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Abstract

Analysis of labor force survey data from 1994 to 2007 reveals that the structure of the Philippines labor force has been changing in several important ways. One is the movement from self-employment, the most predominant form of employment, to wage employment across a wide range of production sectors. How does one evaluate this change in terms of workers' earnings—arguably the most important element of job quality? Since labor force survey data do not provide information on earnings of the self-employed we combine information on household incomes (disaggregated by source) from the Family Income and Expenditure Survey (FIES) with information on household members' employment-related activities from the Labor Force Survey (LFS) to shed light on this question. We also examine broad trends in the structure of employment, wages, and earnings. Our findings suggest that the decline of self-employment is no bad thing. For the most part, the earnings and educational profiles of the self-employed are very similar to those of casual wage earners, and clearly dominated by those of permanent wage earners even when observable worker characteristics are controlled for. An implication is that the self-employed do not seem to be "capitalists in waiting" as noted in recent literature. As self-employment gives way to wage employment, especially casual wage employment in the services sector, the key challenge for policy is tackling the slow growth of wages and earnings indicated by both LFS and FIES data.

I. Introduction

Labor force survey data from the Philippines reveal at least two important changes in the structure of employment over the last 10 years. First, the share of employment accounted for by agriculture has declined considerably—almost 10 percentage points between 1994 and 2007. Second, there is a clear shift taking place in the nature of employment: the share of self-employment is declining and giving way to wage or salaried employment (henceforth referred to as wage employment). While these two changes are related—self-employment is the dominant form of employment in agriculture—the decline in the importance of self-employment extends beyond the agriculture sector. Indeed, the decline in self-employment is found to be an across-the-board phenomenon.

How does one assess these changes? In particular, does the movement away from self-employment to wage employment represent an improvement in workers' welfare? More generally, what has happened to the quality of jobs in the Philippines? We use data from the Labor Force Survey (LFS) and Family Income and Expenditure Survey (FIES) to examine this question. In doing so, we also examine broad trends in the structure of employment, wages, and earnings.

There are several features of a job that determine whether it is of good quality or not. Arguably, the most important one relates to the earnings generated by a job (itself a product of a number of hours worked and the wage rate). Other important characteristics include the stability of the job and/or earnings; whether the job provides protection from various risks (in particular, health- and unemployment-related risks); and for old age, working conditions, and prospects the job offers for future mobility.

The main difficulty in answering the question on the quality of jobs in a comprehensive manner is data-related. In this paper we combine information from the FIES and the LFS in order to evaluate both the shift from self-employment to wage employment as well as what has happened to the quality of jobs being generated in the Philippines. While neither of the two data sets provide information on access to social protection, conditions of work, or prospects for mobility, the two *together* can shed light on earnings (directly so) and the stability of earnings (indirectly).

The LFS provides information regarding an individual's status in the labor force (i.e., whether or not a person is in the labor force, etc.); type of employment (i.e., wage

employment or self-employment); and type of contract (permanent or temporary) for wage employees.[1] The information on type of employment and type of contract can be used together to infer something about the stability of earnings, at least in so far as wage employees are concerned. Unfortunately, the information on labor market earnings is more sparse. It is (reliably) available for one type of employment, wage employment. In effect, the earnings of the self-employed get missed.

As is the case in most, if not all, developing countries a large fraction of the workforce in the Philippines is self-employed. Ascertaining reliable information on earnings from the self-employed is not easy as considerable effort needs to be made to measure own-account transactions; and assumptions need to be made about issues such as the depreciation of income-generating assets.[2] The absence of high-quality written accounts complicates the task even more. This has led some national statistical agencies—for example, in India—to omit asking questions about earnings from self-employment completely in its LFS. In the Philippines, the practice has changed over time. While the self-employed were also asked about their earnings in earlier rounds of the LFS, the most recent rounds refrain from doing so.

Since the level of earnings is quite possibly the single most important characteristic of a job, the absence of information on the earnings of the self-employed is a serious constraint in figuring out how the labor market is performing in terms of determining the economic well-being of individuals and households. Fortunately, it is possible to use information from both the LFS as well as the FIES to tackle this problem. In particular, the household sample used for the FIES (carried out every 3 years) is identical to that used for two concurrent rounds of the LFS (carried out quarterly). Thus, it is possible to link the household income and expenditures collected by the FIES with the information on labor market activities of each sample household. Since the FIES collects detailed information on household incomes from a variety of sources, including income generated from wage employment, self-employment (called “entrepreneurial” income), remittances, etc., it is possible in principle to work out how much earnings are generated from self-employment versus wage employment. In fact, because of the greater detail and more disaggregated nature of the questions on income from the FIES, there is reason to believe that the FIES data on self-employment earnings is of reasonable quality (and certainly of higher quality as compared to earnings information from earlier versions of the LFS). In this way, combining information from both the LFS and FIES should shed much more light on the evolution of earnings than would be possible utilizing either one of the data sets alone.

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[1] The contract could be formal or informal. Unfortunately, there is no information on this.

[2] This tends to be the case in both industrial and developing countries. For example, Deaton (1997) describes the findings from a study that compared income data from the United States’s Current Population Survey (CPS) with income data from fiscal/tax sources. The study found estimates of nonfarm self-employment income from the CPS to be 21% lower than those derived from fiscal/tax sources. Estimates for farm self-employment income were 66% lower! However, the CPS estimates of income for wages and salaries were almost identical to those from the fiscal/tax sources.

The rest of this paper is organized as follows. Section II describes briefly the contents of the two data sets. Section III relies on the LFS to describe how the structure of employment and wages in the Philippines has evolved between 1994 and 2007. Section IV presents the income data from the FIES and discusses some important features of household income over the 1994–2006 period. Section V merges FIES and LFS data by matching households to determine how earnings have evolved for all three types of employment: self-employment, permanent wage employment, and casual wage employment. Section VI uses propensity score matching (PSM) techniques to evaluate earnings differentials between the employment types controlling for various observable attributes of workers and households. Switching gears, Section VII looks at which kinds of jobs are being created or destroyed, and where jobs are defined in terms of a particular employment type in a particular production sector. Section VIII evaluates through simple decomposition whether average earnings were driven by increases in earnings within jobs or changes in the composition of jobs. The final section provides some concluding thoughts, including placing the findings of this paper in the context of recent work on informality and labor market outcomes in developing countries.

II. The Data

As noted in the introduction, our two sources of data are the LFS, carried out quarterly, and the FIES, carried out once in 3 years. In particular, we match sample households from LFS data in 1994 (third quarter) and 2007 (first quarter) with FIES data for 1994 and 2006, respectively. This allows us to combine information on household incomes disaggregated by source (i.e., entrepreneurial income from self-employment and income from wage employment) from the FIES with information on household members' employment status from the LFS. In what follows we describe some key aspects of both data sets as they pertain to our analysis.

A. Labor Force Survey Data

The LFS of the Philippines collects a variety of demographic and labor force-related information from the members of sample households including their age, gender, highest grade achieved, and labor force status. For those who are employed, i.e., working more than an hour over the reference period, there is additional information on the type of employment—e.g., whether the person in question is self-employed or engaged in wage employment, hours of work, and industry and occupation of employment.[3] For wage employees, information is also available on the type of contract—either permanent

[3] The LFS further distinguishes the self-employed in terms of: (i) employer, (ii) self-employed without employees, and (iii) self-employed with or without pay on own family-operated farm or business. In this paper, we do not exploit this distinction. It may be noted that the percent share of the three types of self-employed are 5–10%, 66–65%, and 26–28%, respectively, based on 1994 and 2007 LFS data.

or temporary—and on wages received over the reference period.[4] All of the above information is available for both a "primary" job as well as "other" job, in case a person has more than one job. As will be discussed in more detail below, we only utilize information on the primary job in our analysis.

For our analysis, we distinguish only between three types of workers: self-employed, permanent wage employees, and casual wage employees. Casual wage employees are wage employees who work on either a short-term/casual basis (defined as a contract lasting less than a year) or have different employers during the reference period. Permanent employees, on the other hand, are those who work on a contract that lasts one year or more with a single employer during the reference period.

While the LFS has maintained a fairly similar questionnaire over the years, there are some important differences between the questionnaires used in the 1990s and those used since 2000. In particular, while the LFS is a quarterly survey, only the survey for the third quarter asked information on earnings prior to 2000. Since then, each of the quarterly surveys asks respondents about earnings. Additionally, while the self-employed were also asked to report earnings previously, this practice was stopped from 2000. Perhaps most importantly, the reference period of employment-related information has changed since 2000. Previously, the reference period was a quarter (i.e., 3 months). Since 2000, the reference period has switched to one week for most job-related characteristics except for earnings (of wage employees), which is recorded on a "per day" basis.

In this paper, we mainly utilize data from the third quarter LFS for 1994 and first quarter LFS for 2007. As noted earlier, only the third quarter LFS for 1994 has information on earnings. As for the 2007 survey, the first quarter LFS is the only one of the quarterly surveys for which a full match between sample households from the LFS and corresponding FIES is available. In some of our analysis we also present information from the third quarter LFS for 1997 and first-quarter LFS for 2001 and 2004. The sample size of these LFS datasets is quite large covering more than 100,000 individuals per year.

For expositional clarity and consistency in terminology with the FIES years, we will use "2000" instead of "2001", "2003" instead of "2004", and "2006" instead of "2007" to denote the LFS years from this point onward.

