparts. This finding is strongly supported by the casestudy made during the fieldwork in Binh Duong.

Box 4. 2: **Why Thang thinks that it is difficult for him to find a better job?**

Mr. Nguyen Viet Thang, a 22 years old, unmarried male worker comes from Tan Hiep commune, Tan Chau district, Tay Ninh province.

Completed 7th grade of a lower secondary school (the school of 12-grade-system) in 1995, he left the school in the same year. Right after dropping out of school, Thang was engaged in the family's farming activities as a full time worker. Like many other farmers, Thang has been for a long time underemployed in the village because of the shortage of arable land owned and absence of other non-farm activities. Hence, he had soon to seek for an additional job outside the locality. Initially, he took a daily labor earning job from some small (family owned) construction companies in Tan Hiep district, but the work was seasonal and thus was not stable. Most of the time he stayed unemployed again.

Since 1999, with recommendation of his friends, he has been hired by Thanh Nam road and bridge building company (private liability Ltd.) in Binh Duong town and has kept working as a construction worker and a site guard there up to date. The job has brought him an initial payment of VND 800,000 per month in average, but after some months, the pay is increased up to VND 1,200,000 per month. Out of this amount, VND 300 000 is spent on food, another 300,000 is going on his personal expenses and the rest of 600 000 is sent to his family in Tay Ninh. Needless to say, he is not provided with any health, sick leave and/or other social benefits by the company. Recognizing that the wage earn is not as high as he would wish to get, Thang finds himself happy with the payment and the job as thinks he would never be able to find a better one. When asked, Thang says that he sees no *administrative barriers* to entry to the local labor market, and that *moving cost* is "affordable" for him because he can easily take a direct bus from Tay Ninh to Binh Duong and back: the fare costs only VND 15, 000, and he goes back to Tay Ninh only once a month. But he strongly believes that there is no chance for him to find another better job and higher payment.

First explanation he gives to the point is that he has no any access to labor market information. He does not know how to find a new job: " My family and I have lived a century in that village and we do not have any connection with other people, who can helps me to find a better work". In addition, Thang appears to have no idea on employment services, has never even heard about job fairs and /or employment service centers. The labor and labor market legislation and other State's regulations, e.g. on minimum wage, labor contract, or collective bargaining sound to him "something very strange". And in fact, he says he has never dared to have something like "negotiation" with his master on wage and other working conditions. " I receive how much the employer pays. I will give up this job in case I find it no longer good enough, but not negotiate with the owner, I don't think that negotiation could help" - he says.

Source: From the interview conducted by the survey team in Binh Duong town, 1/2005.

In terms of job barrier difference among female and male workers, another assessment was undertaken in the survey with the question: "Do you think it is harder to find a good job for a female than for a similar male worker?". It is good to see the different view of female and male workers on the issue if any. The statistics of the answer to the question is presented in Table 4.42.

Table 4.42: Evaluation of job barrier by sex

Answer	Female workers	Male workers	Total
No	153 68%	173 71%	326 70%
Yes	72 32%	70 29%	142 30%
Total	225 100%	243 100%	468 100%

As clearly shown in the table, almost 70% of both female and male workers assumed that it is not harder for women (compared to men) to find a similar job. In fact, female workers seem to have easier access to job compared to the similar male counterparts. But this is also because the opportunity to get a job very often depends on the industrial profile and as in Da Nang and Binh Duong provinces, textile and shoes sectors are dominant industries, it is understandable that even more job opportunities are given to female rather male workers.

Another issue concerning the job barriers is to examine different positions of non-migrant and migrant workers, if any, in finding a similar job. A question called: "Do you think it is harder to find a good job for a migrant than for a similar non-migrant worker?" (Question 11 of the workers' questionnaire) was posed. The survey results to the question is summarized in Table 4.43.

Table 4.43: *Evaluation of job barrier in terms of resident status by industry*

Answer	Industry			Total
	Construction	Textile	Shoes	
No	109 45.42	107 55.73	26 70.27	242 51.6
Yes	131 54.58	85 44.27	11 29.73	227 48.4
Total	240 100	192 100	37 100	469 100

The results show that the majority of shoes workers (more than 70%) thought that migrant and similar non-migrant workers have the same chance to find a good job, while the opinions textile sector are balanced with around 50% of respondents assuming that they have equal opportunity. In contrast, more than 50% of construction workers thought that it is actually harder to find a good job for a migrant worker than for a similar non-migrant worker. The reason may be that in construction sector the job is relatively less stable and migrant workers should always find better job to compensate for the time they are unemployed or underemployed". In turn, it is safer for the employers to hire non-migrant workers in this industry.

Workers in different ownership sectors also have different views on the issue. The survey results by ownership is presented in Table 4.44. More than 60% of workers in the surveyed state-owned sector assumed that it is harder for a migrant worker to find a good job than a similar non-migrant worker. The situation is opposite in the private sector with

60.45% of respondents thinking that it makes no difference among migrant and non-migrant workers. The view of workers in FDI/joint-venture is neutral on the issue.