For our analysis we restrict our attention to individuals who were between 21 and 59 years old and worked at least one hour in the reference quarter/week. Additionally, we work only with the characteristics of the primary job. It may be noted that only about 11.34% of those with a primary job also reported a secondary job in 1994. In less than half of these cases did the type of employment differ across the primary and secondary jobs.

[4] Information on whether a person has a permanent or casual job is also available for the self-employed. We do not utilize this information to distinguish the self-employed further since we are unsure about whether the distinction is appropriate for the self-employed.

We divide total wage and salary earnings from the primary job for the quarter/week by the total number of hours worked on the primary job in order to arrive at workers' hourly wage rates. Furthermore, we combine temporal consumer price indexes at the region level with information on spatial variation in cost of living from Balisacan (2001). This allows us to adjust wages for spatial and temporal price differentials.

B. FIES Data

FIES, as its name implies, contains information on both incomes and expenditure at the household level. Household income obtained within the reference period (which is 1 year) can be disaggregated into components such as wage and salary income, income from entrepreneurial activities (i.e., self-employment); remittance income (domestic and overseas); and income from other sources such as inheritance, rentals, pension, and winnings from gambling.

Unfortunately, the FIES does not provide information on the labor force/employment-related characteristics of household members. Nevertheless, the fact that the sample households of the FIES are identical to those of particular rounds of the LFS means that the latter can be used to determine the labor force/employment characteristics of household members once data sets from the two surveys have been matched by household.[5]

There is a complication, however. Since the FIES and LFS surveys are carried out at different points of time, and entail different reference periods, there is a possibility that workers may have different labor force status and/or job status across the two surveys. We have no option but to assume that such a possibility is a rare occurrence and can be ignored. In other words, we have to assume that particular individuals' labor force status and employment characteristics are slow to change so that for all practical purposes the information from a particular LFS round applies to the period over which household income data from an adjacent FIES is collected. Additionally, a method must be devised in order to impute individual earnings from household earnings as reported in the FIES. Section V describes the method we adopt.

[5] The matched FIES-LFS data for 2006 was provided by the National Statistics Office. The matched data for 1994 was, however, generated by us using information on the "household control number" for merging households across the FIES and LFS data sets. It is possible that some households may be incorrectly matched. This can happen if a household had shifted its residence between surveys (since the household control number seems to have applied to a residential location rather than a unique family). While there appears to be no straightforward way to determine exactly how serious an issue this is, a comparison of household size across the two data sets—a key common variable—as well as the similarity in many of the variables analyzed in this paper across 1994 and 2006 strongly suggest that any mismatches of households are likely to be few.

III. Structure of Employment and Wages: Evidence from LFS Data

How has the structure of employment evolved over time? In this section, we use data from five rounds of the LFS (1994, 1997, 2000, 2003, and 2006) to describe how employment is distributed across production sectors, occupations, levels of education, and various age groups.[6] We also consider how employment has changed in terms of the type of employment (whether a worker is engaged in wage employment or self-employment), and the type of contract (whether wage employment is deemed to be of a permanent or casual nature). Finally, we consider the evolution of wages. As noted earlier, this can only be done for wage employees in so far as LFS data is concerned. As also noted, the analysis in this section is restricted to employed individuals 21–59 years old and based solely on the "primary job" of each worker.

A. Employment by Production Sector

Table 1 describes the distribution of workers by broadly defined production sectors. Four sectors account for around 80% or more of employment: agriculture; wholesale and retail trade (WRT) services; community, social, and personal services; and manufacturing.

Table 1: Prime-aged Workers by Production Sector (percent of total)

	1994	1997	2000	2003	2006
Agriculture	41.47	36.27	32.96	32.23	33.44
Mining	0.43	0.52	0.45	0.4	0.44
Manufacturing	10.64	10.6	10.72	10.29	9.84
EGW	0.49	0.55	0.48	0.43	0.44
Construction	5.27	6.78	6.18	5.97	5.83
WRT	14.46	15.39	20.24	21.41	23.09
TCS	6.37	7.28	8.34	8.6	9.02
FIREBS	2.3	2.81	3.12	3.67	4.46
CSPS	18.6	19.8	17.5	17	13.44
Total	100	100	100	100	100

EGW = electricity, gas, water; WRT= wholesale and retail trade; TCS = transportation, communication, storage; FIREBS = finance, real estate, business services; CSPS = community social and personal services.

The share of workers in agriculture—the sector that continues to remain the single most important employer—fell from around 41% in 1994 to 33% in 2006. The decline in the share of employment in agriculture has essentially been taken up by an expansion of employment in various types of services, especially WRT services. Thus, while the share of employment in manufacturing has remained around 10% throughout the period being considered, the share of WRT services in particular has seen an increase from around 14% in 1994 to 23% in 2006. The share of transportation, communication, and storage;

[6] For a comprehensive discussion on labor market outcomes, including trends in unemployment and underemployment in the Philippines, see Felipe and Lanzona (2006). Felipe and Lanzona also provide a comprehensive discussion of labor regulations in the Philippines and the evidence on their role in driving labor market outcomes.

and finance, real estate, and business services together has increased from around 3.6% in 1994 to 13.5% in 2006.

B. Employment by Educational Attainment

Table 2 describes the distribution of workers in terms of their educational attainments. Clearly, and not surprisingly, the workforce has become steadily more educated over time. The share of workers with less than a primary education has declined from a little under 21% to around 16%. There has also been a decline in the share of workers with a primary education. On the flip side, there has been an increase in the proportion of workers with a secondary education as well as a tertiary education. Notably, and also not surprisingly, the biggest expansion has been in the share of the secondary educated.

Table 2: Prime-aged Workers by Education Level (percent of total)

	1994	1997	2000	2003	2006
Below Primary	20.87	18.98	17.37	17.31	16.28
Primary	36.15	33.93	31.05	29.81	28.21
Secondary	30.42	33.38	36.2	37.65	38.66
Tertiary	12.56	13.71	15.37	15.22	16.85
Total	100	100	100	100	100

C. Employment by Occupation Group

Table 3 describes the distribution of workers by occupation groups. The share of professional and administrative workers has been steadily increasing over the years. The share of clerical and sales workers has also increased over time, though not as consistently (see the decline over the 2003–2006 period). Interestingly, production workers' share has declined considerably since 1994—declining from 64.7% to 55.4% in 2006. Notwithstanding this decline, production workers remain the largest component of the labor force, comprising more than half of Filipino prime-aged workers.

Table 3: Prime-aged Workers by Occupation Group (percent of total)

	1994	1997	2000	2003	2006
Professional/ Administrative	15.72	16.47	19.37	21.36	22.32
Clerical/Sales	19.56	21.79	23.94	24.16	22.24
Production	64.72	61.74	56.68	54.48	55.44
Total	100	100	100	100	100

D. Employment by Age Group

Table 4 describes the distribution of workers by age group. The numbers for 2000 are a bit out of line with the other 3 years. Ignoring 2000, the story is one of a fairly stable age profile of workers.

Table 4: Prime-aged Workers by Age Group (percent of total)

	1994	1997	2000	2003	2006
21–30	30.30	31.12	28.26	31.58	30.87
31–40	30.39	30.99	30.19	31.21	30.41
41–50	24.58	24.6	26.88	23.78	24.59
51–59	14.74	13.29	14.67	13.44	14.13
Total	100	100	100	100	100

E. Employment by Type

Table 5 describes the distribution of employment within production sectors by the type of employment—i.e., whether a worker is self-employed, or a permanent or casual wage employee. Focusing on either the economywide level or the four most important production sectors in terms of employment (agriculture, manufacturing, WRT, and community and personal services), the following pattern emerges over the period under consideration: (i) the share of workers who are self-employed has fallen; (ii) the share of casual wage employees has increased; and (iii) with the exception of manufacturing, the share of permanent wage employees has likewise increased.

Table 5: Prime-aged Workers by Production Sector and by Employment Type

	1994			1997			2000		
	Self-Employed	Permanent employee	Casual employee	Self-Employed	Permanent employee	Casual employee	Self-Employed	Permanent employee	Casual employee
All	52.8	34.8	12.4	49.3	38.0	12.7	46.9	38.3	14.8
Agriculture	79.0	9.7	11.3	79.0	10.2	10.8	74.3	11.8	13.9
Manufacturing	28.5	59.2	12.4	25.8	60.7	13.5	26.9	57.5	15.6
WRT	76.6	18.7	4.7	72.6	21.9	5.5	67.4	25.2	7.4
CSPS	14.6	71.4	14.0	14.6	71.6	13.9	7.3	77.7	15.0

	2003			2006		
	Self-Employed	Permanent employee	Casual employee	Self-Employed	Permanent employee	Casual employee
All	45.3	38.4	16.3	47.4	38.0	14.6
Agriculture	72.1	12.3	15.6	72.0	14.5	13.5
Manufacturing	24.0	58.2	17.7	22.9	58.5	18.7
WRT	64.6	26.4	9.0	63.4	27.6	8.9
CSPS	7.0	75.1	17.9	8.9	78.3	12.8

WRT= wholesale and retail trade; CSPS = community social and personal services.

Looking at only the group of wage workers, it can be inferred that over the period under consideration the share of permanent employees has fallen and the share of casual workers has increased (Table 6). However, this decline is driven by manufacturing and WRT. The share of permanent workers to total wage workers increased for agriculture and community, social, and personal services.

Table 6: Prime-aged Wage Workers by Production Sector and by Employment Type

	1994		1997		2000	
	Permanent employee	Casual employee	Permanent employee	Casual employee	Permanent employee	Casual employee
All	73.73	26.27	75.02	24.98	72.08	27.92
Agriculture	46.26	53.74	48.64	51.36	45.94	54.06
Manufacturing	82.69	17.31	81.82	18.18	78.63	21.37
WRT	79.85	20.15	79.91	20.09	77.32	22.68
CSPS	83.58	16.42	83.76	16.24	83.81	16.19

	2003		2006	
	Permanent employee	Casual employee	Permanent employee	Casual employee
All	70.21	29.79	72.23	27.77
Agriculture	44.24	55.76	51.86	48.14
Manufacturing	76.67	23.33	75.77	24.23
WRT	74.71	25.29	75.56	24.44
CSPS	80.8	19.2	85.94	14.06

WRT= wholesale and retail trade; CSPS = community social and personal services.

Since the relationship between employment type and job quality is one of the issues we are most interested in, it is worth examining the relationship between employment type and other characteristics of workers, including educational attainment, age distribution, and occupation. Tables 7a–7c describe the distribution of the three types of workers across the various educational levels, age groups, and occupation categories. In order to save space, and also for expositional ease, we focus on data from the earliest and latest years. Turning first to education, the most important feature of the data is that permanent wage employees tend to be far better educated than either the self-employed or the casual wage employees, both of whom are actually quite similar in their educational profiles. Nevertheless, as the table also reveals, the level of education has been steadily increasing among the self-employed and the casual wage employees so that by 2006 the differences in educational profile between permanent wage employees and the other two is less significant than in 1994.

In so far as the age profile of the three types of workers are concerned, the age profiles of both types of wage employees—permanent or casual—are fairly similar and quite distinct from that of the self-employed. In particular, a majority of wage employees tend to belong to the younger age group, especially for casual wage employees. In contrast, the single largest share of the self-employed belongs to the middle age group.

Table 7c indicates that the share of professional and administrative workers has been increasing across all worker types. Consistent with the pattern in Table 3, the decline in the share of production workers is across-the-board for all three employment types. On the other hand, there is an increase in the share of clerical and sales workers for both self-employed and casual workers while the share of permanent clerical and sales workers has dipped slightly over the period.

Table 7a: Prime-aged Workers by Education Level and by Employment Type

	1994			2006		
	Self-Employed	Permanent Employee	Casual Employee	Self-Employed	Permanent Employee	Casual Employee
Below primary	27.34	10.2	23.33	21.9	8.92	17.2
Primary	42.13	25.78	39.79	33.99	19.21	32.88
Secondary	25.67	37.39	31.06	36.35	41.26	39.41
Tertiary	4.85	26.63	5.82	7.75	30.61	10.51
Total	100	100	100	100	100	100

Table 7b: Prime-aged Workers by Age Group and by Employment Type

	1994			2006		
	Self-Employed	Permanent Employee	Casual Employee	Self-Employed	Permanent Employee	Casual Employee
21-30	23.2	36.45	43.22	22.76	35.45	45.21
31-40	30.33	31.25	28.19	30.2	31.41	28.48
41-50	27.28	22.47	19.00	28.55	22.23	17.93
51-59	19.19	9.83	9.59	18.49	10.91	8.38
Total	100	100	100	100	100	100

Table 7c: Prime-aged Workers by Occupation Group and by Employment Type

	1994			2006		
	Self-Employed	Permanent Employee	Casual Employee	Self-Employed	Permanent Employee	Casual Employee
Professional/Admin.	15.8	19.78	4.16	23.91	26.18	7.16
Clerical/Sales	10.39	32.99	21.37	13.94	31.89	24.02
Production	73.81	47.23	74.47	62.15	41.93	68.82
Total	100	100	100	100	100	100

F. Wages of Permanent and Casual Employees

Before examining the behavior of wages, it is useful to discuss a few key features of the underlying data on earnings and hours worked (since wages are derived as earnings divided by hours worked). First, the reference periods used for collecting information on earnings and hours worked have changed over survey years. While in the 1990s, the LFS information on both earnings and hours worked pertained to a quarter (i.e., three months), in the 2000s earnings information pertained to one day while the hours worked pertained to one week. Second, the percent of missing observations on earnings and/or hours worked increased considerably in 2006: from 2.1% and 2.3% for permanent and casual workers, respectively, in 2000 to 13.4% and 10.9% in 2006. Third, the wage estimates (i.e., earnings divided by hours worked) at the top end of the resulting distribution tend to be relatively low in 2006—something we shall discuss in more detail below. It is difficult to be sure what is happening. Taken at face value, the data indicate that those at the top end of the wage distribution took a big hit in 2006. There are many alternative interpretations, however. For example, perhaps higher-income households have been more likely to underreport wages of their high earning members in recent years. Alternatively, outliers may have been more of a problem in the earlier surveys—not just with earnings but perhaps even the reported hours worked.

It is beyond the scope of this paper to resolve this issue. In what follows, we first top code hours worked at 16 hours (in particular, people reporting between 16 and 24 hours of work are treated as having 16 hours of work; all observations in which hours worked per day are more than 24 hours are dropped). We then treat the (derived) wages at face value, except for trimming the top and bottom 1% to control for potential outliers. Finally, we adjust wages for spatial price differentials using regional poverty lines of Balisacan (2001). Temporal price differentials are adjusted for using regional consumer price indexes from the NSO.

Figure 1 describes the behavior of hourly (real) wages at different points of the wage distribution, including average wages from 1994 to 2006. As noted above, wages at the top end (90th percentile in Figure 1) of the distribution in 2006 are considerably lower than in 2000. Wages in the middle of the distribution (50th percentile) and at the bottom (10th percentile), however, are much more in line with earlier estimates. Nevertheless, they indicate fairly lackluster growth in wages, especially since 2000.

Figure 1: Distribution of Hourly Real Wages, 1994–2006 (in 1997 NCR pesos)

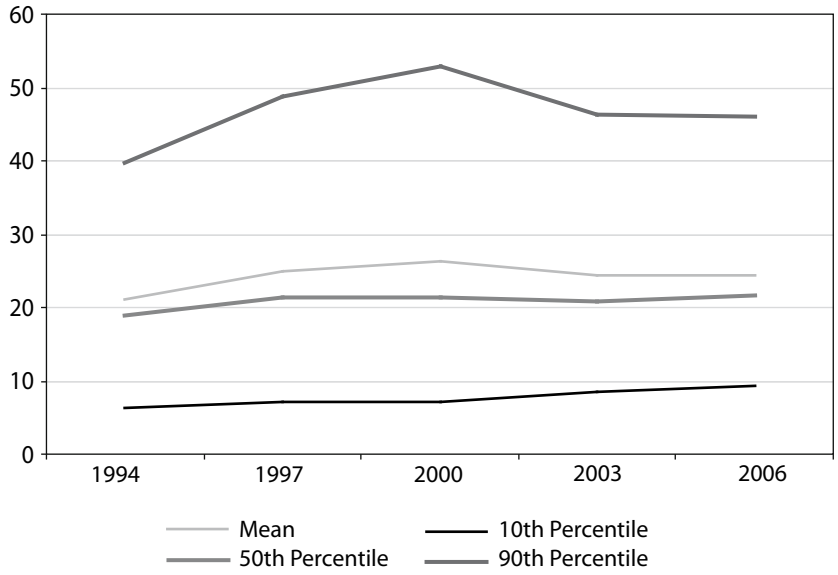


Table 8 describes average real hourly wages in 1994 and 2006. In addition to the overall average wage in these 2 years, averages are also provided for various subgroups of the population of wage employees.

A number of important patterns are clearly evident. First, employees with contracts of a permanent nature received much higher wages than those casually employed. For example, in 2006 permanent workers' wages were 51% higher than those of casual workers. Second, wages are highest for those employed in services and lowest for those

employed in agriculture (services wages were 26% higher than in industry while industry wages were 58% higher than in agriculture). Third, wages increase with educational attainment and tend to be the highest for those employed in professional, technical, managerial, and administrative occupations—occupations closely associated with skilled white-collar jobs. Surprisingly—at least from the typical developing (and developed!) country context—average wages for men are lower than those for women in 2006 (though this was not the case in 1994).

Table 8: Average Hourly Real Wages, Growth Rates, and Gini Coefficients (in 1997 NCR pesos)

	1994	2006	Annualized Growth Rates (1994–2006)	Gini Coefficient (1994)	Gini Coefficient (2006)
Overall Average	21.19	24.49	1.12%	0.35	0.32
Gender					
Male	21.76	23.22	0.50%	0.32	0.30
Female	20.19	26.92	2.24%	0.40	0.35
(M vs. F)	7.78%	-13.72%			
Work Status					
Permanent employee	23.38	27.40	1.23%	0.34	0.31
Casual employee	16.02	18.21	0.99%	0.32	0.27
(PE vs. CE)	45.96%	50.51%			
Education					
Below primary	14.22	15.68	0.75%	0.33	0.28
Primary	16.69	17.72	0.46%	0.33	0.27
Secondary	21.61	22.39	0.27%	0.31	0.25
Tertiary and up	35.13	39.68	0.94%	0.24	0.25
(P vs. BP)	17.38%	13.04%			
(S vs. P)	29.46%	26.35%			
(T vs. S)	62.56%	77.24%			
Occupation					
Professional	34.47	42.05	1.54%	0.27	0.25
Clerical	18.97	23.54	1.68%	0.39	0.29
Production	18.74	18.88	0.06%	0.30	0.25
Industry					
Agriculture	14.14	14.60	0.24%	0.31	0.26
Industry	23.25	23.10	-0.05%	0.25	0.23
Services	22.98	29.11	1.84%	0.37	0.32
(Agriculture vs. Industry)	64.36%	58.23%			
(Services vs. Industry)	-1.13%	26.01%			

M = male; F = female; PE = permanent employee; CE = casual employee; BP = below primary; P = primary; S = secondary; T = tertiary and up.