Table 4.44: *Evaluation of job barrier in terms of resident status by ownership*

Answer	By ownership			Total
	State Own	Private	FDI/Joint-v.	
No	56	133	53	242
	39.16	60.45	50	51.6
Yes	87	87	53	227
	60.84	39.55	50	48.4
Total	143	220	106	469
	100	100	100	100

Source: Estimated from worker survey

VIII. Wages and benefits and labor market segmentation

One of the methods to test whether labor market is segmented is to estimate Mincer (wage) regression with dummies for possible segments. This test is employed to see the relationship between wages and benefits as a whole (or income) and a range of explanatory variables.

In general, it is expected that wages and benefit or income of the workers depend on their education level, professional training and experience. In addition, the income level may depend also on the location due to differences in local labor markets and regional prices, the firm size where the worker works in due to the issue of rent-sharing. For the purposes of this study, other independent variables representing for the possible labor market segments such as gender, resident status and ownership are tested as well to see whether they have significant effects on the workers' income. The tested earning equation is specified as follows:

$$LnW_i = \Sigma \beta_i X_i + u_i \qquad (4.5)$$

Where W_i is monthly earning of the worker,

X_is: are independent variables representing for worker's education, experience, location (province), gender, resident status, ownership of the firm and firm-size (where the worker was working in)[11].

The estimated results of equation (4.5) is summarized as follows:

$lnW_i = 5.35 + 0.044$educationd2 $+ 0.085$educationd3 $+ 0.293$educationd4 $+ 0.048$Age $-$

---

[11] independent variables include 3 dummy variables for education (primary school, lower secondary school and higher secondary school respectively), 2 variable of "experience" (which is measured by number of years the worker has been working in the firm) and experience^2; dummies for location/province (Da nang (1), Binh duong (0), for sex (female (0) and male (1)), residence status (migrant (1) and non-migrant (0)),

(15.63) (0.56)   (1.1)   (2.71)   (3.5)

$0.0005\text{Age}^2 + 0.002\text{experience} - 0.0000057\text{experience}^2 + 0.501*\text{province} + 0.254\text{sex} -$

(-3.42)   (1.66)   (-1.26)   (4.89)   (3.62)

$0.103(\text{resident})\text{status} - 0.324\text{ownershipd2} - 0.452\text{ownershipd3} + 0.088\text{firmsize}$

(-1.87)   (-2.32)   (-2.97)   (0.90)

(T-statistics are in parentheses)

The regression results with "fixed effects" are:

$\ln W_i = 6.42 + 0.060\text{educationd2} + 0.086\text{educationd3} + 0.206\text{educationd4} + 0.024\text{Age} -$

(6.42) (0.86)   (1.13)   (2.55)   (1.8)

$0.0003\text{Age}^2 + 0.003\text{experience} - 0.0000074\text{experience}^2 + 0.109\text{sex} -$

(-1.64)   (3.30)   (-2.35)   (2.94)

$0.090(\text{resident})\text{status}$

(-2.31)

(T-statistics are in parentheses)

The model results shows that gender, location, education, experience and firm size all have positive relationship with monthly earning of the workers. Resident status and ownership have influence as well on the earning. The result suggests that migrants earn significantly less than non-migrants even after controlling for human capital and firm characteristics. The higher education level of workers resulted in higher level of earning and that is also the case for experience of the workers (higher values for higher education coefficients). According to these results alone, female workers seem to pay a bit less than their male colleagues. The results are robust for inclusion of firm fixed effect.

The test for slope differences across segments in the wage function showed that there is difference in terms of gender but not clear in terms of residence status. The detail results for this are presented in the appendices.

To see whether labor market segmentation is due to job segregation, it is needed to test one more important independent variable in this model namely occupation (or job types). A similar earning function to (4.5), which include job type dummies and the regression was run with robust standard errors, is tested and resulted in the outcomes as follows:

---

firm-size (small firm (0) and large firm (1)); two dummies for ownership of the firm, one for "state-owned" and the other for private firm.

lnW_i = 5.38 + 0.024educationd2 + 0.066educationd3 + 0.250educationd4 + 0.048Age –

(14.98) (0.31) (0.86) (2.41) (3.15)

$0.0006Age^2$ + 0.002experience – $0.0000058experience^2$ + 0.463*province + 0.281sex –

(-3.06) (1.84) (-1.42) (5.38) (4.17)

0.098(resident)status – 0.284ownershipd2 – 0.394ownershipd3 + 0.100firmsize

(-1.83) (-2.38) (-2.99) (1.01)

– 0.072jobd2 + 0.37jobd3 – 0.118jobd4 – 0.020jobd5 + 0.156jobd6 + 0.171jobd7 +

(-0.86) (0.62) (-0.67) (-0.22) (1.31) (1.62)

0.074jobd8 + 0.380jobd9

(0.72) (2.81)

(T-statistics are in parentheses)

Fixed effects (within) regression results are:

lnW_i = 6.44 + 0.064educationd2 + 0.064educationd3 + 0.127educationd4 + 0.023Age –

(26.58) (0.92) (0.86) (1.50) (1.71)

$.0002Age^2$ + 0.002experience – $0.0000065experience^2$ + (dropped)province + 0.083sex -

(-1.55) (3.01) (-2.11) (2.16)

0.081(resident)status + (dropped)ownershipd2 + (dropped)ownershipd3 +

(-2.12)

(dropped)firmsize

(T-statistics are in parentheses)

As the results suggested, the "job type" variables are basically statistically significant meaning that job segregation has an impact on wage differentials. However, job segregation alone can not explain all the differentials or can not "explain away" the wage differential between gender and residence status segments. The results may also suggest that job type 3, 6 and 7 seems to have relatively high wages. This supports for the point made before that there is evidence of job segregation in terms of residence status for job type 7 and 8. Note that all the detail results for Mincer regression are presented in the appendices.