The third column of Table 8 describes annualized growth in average wages between 1994 and 2006 by all the different groupings. As this column shows, wages of permanent workers grew faster than those of casual workers (1.2% versus 1%, respectively); wages of the college-educated grew faster than those of the less educated (0.94% versus 0.27% for the secondary educated and 0.46% for the primary educated);[7] wages of skilled

[7] The fact that wages of the secondary educated grew the least is consistent with the earlier findings from Table 2 that the shares of these workers grew the fastest. In other words, a rapid increase in the shares of secondary educated workers may be (partly) responsible for the very low wage growth of the secondary educated workers. For more on this, see Mehta et al. (2007) and ADB (2007a and 2007b).

white-collar workers grew much faster than production workers' (1.54% versus 0.06%, respectively) but slower than clerical and sales workers (1.68%); and service sector wages grew considerably faster than those in the industry sector (1.84% versus –0.05%, respectively). The higher growth in wages of female workers—2.24% versus 0.5% for the wages of male workers—was sufficient to make the average wages of females higher than those of men by 2006.

The Gini coefficients presented in Table 8 have declined for almost all categories of employment between 1994 and 2006, suggesting that wages tend to be more equal compared to 1994. Looking within categories, we can see that wages of female, permanent, less-educated, clerical, and service sector workers tend to be more dispersed than those of their counterparts.

Of the many patterns displayed by the structure of employment and wages described above, a couple are especially important from the perspective of this paper and is worth noting these again. First, the growth of wages has been remarkably lackluster. Despite average gross domestic product growth of 4% between 1994 and 2006, real wages have grown on average by only 1.12%. Second, wage employees with permanent contracts typically receive higher wages than the casually employed. Since having a permanent contract also implies more stable employment, and most likely a more stable stream of earnings, the increase in the share of permanent wage employment in total employment (i.e., including the self-employed as well) as documented in Table 5 above would appear to be a welcome finding.

But this is far from conclusive. A key reason is that while the share of permanent employment has gone up, the share of casual employment has also increased. Moreover, since we do not have a sense of how remunerative self-employment is (or how stable the earnings from self-employment are), it is difficult to make a judgment on what has happened to the overall quality of jobs in the Philippine labor market. To tackle this issue, we turn to an analysis of FIES data on household incomes and expenditures supplemented by labor market information on household members drawn from the LFS.

IV. Income Data from the FIES

As noted earlier, the FIES collects information on household income by source such as wage and salary income, income from entrepreneurial activities (i.e., self-employment), remittance income (domestic and overseas) and from other income sources such as inheritance, rentals, pension, and winnings from gambling. Figures 2 and 3 show the share of each income component in total per capita household income by decile groups in 1994 and 2006, respectively.[8]

[8] That is, using information on household size, per capita income is computed for each household. Households are

Figure 2: Proportion of Income Components to Total per Capita Household Income, 1994

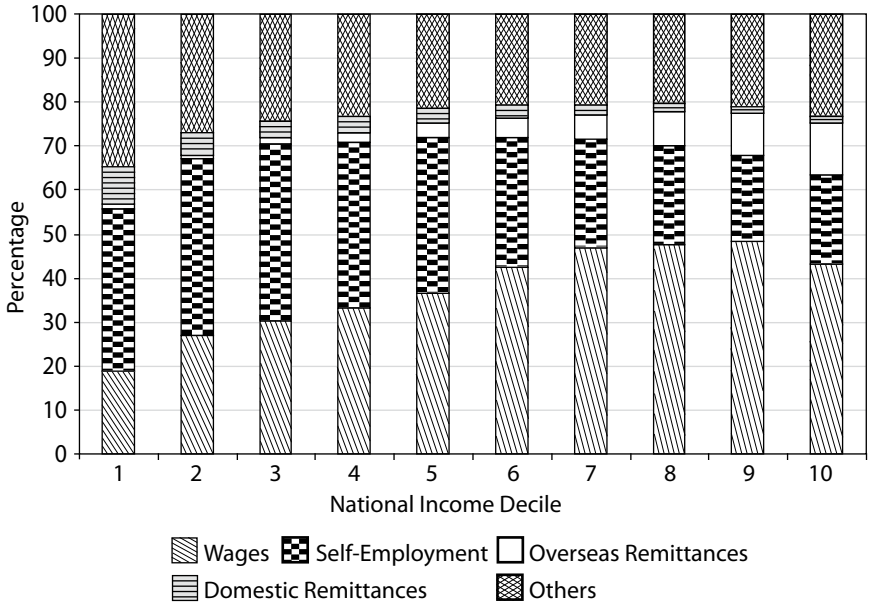
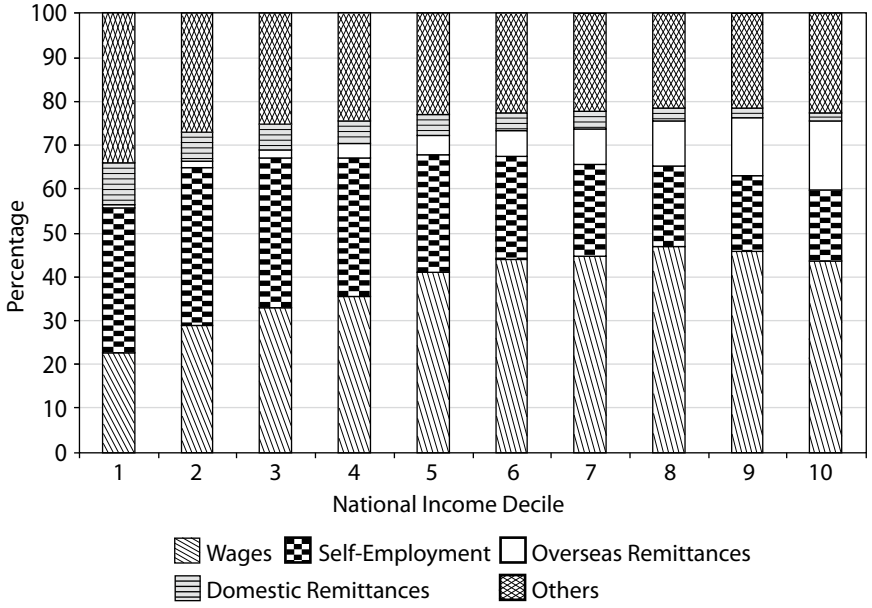


Figure 3: Proportion of Income Components to Total per Capita Household Income, 2006

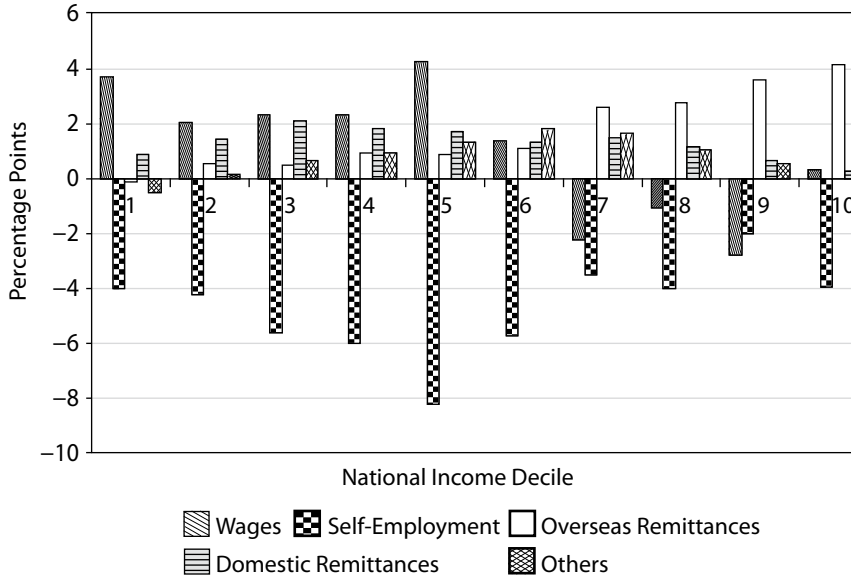


then assigned to one of 10 decile groups based on their per capita incomes.

These figures show that for households with per capita income below the median, there was greater reliance on entrepreneurial activity income in 1994. A little above 40% of household income of such households was sourced from entrepreneurial activities. This reliance seemed to decline in 2006 when only the bottom 30% of households (in terms of household per capita income) had entrepreneurial activity as the single largest component of income.

Figure 4 shows that the share of wage earnings in household income has increased by an average of 3 percentage points for those belonging to the bottom half of the distribution of household per capita income while that of entrepreneurial activities declined by an average of nearly 6 percentage points. This highlights the shift of these poorer households from mainly relying on self-employed entrepreneurial activities toward wage employment. However, Figure 4 also shows that the decline in importance of income from self-employment is an across-the-board phenomenon.

Figure 4: Change in Proportion of Income Components, 1994–2006



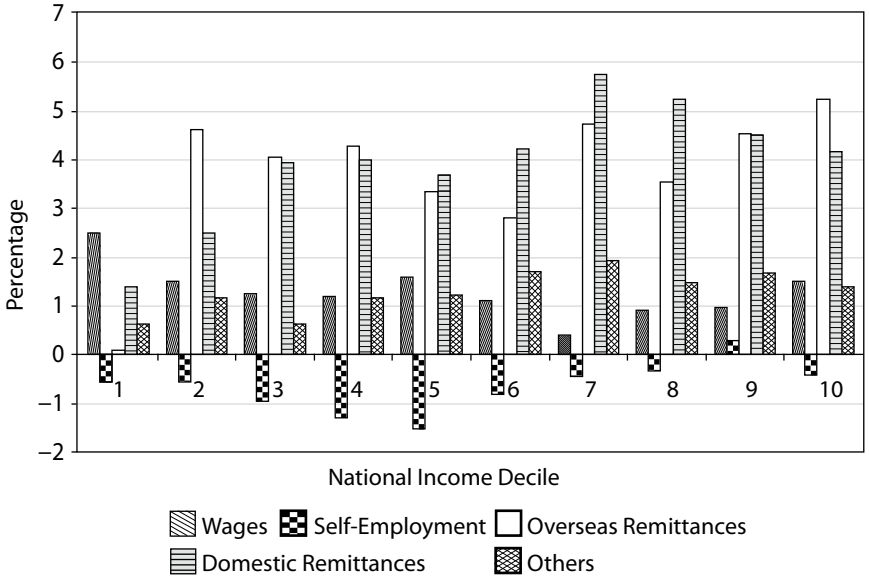
Significantly, the share of overseas remittances in per capita household income has increased between 1994 and 2006 for nearly every decile group. Moreover, its share has increased the most for the richest 30%. The share for these households was around 10–16% in 2006, which was 3–4 percentage points higher than its share in 1994.[9]

Figure 5 describes the annualized growth of the various components of per capita income by decile groups. Given that we do not know the sources of domestic remittances—

[9] Son (2007) points out that this phenomenon of fast growth of overseas remittances has the tendency to increase income inequality.

whether they are based on wage or on self-employed income of the remitter—drawing inferences can be tricky.[10] Nevertheless, what is clear is the important role played by overseas remittances in driving growth in per capita household incomes. The only exception is the bottom decile, for which overseas remittances are an insignificant contribution to per capita income and its growth. With the exception of this lowest decile, the growth of overseas remittances has clearly outstripped growth in wages—which has rarely grown faster than 2% per year—by a large margin in all other decile groups. In sharp contrast, income from self-employment has declined for all but one decile group (the second richest decile).

Figure 5: Annualized Growth of per Capita Income Components by National Income Decile, 1994–2006



In summary, this brief analysis of FIES income data seems to corroborate the findings on wages from the FIES, i.e., that of its low growth. It also indicates that self-employment income has been declining in importance as a source of income. Finally, it has highlighted the important role of overseas remittances buoying household incomes for all but the very poorest. Of course, some of these inferences must remain tentative. For one, there has been no control made for the number of earners within each household. For example, the decline in household self-employment income (even on a per capita basis) could be on account of a decline in the number of self-employed earners with the family. We, therefore, turn to a more complete analysis of earnings from wage employment and self-employment using our matched FIES–LFS data.

[10] The source of foreign remittances can be expected to be largely based on wage employment.

V. Analysis of Earnings: Matched FIES–LFS Data

Although Section III examined the evolution of wages of permanent and casual employees between 1994 and 2004, it did not shed any light on the remuneration to large category of workers —the self-employed. The fact that self-employment accounts for nearly half of the country's jobs means that a judgment on the quality of jobs in the Philippines that omits self-employed jobs could be seriously incomplete. This section attempts to incorporate into the analysis this too-often neglected type of work by exploiting information from the FIES and linking it with information from the LFS for matching households.

As noted earlier, by matching households across corresponding rounds of the FIES and LFS, it is possible to match information on household incomes with information on the type of employment household members are engaged in. Since entrepreneurial income accrues to the self-employed and wages and salaries accrue to wage employees, linking the two data sets should allow us to make headway on the nature of earnings across the three types of employment we are interested in, self-employment, permanent wage employment, and casual wage employment.

There are some potential drawbacks to this approach, however, and it is useful to go over these. First, while the LFS provides information on the labor force status of each household member included in the sample of FIES households, the two surveys are not carried out at the same time; nor do the reference periods for the relevant variables overlap identically. For example, while the labor force-related information from LFS (first quarter) 2007 pertains to the week preceding the LFS survey, the information on household incomes from the corresponding FIES pertains to the 365-day period in 2006. Thus, in using information in the LFS to inform us about the labor force-related sources of household income we have to assume that the particular details on individuals' labor force status and participation, especially whether or not they are employed and the type of employment they are engaged in, is slow to change. Only under such an assumption would linking the LFS data with FIES data provide useful information on the quality of self-employment versus wage employment.

Second, with the exception of earners who are either the only self-employed earner or the only wage employee (either permanent or casual) within a household, some method is needed in order to divide up income from self-employment and/or income from wage employment among multiple self-employed or wage earners within a household. Around 43% of households had multiple earners in 1994, accounting for 70% of self-employed workers and 63% of wage workers during that year. In 2006, 44% of households had multiple earners, accounting for 66% of self-employed workers and 59% of wage workers.

Unfortunately, there is no fool-proof approach for dividing up household entrepreneurial income among multiple self-employed workers; even more difficult is the case of

household wage income earned by multiple wage employees, casual *and* permanent. Since the typical permanent worker earns more than the typical casual worker (see previous section), simply dividing household wage income by the number of wage employees does not seem the right thing to do.[11]

We consider two approaches for assigning entrepreneurial income and wage income to multiple self-employed or multiple wage earners. In the first approach, we carry out the following steps:

For wage workers:

(i) Using LFS earnings data, we obtain the proportion of wage earnings in the household accruing to permanent and casual workers. Specifically, we compute:

$$P_j = \frac{\sum_i w_{ij}^h}{\sum_i \sum_j w_{ij}^h}, \quad \forall \quad h = 1,...,H; i = 1,...,I; j \in (PE, CE)$$

where w^h_{ij} are the earnings from the LFS of individual i in household h with wage worker type j, which can be permanent or casual.

(ii) Apply P_j to FIES household wage income to obtain the pool of permanent worker or casual worker earnings in the household, that is:

$$E^h_{PE} = P_{PE} \bullet \mathrm{W}^h \text{ and } E^h_{CE} = P_{CE} \bullet \mathrm{W}^h$$

where W^h is the FIES wage income component of household h

(iii) To obtain individual wage earnings for permanent workers, divide E^h_{PE} by the total number of permanent workers in the household. The procedure for casual workers similarly applies by dividing E^h_{CE} by the total number of casual workers in the household.

For self-employed workers:

Divide FIES household entrepreneurial income by the total number of self-employed workers residing in the household.

[11] For example, permanent employees earn more than casual employees even after controlling for observable individual characteristics such as gender, age and its square, and educational attainment.

In the second approach, we utilize the estimated relationship between income and individual characteristics for single self-employed earners and single wage employees in order to assign total household entrepreneurial income and wage income to multiple self-employed and wage earners.[12] More specifically, we start out by first estimating three Mincerian earnings equations for each of the employment types we are concerned with. These earnings equations are restricted to the single self-employed earners, single permanent and single wage employees, respectively. More formally, we estimate:

$$\ln y^{s}_{iz} = \boldsymbol{\beta}^{s}_{iz}\mathbf{X}^{s}_{iz} + \varepsilon^{s}_{iz} \quad (1)$$

where y is the earnings of single-earner (denoted by the superscript s) individual i employed as a worker type z (z is either self-employed or a permanent or casual employee) , X is a vector of individual characteristics including age and its square, education, gender, urbanity, region, sector and occupation controls. βs are the coefficients of the regression.

The coefficients from these regressions are then used with the characteristics of all workers (i.e., not just of single earners) to predict individual earnings from each of the three types of employment. These predicted earnings can be used to compute shares of predicted household wage income (for wage employees) and household self-employment income (for self-employed workers) accruing to each employed individual. These shares are then applied to the FIES wage income for wage workers and entrepreneurial income for the self-employed workers to compute the earnings to be attributed to each specific worker in the household.[13] We use the second imputation method for this paper.[14]

Before proceeding to the analysis of earnings, it is worth reporting the results of the Mincerian regressions for single earners described in the previous paragraph. Several features stand out in Table 9. First, the various observed characteristics explain a higher share of the variation in log earnings for permanent workers than either casual or self-employed workers. Second, returns to education tend to be highest for permanent workers and this is primarily driven by returns to secondary and especially tertiary education. Interestingly, and in line with results reported in ADB (2007a and 2007b) as well as Mehta et al. (2007), returns to secondary education have decreased for wage earners. Returns to tertiary education have also declined for casual workers but NOT for

[12] "Single" self-employed earners are those who are the only self-employed worker in a particular household. The whole entrepreneurial household income is then attributed to this worker. The same definition also applies to wage workers with the household wage income attributed to that particular single wage worker. These "single" workers comprise about one third of the employed labor force.

[13] In addition to these two methods for attributing household income to individual earnings, several other methods have been tested in this paper such as using LFS wage information to divide FIES earnings in a household. Although the magnitudes change slightly, the main results are hardly affected. We chose the second method for consistency in attributing earnings to both wage and self-employed workers.

[14] The advantage of the latter method over the former is that there is sufficient variation in earnings of multiple self-employed workers within a household so that returns to individual-specific characteristics (for instance, returns to education) can be sufficiently measured. Results of the first imputation are available from the authors upon request.

permanent workers for whom there was a big increase. We find these patterns and their similarity with previous work using LFS data and complete samples (i.e., not limited to single earners) reassuring.