IX. Concluding Remarks

As seen, the survey has brought about a bulk of interesting information and insights that provides reliable background for the labor market segments to be tested. Two provinces of Da Nang and Binh Duong are proved to be appropriate selection of survey locations as they provide a good chance to observe a number of labor market emerging issues. The information collected from representatives of employers and local government agencies have appeared to serve as an useful source for the policy analysis. The actual survey sampling size of 47 firms, 490 workers and 10 local government agencies has kept well with the track of the defined targets of investigation.

As such, the survey results show that gender representation is different in various industries. Female workers are over-represented in textile and shoes industries while male workers are dominant in construction sector. The percentage of migrant workers is also significantly higher than that of non-migrant counterparts in textile and shoes sectors.

The view of the workers different from those of their employers in monthly payment, for example, in the state-owned sector. This difference in two other sectors such as private and FDI/Joint-venture was, however, minor. A little gap is observed between opinions of workers and the employers in terms of number of working hours per week, overtime working hours etc… In contrast, a much larger difference can be seen in their views of the "chance to move to a better job", "whether workers did negotiate with employers on the salary/payment". In particular, employers have stated that the chance is high for many of their workers, while the workers themselves do not share the same opinion.

The average level of income in textile sector seems to be lowest, while the highest average worker income is in construction sector. By locations, a similar worker in Da nang seems to have lower pay compared to his/her counterparts in Binh duong. In general, the theory of compensating differentials may not be true in both Da nang and Binh duong and there are 'good jobs' (high pay with good non-pay benefits) and 'bad jobs (low pay with poor non-wage benefits). This conclusion can also be held in different industries and ownership sectors.

It is also evidently revealed from the survey results that occupational segregation is quite significant in terms of gender, while this segregation is not strong in terms of residence status. Job segregation is highly an issue at the firm-level but less at industry-level.

In textile and garment sector, there is higher level of segregation among females and males. It is not the case in shoe-making sector. In construction sector, there is a relatively clear occupational segregation by residence status (between non-migrant labors and migrant labors). It is not the case in shoes industry and in textile and garment sector the segregation is present at a modest level. In general, the segregation by sex is somewhat higher than that by residence status.

The job segregation is not only affected by human capital factors such as education, age and experience, but also by other factors such as gender, residence status, ownership of the firm and even location (province) of workers' firms.

In finding job, higher education level workers are harder to find job and it is even harder for the old workers compared to younger ones in this sense and that is especially the case in Binh duong.

In terms of job mobility, age and education level of the workers in the surveyed areas are major factors affecting the time length during which worker can find a better job (compared to the current job). While non-migrant and migrant workers are considered to be neutral in many indicators, they have the substantial difference in the chance for upward promotion. The disadvantage, of course, goes to migrant group.

Concerning the barriers to find a job, "lack of jobs" and "low pay" are considered to be two main barriers. While female and male workers are reported to have the same chance in finding a similar job (in many cases like in Binh Duong, females even have greater chance compared to similar males), the survey results indicated that non-migrant and migrant workers have equal opportunity to find a good job.

In terms of payment, the effect of seniority on the earning to female workers is stronger than in the case of male workers. However, there is not much difference between non-migrant and migrant workers in this relationship. Among different ownership sectors, the age factor seems to have lesser impact on the earning in state-owned sector compared to private and FDI/Joint-venture sectors. The effect of age is largest in the FDI/Joint-venture sector.

It is evidenced from survey results is that gender, location, education, experience and firm size all have positive relationship with monthly earning of the workers. Resident status and ownership have influence as well on the earning. The result suggests that migrants earn significantly less than non-migrants even after controlling for human capital and firm characteristics. The higher education level of workers resulted in higher level of earning and that is also the case for experience of the workers. According to these results alone, female workers seem to pay a bit less than their male colleagues.

The job segregation has an impact on wage differentials. However, job segregation alone can not explain all the differentials or can not "explain away" the wage differential between gender and residence status segments

In short, some preliminary conclusions can be drawn from the survey results to emphasize that there have been a relatively clear segmentation in labor market in terms of gender. It may not be a strong case in terms of resident status of workers. In some sense, segmentation may also be considered as well in terms of ownership.

APPENDICES

Appendix 1. Indexes of dissimilarity of firms

Firm No.	ID_migrant	ID_gender	industry
1	0.48	0.42	Const
2	0.00	0.00	Const
3	0.00	0.00	Const
4	0.17	0.57	Const
5	0.42	0.30	Const
6	0.11	0.09	Const
7	0.00	0.16	Const
8	0.00	0.00	Const
9	0.00	0.47	Const
10	0.00	0.00	Const
11	0.49	0.37	Const
12	0.00	0.42	Const
13	0.00	0.00	Const
14	0.00	0.49	Const
15	0.42	0.22	Const
16	0.54	0.43	Const
17	0.00	0.11	Const
18	0.00	0.41	Const
19	0.00	0.43	Const
20	0.00	0.38	Const
21	0.45	0.45	Const
22	0.00	0.32	Const
23	0.00	0.42	Const
24	0.00	0.00	Const
25	0.00	0.11	Const
26	0.09	0.20	Textile
27	0.00	0.53	Textile
28	0.18	0.25	Textile
29	0.00	0.08	Textile
30	0.00	0.54	Textile
31	0.16	0.38	Textile
32	0.28	0.51	Textile
33	0.00	0.43	Textile
34	0.10	0.34	Textile
35	0.00	0.00	Textile
36	0.00	0.00	Textile
37	0.00	0.00	Textile
38	0.21	0.49	Textile
39	0.00	0.08	Textile
40	0.02	0.36	Textile
41	0.00	0.00	Textile
42	0.01	0.53	Textile
43	0.16	0.54	Textile

44	0.16	0.20	Textile
45	0.00	0.61	Shoes
46	0.00	0.24	Shoes
47	0.01	0.20	Shoes

Appendix 2. a) Median working hours per week by workers

Job type	Const	Textile	Shoes
Main production section	48,000	50,000	52,000
Product complete	48,000	48,000	52,000
Prepare for production	54,000	56,000	
Maintain and support worker	48,000	56,000	
Quality control, technics	48,000	48,000	52,000
Acountant, cashier, store	48,000	48,000	
Marketing, planing and others	48,000	48,000	48,000
Adminstratives staff	48,000		50,000
Guard sanitary and others	40,000		48,000

b) Median working hours per week by employers

Job type	Const	Textile	Shoes
Main production section	48,000	48,000	52,000
Product complete	48,000	48,000	60,000
Prepare for production	52,000	48,000	
Maintain and support worker	48,000	48,000	
Quality control, technics	48,000	48,000	48,000
Acountant, cashier, store	48,000	48,000	48,000
Marketing, planing and others	48,000	48,000	48,000
Adminstratives staff	48,000	48,000	
Guard sanitary and others	42,000	48,000	48,000

Appendix 3. Conditional logistic models with fixed effects for selected job types

```
Conditional (fixed-effects) logistic regression    Number of obs   =        59
                                                   LR chi2(5)      =     25.94
                                                   Prob > chi2     =    0.0001
Log likelihood = -10.443404                        Pseudo R2       =    0.5539


------------------------------------------------------------------------------
  highskill4 |     Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         sex |  38.91426   3.71e+07     0.00   1.000    -7.27e+07    7.27e+07
  experience |  .0259632   .0188358     1.38   0.168    -.0109542    .0628807
         age | -.1471457   .1016522    -1.45   0.148    -.3463804    .0520889
   education |  1.442075   .9742212     1.48   0.139    -.4673638    3.351513
      status |  .7125947   1.081533     0.66   0.510    -1.407171     2.83236
------------------------------------------------------------------------------


Conditional (fixed-effects) logistic regression    Number of obs   =       276
                                                   LR chi2(5)      =     11.64
                                                   Prob > chi2     =    0.0400
Log likelihood = -89.373979                        Pseudo R2       =    0.0612
```

```
---------------------------------------------------------------------
  highskill5 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+-------------------------------------------------------
         sex |   .0098737   .3794397     0.03   0.979    -.7338144    .7535618
  experience |  -.0032644   .0034177    -0.96   0.340    -.0099629    .0034342
         age |    .013309   .0261273     0.51   0.610    -.0378996    .0645176
   education |    .731216   .2467916     2.96   0.003     .2475134    1.214919
      status |  -.0523959   .3945868    -0.13   0.894    -.8257718     .72098
---------------------------------------------------------------------


Conditional (fixed-effects) logistic regression   Number of obs   =        159
                                                  LR chi2(5)      =      24.83