Table 9: Mincerian Regression of Single Earners

	Self-Employed				Permanent Employee			
Dependent Variable:	**1994**		**2006**		**1994**		**2006**	
Log Earnings	**Coefficient**	**P-value**	**Coefficient**	**P-value**	**Coefficient**	**P-value**	**Coefficient**	**P-value**
Age	0.063	0.00	0.060	0.00	0.062	0.00	0.065	0.00
Age squared	−0.001	0.00	−0.001	0.00	−0.001	0.00	−0.001	0.00
Primary	0.051	0.00	0.120	0.00	0.136	0.00	0.091	0.00
Secondary	0.165	0.00	0.209	0.00	0.391	0.00	0.379	0.00
Tertiary	0.623	0.00	0.607	0.00	0.893	0.00	1.004	0.00
Male	0.632	0.00	0.648	0.00	0.336	0.00	0.233	0.00
Urban	0.102	0.00	0.097	0.00	0.176	0.00	0.285	0.00
Industry	0.025	0.00	0.082	0.00	0.453	0.00	0.493	0.00
Services	0.245	0.00	0.250	0.00	0.305	0.00	0.383	0.00
Sales/Service	−0.251	0.00	−0.276	0.00	−0.078	0.00	−0.230	0.00
Production	−0.345	0.00	−0.339	0.00	−0.093	0.00	−0.216	0.00
Constant	8.806	0.00	8.411	0.00	8.863	0.00	8.831	0.00
R-squared	0.1878		0.1719		0.2997		0.3882	
Number of obs (unweighted)	6,866		11,453		5,750		9,342	

	Casual Employee			
Dependent Variable:	**1994**		**2006**	
Log Earnings	**Coefficient**	**P-value**	**Coefficient**	**P-value**
Age	0.070	0.00	0.055	0.00
Age squared	−0.001	0.00	−0.001	0.00
Primary	0.150	0.00	0.036	0.00
Secondary	0.273	0.00	0.149	0.00
Tertiary	0.584	0.00	0.418	0.00
Male	0.322	0.00	0.275	0.00
Urban	0.171	0.00	0.291	0.00
Industry	0.461	0.00	0.518	0.00
Services	0.536	0.00	0.400	0.00
Sales/Service	−0.005	0.33	−0.068	0.00
Production	0.223	0.00	−0.099	0.00
Constant	8.306	0.00	8.879	0.00
R-squared	0.2529		0.2481	
Number of obs (unweighted)	1,859		3,738	

Note: Includes region dummies but not reported.

Using the definition of earnings outlined earlier, we are now in a position to carry out a more detailed analysis on the evolution of earnings for these worker types.[15] Table 10 below describes average earnings for the three employment types: permanent employees, casual employees, and self-employed. In addition to overall averages, information is also provided for the four largest production sectors by employment. The simple averages suggest that the "best" jobs are permanent wage employment followed

[15] As with the analysis of wages in Section III, the earnings are adjusted to account for temporal and spatial price differentials.

by self-employment. With the exception of manufacturing in 2006, casual salaried jobs are the least paid. Compared to the wages reported in Table 8 above, the average earnings here show casual workers to be earning much less than permanent employees (for example, in Table 8 the wage of permanent workers is about 50% more than casual workers in 2006 but the earnings of permanent workers, as suggested in Table 10 is more than double that of casual workers). A part of this difference can be accounted for by the fact that permanent workers are more likely to be fully employed. For example, the LFS data for 1994 shows that an average casual worker worked 53 days in a quarter while permanent workers worked 71 days out of a possible 91 days. The averages in Table 10 also show that self-employment earnings declined slightly in 2006 while the earnings of wage workers have improved. However, the precise patterns vary by sector. Agricultural earnings decreased for all worker types including permanent workers. Permanent workers' earnings also decreased in manufacturing.

Table 10: Average Earnings by Production Sector and Employment Type (in 1997 NCR pesos)

	1994			2006		
	Self-Employed	Permanent Employee	Casual Employee	Self-Employed	Permanent Employee	Casual Employee
All	27,311.6	65,435.1	27,645.5	26,688.7	69,011.3	29,247.1
Agriculture	21,946.7	36,489.1	17,030.7	19,449.3	27,158.9	15,905.1
Manufacturing	29,208.7	68,909.9	34,990.8	28,510.9	66,154.8	36,500.5
WRT	38,769.8	53,079.2	29,649.0	34,783.8	60,032.2	34,499.2
CSPS	43,623.3	72,956.4	32,110.6	31,801.9	95,116.9	35,018.6

WRT = wholesale and retail trade; CSPS = community social and personal services.

Of course, looking at simple averages of earnings can obscure a lot. For example, it is quite possible that entrepreneurial earnings could be quite large among the well-off self-employed. Figures 6 and 7, therefore, looks into the entire distribution of earnings for different types of workers. These figures, called Pen Parades, show the average earnings at each percentile for all three types of workers.[16] In both figures we can see that the solid line representing the earnings of permanent workers lie above the broken lines of both casual and self-employed workers in both 1994 and 2006. This suggests that for both years, the worst paid permanent worker earned higher than the worst paid casual or self-employed worker; and the best paid permanent worker earned higher than the best paid casual or self-employed worker. This is true in the middle of the distribution as well.

[16] Pen Parades are the mathematical inverses of distribution functions. Also called quantile functions, they plot the earnings of each person situated in a particular distributional location.

Figure 6: Pen Parades, 1994

Figure 7: Pen Parades, 2006

However, no such clear distinction appears when we compare the Pen Parades of the casual and self-employed worker. The lines lie so close together that they are hardly distinguishable except at the higher end of the distribution, where the earnings of the self-employed tend to dominate those of casual workers. The line for casual workers, though, seems to lie above the self-employed line for the most part of the distribution, and the distance between those lines seem to be more discernible in 2006. Using the same information used to construct the Pen Parades, Figures 8 and 9 show a comparison of the percentage difference in earnings of each pair of worker type. For permanent workers, it is evident that they earn two to three times as much as casual workers and self-employed workers depending on the location in the distribution. For casual versus self-employed workers, the picture tends to be mixed. In both years, self-employed workers earned more than casual workers only at the upper end of the distribution, while casual workers earned slightly more for the rest of the distribution. In 2006 casual workers' earnings increased slightly relative to the earnings of self-employed workers at most points along the distribution.

Figure 8: Percent Difference in Earnings: Pairwise Comparison between Employment Types, 1994

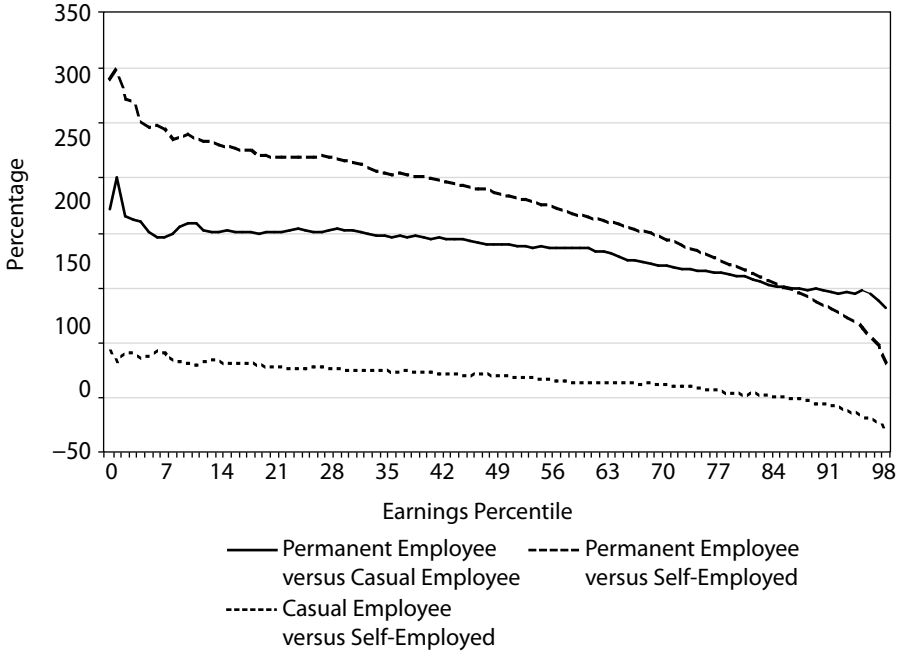
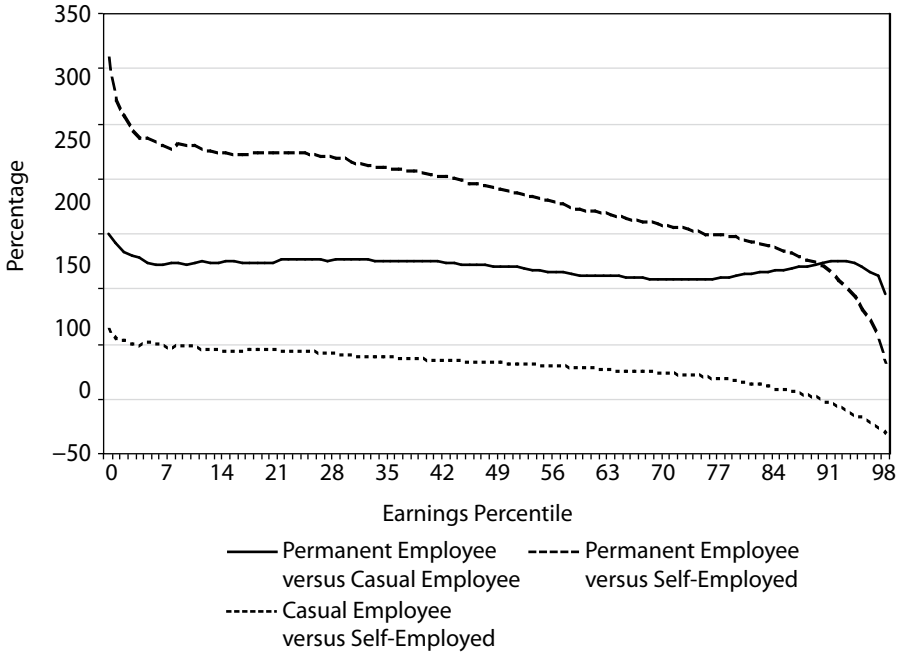


Figure 9: Percent Difference in Earnings: Pairwise Comparison between Employment Types, 2006



Another useful way to describe the distribution of earnings by worker types is to use kernel density plots. These plots show the proportion of workers with a particular earnings level. This is done separately for each employment type.