                                                  Prob > chi2     =     0.0001
Log likelihood = -39.465488                       Pseudo R2       =     0.2393

---------------------------------------------------------------------
  highskill6 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+-------------------------------------------------------
         sex |  -.3537048   .5073399    -0.70   0.486    -1.348073    .6406631
  experience |  -.0060913   .0065691    -0.93   0.354    -.0189665    .0067838
         age |   .0636867   .0358682     1.78   0.076    -.0066136     .133987
   education |   1.826672   .5145962     3.55   0.000     .8180816    2.835262
      status |   -.061416    .692666    -0.09   0.929    -1.419016    1.296184
---------------------------------------------------------------------


Conditional (fixed-effects) logistic regression   Number of obs   =        258
                                                  LR chi2(5)      =      11.50
                                                  Prob > chi2     =     0.0424
Log likelihood = -74.300489                       Pseudo R2       =     0.0718


---------------------------------------------------------------------
  highskill7 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+-------------------------------------------------------
         sex |   .4879548   .3936765     1.24   0.215    -.2836369    1.259547
  experience |   .0052215   .0038832     1.34   0.179    -.0023895    .0128325
         age |   .0016238   .0302886     0.05   0.957    -.0577408    .0609885
   education |   .4426429    .267261     1.66   0.098    -.0811791    .9664648
      status |  -.5475538   .5277119    -1.04   0.299     -1.58185    .4867426
---------------------------------------------------------------------


Conditional (fixed-effects) logistic regression   Number of obs   =        154
                                                  LR chi2(5)      =      15.03
                                                  Prob > chi2     =     0.0103
Log likelihood = -47.973737                       Pseudo R2       =     0.1354


---------------------------------------------------------------------
  highskill8 |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+-------------------------------------------------------
         sex |  -.6960274   .4644909    -1.50   0.134    -1.606413    .2143579
  experience |    .006637    .003953     1.68   0.093    -.0011107    .0143847
         age |  -.0368534   .0373549    -0.99   0.324    -.1100677    .0363609
   education |   .7098002   .3778084     1.88   0.060    -.0306906    1.450291
      status |  -1.057128    .708044    -1.49   0.135    -2.444869    .3306124
---------------------------------------------------------------------


Logit estimates                                   Number of obs   =        454
                                                  LR chi2(8)      =      54.76
                                                  Prob > chi2     =     0.0000
```

```
Log likelihood = -169.48717                         Pseudo R2      =     0.1391

--------------------------------------------------------------------------------
   highskill |     Coef.   Std. Err.       z    P>|z|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
         sex |  .2997876   .2906705     1.03   0.302    -.2699162    .8694914
  experience |  .0046884   .0025233     1.86   0.063    -.0002573     .009634
         age |  .0021468   .0212234     0.10   0.919    -.0394502    .0437438
   education |  .7025776   .1841277     3.82   0.000     .3416939    1.063461
      status | -.5174101   .3346326    -1.55   0.122    -1.173278    .1384578
  ownershipd1 |  .8006409   .4228829     1.89   0.058    -.0281943    1.629476
  ownershipd2 |  .0996129   .4071799     0.24   0.807     -.698445    .8976709
    province |  .3970099   .3242417     1.22   0.221    -.2384922    1.032512
       _cons | -5.340517   1.390485    -3.84   0.000    -8.065818   -2.615216
--------------------------------------------------------------------------------
```