An examination of the kernel density plots confirms the story told by the Pen Parades. Figures 10 and 11 show that there is a greater proportion of casual workers who earn higher than the self-employed. Notice, however, that the rightmost tails of the distribution of casual and self-employed workers cross, indicating that at the very top end of the earnings scale, there is a larger proportion of self-employed workers who earn higher than casual workers. The plots for permanent workers are located to the right of both casual and self-employed density plots, suggesting that most permanent workers earn more than casual or self-employed ones. However, the long left tail of the permanent worker density graph indicates that there are still permanent workers who earn relatively low amounts.

Figure 10: Kernel Density Plots of Log Earnings by Employment Type, 1994

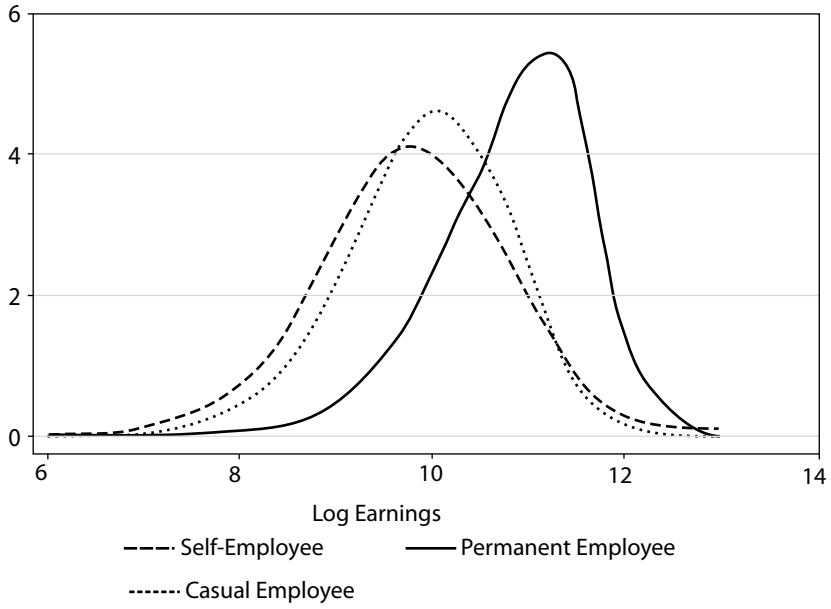
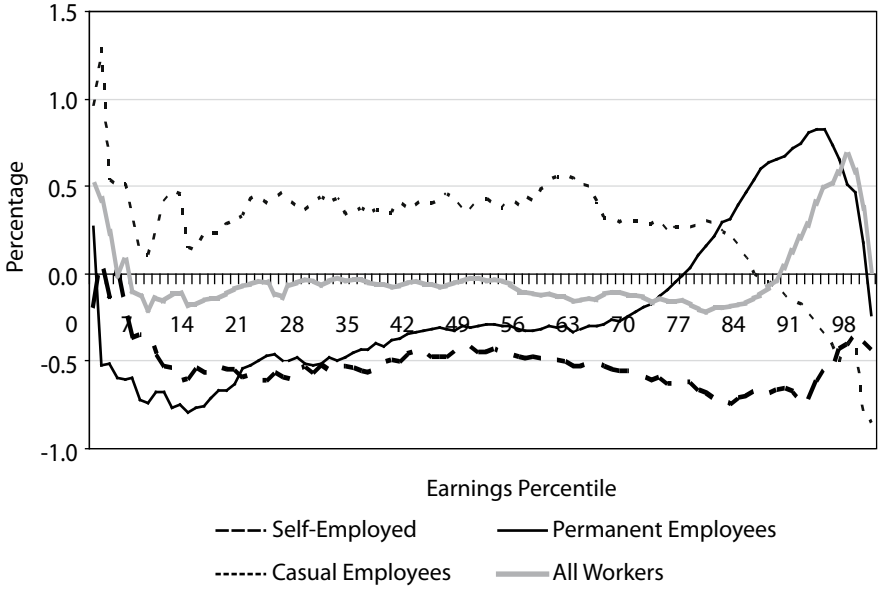


Figure 11: Kernel Density Plots of Log Earnings by Employment Type, 2006

The most logical question to ask next is: how did workers' earnings perform over the period 1994–2006? Recall that in Table 9, the average earnings of the self-employed was seen to decline a little while that of wage workers (both permanent and casual) increased. However, a cursory examination of Figure 12 (depicting what are often called growth incidence curves in the literature) reveals that earnings hardly grew for workers except for those at the top end of the earnings distribution.

Figure 12: Growth Incidence Curves of Earnings, 1994–2006 (annualized growth rates)



The earnings of the self-employed workers decreased at almost every point in the distribution while earnings of permanent workers grew only at the top 25% of the distribution. It seems that it is only casual workers whose earnings grew at most points of the distribution. It is possible that some permanent jobs have become casual jobs. This could explain why earnings of permanent workers seem to erode while those of casual workers seem to perform well. What we can say with more confidence is that while a shift from self-employment to wage employment is under way, perhaps the fundamental weakness in the Philippine labor market is the slow growth in earnings.

In summary, this section has shown that the earnings of permanent workers dominate both those of casual and self-employed workers. Ambiguity exists, however, when the comparison is made between casual and self-employed workers. At the higher end of the earnings distribution, the self-employed tend to earn more than casual workers, although for a major part of the distribution it is casual workers who earn slightly more. Probably the most alarming feature of the results we have seen so far, however, is the sluggish growth in earnings. This is consistent with the findings on wage growth discussed earlier in Section III.

VI. Propensity Score Matching as a Method to Determine Earning Differentials

The previous section discussed unconditional differences in earnings of permanent, casual, and self-employed workers. Would results change if we were to control for observable characteristics of workers? Controlling for workers' characteristics is important since if employment type is closely related to age, educational attainment, and sector of production or urbanity, then looking at average earnings or even the whole distribution of earnings is a bit misleading. We use Propensity Score Matching (PSM) to do this.[17] In essence, what PSM does is to match workers based on their characteristics and when two observationally equivalent workers who differ only by their employment type are matched, in order to determine the difference in earnings between them. The matching is disaggregated into the four biggest production sectors in terms of employment: agriculture; manufacturing; WRT; and community, social, and personal services. Moreover, the analysis is also disaggregated into whether the worker belongs to households in the bottom or top half of the national income distribution to determine if the earnings differentials vary across the poor and rich.

To obtain the propensity score used to match workers, a *multinomial logit* model is estimated first. The spirit behind this model of occupational choice closely resembles McFadden (1974).[18] Table 11 presents the results of the multinomial logit model. Comparing self-employed and permanent workers, it can be seen that having a higher level of education increases the probability of being employed as a permanent worker; and that this relationship strengthened in 2006 as reflected by the larger coefficient for the tertiary dummy for that year. The same thing can be said of male workers, i.e., men are more likely to have permanent employment, and this relationship has strengthened over time. The presence of other self-employed workers in the household increases the probability of the worker choosing to be self-employed rather than permanent. Similarly, the presence of other permanent workers in the household will make the worker likely to choose permanent employment over self-employment.

[17] A good introduction to PSM can be found in Caliendo and Kopeining (2005). Vandenberghe and Robin (2003) provide a good overview of multiple treatment PSM in the context of school achievement. Glinskaya and Lokshin (2005) used PSM to measure wage differentials between the public and private sectors in India.

[18] Although the McFadden occupational choice model gives a description of preference by an individual, it may not be fully justified since the individual's choice may in reality be held in check by the demand side of the labor market (Bourguignon and Ferreira 2005). A complete model must therefore include a mixture of both preferences and rationing. The interpretation of this model must be taken with a grain of salt.