Appendix 4. Mincer regression results

```
Regression with robust standard errors              Number of obs =      443
                                                    F( 13,    46) =    12.10
                                                    Prob > F      =   0.0000
                                                    R-squared     =   0.4763
Number of clusters (codefirm) = 47                  Root MSE      =    .4089


--------------------------------------------------------------------------------
             |               Robust
  lnrealsalary |     Coef.   Std. Err.       t    P>|t|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
  educationd2 |  .0442908   .0795246     0.56   0.580    -.1157838    .2043655
  educationd3 |  .0855724   .0777062     1.10   0.277     -.070842    .2419868
  educationd4 |  .2931498   .1083051     2.71   0.010      .075143    .5111566
         age |  .0485875   .0138967     3.50   0.001     .0206149    .0765601
        age2 | -.0005897   .0001725    -3.42   0.001      -.000937   -.0002424
  experience |  .0024888   .0015024     1.66   0.104    -.0005353    .0055128
 experience2 | -5.71e-06   4.53e-06    -1.26   0.214    -.0000148    3.41e-06
    province |  .5011749   .1025776     4.89   0.000     .2946969     .707653
         sex |  .2546929   .0703979     3.62   0.001     .1129892    .3963965
      status | -.1033409   .0551989    -1.87   0.068    -.2144505    .0077687
  ownershipd2 | -.3248282   .1399266    -2.32   0.025    -.6064858   -.0431705
  ownershipd3 | -.4525406   .1524299    -2.97   0.005    -.7593661   -.1457151
    firmsize |  .0889805   .0983974     0.90   0.371    -.1090831    .2870441
       _cons |  5.354833   .3425365    15.63   0.000     4.665342    6.044323
--------------------------------------------------------------------------------

. * fixed effects
. xtreg lnrealsalary educationd2-educationd4 age age2 experience experience2 pr
> ovince sex status ownershipd2 ownershipd3 firmsize, fe i(codefirm)

Fixed-effects (within) regression                   Number of obs   =      443
Group variable (i): codefirm                        Number of groups =       47

R-sq:  within  = 0.1682                             Obs per group: min =        1
       between = 0.2842                                            avg =      9.4
       overall = 0.2334                                            max =       28

                                                    F(9,387)         =     8.69
corr(u_i, Xb)  = 0.2321                             Prob > F         =   0.0000


--------------------------------------------------------------------------------
  lnrealsalary |     Coef.   Std. Err.       t    P>|t|     [95% Conf. Interval]
-------------+------------------------------------------------------------------
```

```
educationd2 |   .0603974   .0703138    0.86   0.391   -.0778474    .1986421
educationd3 |   .0863832   .0761133    1.13   0.257    -.063264    .2360305
educationd4 |   .2068033   .0811098    2.55   0.011    .0473324    .3662742
        age |   .0241916   .0134758    1.80   0.073   -.0023034    .0506866
       age2 |  -.0003077   .0001878   -1.64   0.102    -.000677    .0000615
 experience |   .0031356   .0009515    3.30   0.001    .0012648    .0050064
experience2 |  -7.41e-06   3.15e-06   -2.35   0.019   -.0000136   -1.21e-06
   province |  (dropped)
        sex |   .1091487   .0371245    2.94   0.003    .0361577    .1821397
     status |  -.0906058   .0391869   -2.31   0.021   -.1676517   -.0135599
ownershipd2 |  (dropped)
ownershipd3 |  (dropped)
   firmsize |  (dropped)
      _cons |   6.427427   .2402675   26.75   0.000    5.955034     6.89982
------------+----------------------------------------------------------------
    sigma_u |  .44126328
    sigma_e |  .31016542
        rho |   .6693113   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(46, 387) =      7.80             Prob > F = 0.0000

. * test for slope differences across segments
. for var educationd2-educationd4 age age2 experience experience2: gen Xmigrant
> =X*(status==2) \ gen Xfemale=X*(sex==1)

-> gen educationd2migrant=educationd2*(status==2)
(3 missing values generated)

-> gen educationd2female=educationd2*(sex==1)
(3 missing values generated)

-> gen educationd3migrant=educationd3*(status==2)
(3 missing values generated)

-> gen educationd3female=educationd3*(sex==1)
(3 missing values generated)

-> gen educationd4migrant=educationd4*(status==2)
(3 missing values generated)

-> gen educationd4female=educationd4*(sex==1)
(3 missing values generated)

-> gen agemigrant=age*(status==2)
(5 missing values generated)

-> gen agefemale=age*(sex==1)
(5 missing values generated)

-> gen age2migrant=age2*(status==2)
(19 missing values generated)

-> gen age2female=age2*(sex==1)
(19 missing values generated)

-> gen experiencemigrant=experience*(status==2)
(8 missing values generated)

-> gen experiencefemale=experience*(sex==1)
(8 missing values generated)

-> gen experience2migrant=experience2*(status==2)
(8 missing values generated)
```

```
-> gen experience2female=experience2*(sex==1)
(8 missing values generated)


. regress lnrealsalary educationd2-educationd4 age age2 experience experience2
> educationd2female educationd3female educationd4female agefemale age2female ex
> periencefemale experience2female province sex status ownershipd2 ownershipd3
> firmsize, cluster(codefirm)

Regression with robust standard errors               Number of obs =      443
                                                     F( 20,    46) =    13.66
                                                     Prob > F      =   0.0000
                                                     R-squared     =   0.5072
Number of clusters (codefirm) = 47                   Root MSE      =   .3999


------------------------------------------------------------------------------
             |               Robust
 lnrealsalary |     Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
  educationd2 |   .0745683   .1178316     0.63   0.530    -.1626144     .311751
  educationd3 |   .0522947   .1106991     0.47   0.639    -.1705311    .2751204
  educationd4 |   .4997509   .1489295     3.36   0.002     .1999714    .7995304
          age |   .0174536   .0247138     0.71   0.484    -.0322926    .0671998
         age2 |  -.0000116   .0003675    -0.03   0.975    -.0007514    .0007282
   experience |   .0039321   .0016661     2.36   0.023     .0005784    .0072857
  experience2 |  -.0000132   5.27e-06    -2.50   0.016    -.0000238    -2.55e-06
  educ~2female |  -.0524469   .1491317    -0.35   0.727    -.3526335    .2477396
  educ~3female |   .0471002   .1411592     0.33   0.740    -.2370384    .3312388
  educ~4female |  -.3918478   .1612969    -2.43   0.019    -.7165217    -.0671739
    agefemale |   .0229246   .0264059     0.87   0.390    -.0302277    .0760768
    age2female |  -.0005098   .0003864    -1.32   0.194    -.0012876     .000268
  expe~efemale |  -.0020534   .0019943    -1.03   0.309    -.0060678     .001961
  expe~2female |   9.78e-06   6.51e-06     1.50   0.140    -3.32e-06    .0000229
     province |   .4938337   .0989909     4.99   0.000     .2945753     .693092
          sex |   .2359469   .4741132     0.50   0.621    -.7183935    1.190287
       status |  -.0956316   .0575534    -1.66   0.103    -.2114805    .0202173
  ownershipd2 |  -.3250887   .1337763    -2.43   0.019    -.5943664    -.055811
  ownershipd3 |  -.4601067   .1507195    -3.05   0.004    -.7634892    -.1567241
     firmsize |     .10272   .0923759     1.11   0.272    -.0832231    .2886631
        _cons |   5.637659   .5030245    11.21   0.000     4.625123    6.650195
------------------------------------------------------------------------------

. test  educationd2female educationd3female educationd4female agefemale age2fem
> ale experiencefemale experience2female

 ( 1)  educationd2female = 0
 ( 2)  educationd3female = 0
 ( 3)  educationd4female = 0
 ( 4)  agefemale = 0
 ( 5)  age2female = 0
 ( 6)  experiencefemale = 0
 ( 7)  experience2female = 0

       F(  7,    46) =    5.85
           Prob > F =    0.0001

. regress lnrealsalary educationd2-educationd4 age age2 experience experience2
> educationd2migrant educationd3migrant educationd4migrant agemigrant age2migra
> nt experiencemigrant experience2migrant province sex status ownershipd2 owner
> shipd3 firmsize, cluster(codefirm)

Regression with robust standard errors               Number of obs =      443
                                                     F( 20,    46) =    15.01
```

```
                                                                Prob > F        =   0.0000
                                                                R-squared       =   0.4797
Number of clusters (codefirm) = 47                              Root MSE        =   .4109

-------------------------------------------------------------------------------
             |               Robust
lnrealsalary |    Coef.    Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+-----------------------------------------------------------------
  educationd2 | -.0189566   .1283402    -0.15   0.883    -.2772919    .2393787
  educationd3 |  .0292404   .1195201     0.24   0.808    -.2113411    .2698219
  educationd4 |  .1993481   .1526292     1.31   0.198    -.1078785    .5065748
         age |   .055734   .0214254     2.60   0.012     .0126069    .0988611
        age2 |  -.000689   .0002668    -2.58   0.013    -.0012261    -.000152
  experience |    .00181   .0018847     0.96   0.342    -.0019836    .0056036
 experience2 | -3.38e-06   5.51e-06    -0.61   0.543    -.0000145    7.71e-06
  edu~2migrant |  .0762154   .1577951     0.48   0.631    -.2414097    .3938406
  edu~3migrant |  .0479459   .1435646     0.33   0.740    -.2410345    .3369264
  edu~4migrant |  .1764129   .1657222     1.06   0.293    -.1571686    .5099944
  agemigrant | -.0097125   .0229058    -0.42   0.674    -.0558195    .0363945
  age2migrant |  .0001249   .0003081     0.41   0.687    -.0004952    .0007451
  exp~emigrant |  .0034983   .0027325     1.28   0.207     -.002002    .0089985
  exp~2migrant | -.0000263   .0000223    -1.18   0.245    -.0000712    .0000186
    province |  .5038216   .1059735     4.75   0.000      .290508    .7171352
         sex |  .2570531   .0693488     3.71   0.001     .1174613     .396645
      status | -.0888933   .4183629    -0.21   0.833     -.931014    .7532274
  ownershipd2 | -.3251692   .1422098    -2.29   0.027    -.6114227   -.0389157
  ownershipd3 | -.4534598   .1532712    -2.96   0.005    -.7619787   -.1449409
    firmsize |  .0832905    .100434     0.83   0.411    -.1188727    .2854537
       _cons |  5.313853   .7852485     6.77   0.000      3.73323    6.894476
-------------------------------------------------------------------------------

. test educationd2migrant educationd3migrant educationd4migrant agemigrant age2
> migrant experiencemigrant experience2migrant

 ( 1)  educationd2migrant = 0
 ( 2)  educationd3migrant = 0
 ( 3)  educationd4migrant = 0
 ( 4)  agemigrant = 0
 ( 5)  age2migrant = 0
 ( 6)  experiencemigrant = 0
 ( 7)  experience2migrant = 0

       F(  7,    46) =     0.53
            Prob > F =    0.8070

.
. * include job type dummies
. tab job1, gen(jobd)

                         job1 |      Freq.     Percent        Cum.
----------------------------+-----------------------------------
     Main production section |        209       46.34       46.34
             Product complete |         28        6.21       52.55
          Prepare for production |         41        9.09       61.64
   Maintain and support worker |         12        2.66       64.30
      Quality control, technics |         50       11.09       75.39
     Acountant, cashier, store |         29        6.43       81.82
    Marketing, planing and others |         39        8.65       90.47
            Adminstratives staff |         28        6.21       96.67
      Guard sanitory and others |         15        3.33      100.00
----------------------------+-----------------------------------
                        Total |        451      100.00
```

```
. regress lnrealsalary educationd2-educationd4 age age2 experience experience2
> province sex status ownershipd2 ownershipd3 firmsize jobd2-jobd9, cluster(cod
> efirm)

Regression with robust standard errors              Number of obs =      443
                                                    F( 21,    46) =    11.95
                                                    Prob > F      =   0.0000
                                                    R-squared     =   0.5014
Number of clusters (codefirm) = 47                  Root MSE      =   .40273

------------------------------------------------------------------------------
             |              Robust
 lnrealsalary |     Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 educationd2 |  .0245789   .0798498     0.31   0.760    -.1361504    .1853081
 educationd3 |   .066773   .0772938     0.86   0.392    -.0888113    .2223572
 educationd4 |  .2508352   .1041429     2.41   0.020     .0412065    .4604639
         age |  .0481078   .0152597     3.15   0.003     .0173917    .0788239
        age2 | -.0006204    .000203    -3.06   0.004    -.0010289   -.0002119
  experience |  .0025786   .0013978     1.84   0.072    -.0002351    .0053923
 experience2 | -5.87e-06   4.12e-06    -1.42   0.162    -.0000142    2.43e-06
    province |  .4634081   .0860978     5.38   0.000     .2901023    .6367139
         sex |  .2812429   .0675075     4.17   0.000     .1453574    .4171284
      status |  -.098064   .0534579    -1.83   0.073    -.2056691    .0095411
 ownershipd2 | -.2848041   .1195942    -2.38   0.021    -.5255348   -.0440734
 ownershipd3 | -.3949391   .1319317    -2.99   0.004    -.6605038   -.1293743
    firmsize |  .1005324   .0999321     1.01   0.320    -.1006204    .3016852
       jobd2 | -.0726096   .0845895    -0.86   0.395    -.2428794    .0976603
       jobd3 |  .0377126   .0608196     0.62   0.538     -.084711    .1601362
       jobd4 | -.1182841   .1759296    -0.67   0.505    -.4724119    .2358438
       jobd5 | -.0206018   .0940705    -0.22   0.828     -.209956    .1687524
       jobd6 |  .1565233   .1199062     1.31   0.198    -.0848353    .3978819
       jobd7 |  .1710171    .105849     1.62   0.113    -.0420459    .3840801
       jobd8 |  .0744812   .1035721     0.72   0.476    -.1339986     .282961
       jobd9 |  .3800744   .1354863     2.81   0.007     .1073546    .6527942
       _cons |  5.382799   .3593505    14.98   0.000     4.659463    6.106134
------------------------------------------------------------------------------

. test jobd2 jobd3 jobd4 jobd5 jobd6 jobd7 jobd8 jobd9

 ( 1)  jobd2 = 0
 ( 2)  jobd3 = 0
 ( 3)  jobd4 = 0
 ( 4)  jobd5 = 0
 ( 5)  jobd6 = 0
 ( 6)  jobd7 = 0
 ( 7)  jobd8 = 0
 ( 8)  jobd9 = 0

       F(  8,    46) =    1.75
            Prob > F =    0.1127

. xtreg lnrealsalary educationd2-educationd4 age age2 experience experience2 pr
> ovince sex status ownershipd2 ownershipd3 firmsize jobd2-jobd9, fe i(codefirm
> )

Fixed-effects (within) regression              Number of obs      =      443
Group variable (i): codefirm                   Number of groups   =       47

R-sq:  within  = 0.2154                         Obs per group: min =        1
       between = 0.1856                                        avg =      9.4
       overall = 0.1830                                        max =       28
```

```
                                          F(17,379)              =        6.12
corr(u_i, Xb)  = 0.1317                   Prob > F               =      0.0000

------------------------------------------------------------------------------
lnrealsalary |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 educationd2 |   .0640746   .0697687     0.92   0.359    -.0731077    .2012568
 educationd3 |   .0648857   .0753995     0.86   0.390     -.083368    .2131395
 educationd4 |   .1270461   .0848548     1.50   0.135    -.0397991    .2938912
         age |   .0232003   .0135727     1.71   0.088    -.0034869    .0498874
        age2 |  -.0002937   .0001891    -1.55   0.121    -.0006655     .000078
  experience |   .0028705   .0009525     3.01   0.003     .0009977    .0047433
 experience2 |  -6.59e-06   3.13e-06    -2.11   0.036    -.0000127   -4.35e-07
    province |  (dropped)
         sex |     .08339   .0385348     2.16   0.031     .0076212    .1591588
      status |  -.0819575   .0386282    -2.12   0.035    -.1579099    -.006005
 ownershipd2 |  (dropped)
 ownershipd3 |  (dropped)
    firmsize |  (dropped)
       jobd2 |   .1194408   .0708864     1.68   0.093    -.0199391    .2588207
       jobd3 |  -.0982904   .0668661    -1.47   0.142    -.2297654    .0331845
       jobd4 |   .1207742   .1082792     1.12   0.265     -.092129    .3336774
       jobd5 |   .0813886   .0564982     1.44   0.151    -.0297005    .1924778
       jobd6 |   .1615877   .0777675     2.08   0.038     .0086779    .3144975
       jobd7 |   .2060428   .0625064     3.30   0.001       .08314    .3289456
       jobd8 |  -.0301515   .0757583    -0.40   0.691    -.1791107    .1188077
       jobd9 |  -.1326656   .1133314    -1.17   0.242    -.3555026    .0901714
       _cons |   6.449118   .2425938    26.58   0.000     5.972119    6.926116
-------------+----------------------------------------------------------------
     sigma_u |  .4556608
     sigma_e |  .30439751
         rho |  .69143325   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(46, 379) =      7.78             Prob > F = 0.0000

. test jobd2 jobd3 jobd4 jobd5 jobd6 jobd7 jobd8 jobd9

 ( 1)  jobd2 = 0
 ( 2)  jobd3 = 0
 ( 3)  jobd4 = 0
 ( 4)  jobd5 = 0
 ( 5)  jobd6 = 0
 ( 6)  jobd7 = 0
 ( 7)  jobd8 = 0
 ( 8)  jobd9 = 0

       F(  8,   379) =    2.85
           Prob > F =    0.0044
```