Table 11: Multinomial Logit Model of Choice of Employment Type

	Permanent Employee versus Self-Employed				Casual Employee versus Self-Employed			
Dependent Variable:	**1994**		**2006**		**1994**		**2006**	
Worker Type	**Coefficient**	**P-value**	**Coefficient**	**P-value**	**Coefficient**	**P-value**	**Coefficient**	**P-value**
Age	−0.009	0.00	−0.032	0.00	−0.125	0.00	−0.174	0.00
Age squared	0.000	0.00	0.000	0.00	0.001	0.00	0.002	0.00
Primary	−0.100	0.00	−0.052	0.00	−0.212	0.00	−0.061	0.00
Secondary	0.138	0.00	0.196	0.00	−0.335	0.00	−0.202	0.00
Tertiary	1.911	0.00	1.892	0.00	0.679	0.00	1.043	0.00
Clerical/Sales	1.786	0.00	1.260	0.00	2.415	0.00	1.972	0.00
Production	0.953	0.00	0.713	0.00	1.925	0.00	1.492	0.00
21–30 years old	0.001	0.89	0.256	0.00	0.294	0.00	0.122	0.00
31–40 years old	−0.073	0.00	0.161	0.00	0.305	0.00	0.180	0.00
41–50 years old	0.033	0.00	0.116	0.00	0.246	0.00	0.200	0.00
Industry	2.692	0.00	2.468	0.00	1.983	0.00	2.233	0.00
Services	1.937	0.00	1.229	0.00	1.051	0.00	0.383	0.00
Male	0.612	0.00	0.679	0.00	0.258	0.00	0.455	0.00
Urban	0.046	0.00	0.076	0.00	−0.057	0.00	0.083	0.00
Number of other self-employed workers in household	−0.541	0.00	−0.676	0.00	−0.595	0.00	−0.800	0.00
Number of other permanent workers in household	0.339	0.00	0.427	0.00	−0.090	0.00	−0.040	0.00
Number of other casual workers in household	0.144	0.00	0.245	0.00	0.975	0.00	0.968	0.00
Married	−0.515	0.00	−0.364	0.00	−0.686	0.00	−0.598	0.00
Separated	−0.611	0.00	−0.396	0.00	−0.564	0.00	−0.360	0.00
Constant	−2.169	0.00	−1.391	0.00	−0.605	0.00	1.180	0.00

Note: includes region dummies but not reported

Comparing casual and self-employed workers, the results indicate that better educated workers are more likely to be engaged in self-employment as opposed to casual employment. Older workers are also more likely to be self-employed. When there are other self-employed workers in the household, the likelihood of the worker choosing self-employment also increases.

The biggest change in the estimated relationships over time, though, occurs in the constant term of the model. Since the constant term is unrelated to workers' individual and household characteristics, changes in the constant term are sometimes interpreted as the effect of changes in labor market demand-side conditions (Ferreira and Paes de Barros 2005). The estimated coefficients on the constant term suggest that these conditions precipitated a weakening of the tendency to be self-employed. Notice that the constant term in the permanent–self-employment comparison has significantly decreased, while that of the casual–self-employed comparison even reversed signs between 1994 and 2006. Additionally, although not reported here, the constant term pertaining to the comparison of casual with permanent wage employment increased between 1994 and 2006. These patterns are in line with the reduction in the proportion of the self-employed and the relative increase in casual workers between 1994 and 2006. The latter is

consistent with the proliferation of more flexible contractual arrangements that firms have adopted since the mid-1990s (Felipe and Lanzona 2006).

As noted above, the results of the multinomial logit model exercise are used as a building block to estimate *propensity scores*. After matching workers based on their scores, the average difference in earnings of each worker type can be obtained. These are reported in Table 12 in terms of average treatment effect on the treated (ATT) and earnings differential ratios. ATTs measure the differences in earnings between worker types; the term "treated" is understood as the base employment type against which another employment type will be tested against. For example, consider the results in the first panel pertaining to the comparison of the self-employed with permanent workers. Here, self-employed workers are the treated group. A negative sign on the ATT means that the treated group (i.e., the self-employed) earns less than the group it is compared against (i.e., permanent wage workers).

Table 12: PSM results: Differences in Earnings of Employment Types by Production Sector and by Location in the National Income Distribution

		Self-Employed versus Permanent Employees			
		1994		2006	
		Bottom 50	Top 50	Bottom 50	Top 50
All	ATT	-7,004	-16,126	-6,682	-26,115
	t-stat	-7.52	-4.72	-10.99	-14.84
	Earnings differential ratio	0.73	0.78	0.73	0.67
	# untreated	2,924	11,720	5,768	14,202
	# treated	10,022	8,810	16,287	11,975
Agriculture	ATT	-6,422	-19,253	-4,991	-12,392
	t-stat	-5.86	-4.2	-6.35	-3.2
	Earnings differential ratio	0.75	0.68	0.77	0.75
	# untreated	885	520	2,130	692
	# treated	7,548	3,155	11,490	3,856
Manufacturing	ATT	-14,531	-8,868	-16,328	-22,628
	t-stat	-6.03	-1.20	-9.60	-5.96
	Earnings differential ratio	0.52	0.89	0.50	0.69
	# untreated	362	2,400	606	2,131
	# treated	399	719	549	638
WRT	ATT	-1,253	10,693	-10,596	-5,681
	t-stat	-0.40	1.64	-6.18	-1.52
	Earnings differential ratio	0.95	1.18	0.66	0.91
	# untreated	253	907	716	2,400
	# treated	1,110	2,921	2,866	5,175
CSPS	ATT	-11,773	-20,529	-11,966	-53,915
	t-stat	-7.90	-2.20	-10.38	-10.58
	Earnings differential ratio	0.60	0.76	0.59	0.51
	# untreated	707	4,975	892	5,060
	# treated	292	885	278	369

continued.

Table 12: *continued.*

		Self-Employed versus Casual Employees			
		1994		2006	
		Bottom 50	Top 50	Bottom 50	Top 50
All	ATT	-914	13,920	128	8,806
	t-stat	-1.11	5.43	0.23	5.85
	Earnings differential ratio	0.95	1.32	1.01	1.20
	# untreated	2,217	2,477	4,325	3,480
	# treated	10,022	8,810	16,287	11,975
Agriculture	ATT	412	5,630	1,973	14,228
	t-stat	0.55	1.97	3.69	7.75
	Earnings differential ratio	1.02	1.16	1.13	1.61
	# untreated	1,142	379	2,243	377
	# treated	7,554	3,162	11,490	3,856
Manufacturing	ATT	-14,753	18,802	-10,857	8,547
	t-stat	-4.92	3.27	-5.19	2.16
	Earnings differential ratio	0.51	1.49	0.60	1.20
	# untreated	169	388	315	569
	# treated	378	608	554	592
WRT	ATT	7,928	31,593	-2,597	8,376
	t-stat	1.16	5.06	-0.93	2.21
	Earnings differential ratio	1.56	1.84	0.89	1.17
	# untreated	84	200	318	697
	# treated	1,174	3,025	2,863	5,219
CSPS	ATT	-6,884	19,585	-5,973	8,778
	t-stat	-4.04	2.03	-4.18	1.66
	Earnings differential ratio	0.72	1.42	0.74	1.19
	# untreated	362	703	331	618
	# treated	292	885	276	369
		Permanent Employees versus Casual Employees			
		1994		2006	
		Bottom 50	Top 50	Bottom 50	Top 50
All	ATT	5,929	34,946	5,715	43,999
	t-stat	9.00	19.34	14.13	46.24
	Earnings differential ratio	1.22	1.64	1.23	1.89
	# untreated	2,217	2,477	4,325	3,480
	# treated	2,924	11,720	5,768	14,202
Agriculture	ATT	6,833	26,162	5,360	21,503
	t-stat	7.40	6.49	10.17	10.00
	Earnings differential ratio	1.33	1.74	1.31	1.88
	# untreated	1,142	379	2,243	377
	# treated	872	465	2,094	643
Manufacturing	ATT	4,037	40,647	7,708	33,338
	t-stat	1.69	12.16	5.48	16.43
	Earnings differential ratio	1.12	1.89	1.26	1.71
	# untreated	169	388	315	569
	# treated	343	2,398	602	2,057
WRT	ATT	5,988	27,409	9,605	25,752
	t-stat	1.81	6.82	7.65	14.58
	Earnings differential ratio	1.25	1.67	1.38	1.54
	# untreated	84	200	318	697
	# treated	236	872	704	2,381
CSPS	ATT	3,971	30,250	5,489	62,523
	t-stat	2.55	7.21	4.27	28.88
	Earnings differential ratio	1.15	1.47	1.23	2.21
	# untreated	362	703	331	618
	# treated	696	4,972	890	4,987

WRT = wholesale and retail trade; CSPS = community social and personal services, ATT = average treatment effect on the treated.

A quick inspection of the first set of results provided in Table 12 (i.e., those pertaining to workers across all production sectors considered together) reveals a pattern consistent with what we have seen in the Pen Parades. For instance, for the bottom half of the distribution the self-employed annually earn 7,004 and 6,682 pesos less than permanent workers in 1994 and 2006, respectively. In effect, self-employed workers only earn three fourths of what permanent workers earn. The same thing is true for the top half of the distribution: the self-employed earn less that their matched permanent worker counterparts. Likewise, permanent workers annually earn more than casual workers. For the bottom half of the distribution, permanent workers annually earn around 5,929 and 5,715 pesos more than casual workers in 1994 and 2006, respectively. However, when comparing self-employed and casual workers a different pattern emerges. In so far as the bottom half of the distribution is concerned there is no statistically, or economically, significant difference between the earnings of the self-employed and casual workers (as shown by the low values of the t-statistics and earnings' differential ratios close to 1). This is true for both 1994 and 2006. In the top half of the distribution, however, self-employed workers earn more than casual workers and the difference is statistically significant. Recall that this is the same pattern we have seen from the Pen Parades—the self-employed earn more than the casual workers only in the upper end of the distribution. However, we can now see that this result holds even when we control for observable worker characteristics.[19]

It is important to consider how these earnings differentials look if we consider each of the four major production sectors separately. In so far as the comparison between the self-employed and permanent workers is concerned, the results are pretty much the same. With the exception of the top half of the distribution of earnings in WRT in 1994, permanent wage workers earn more than the self-employed (with the differentials typically being statistically significant). Turning to the differentials between the self-employed and casual workers, the results are similar in so far as workers in the top half of the earnings distribution are concerned. That is, the self-employed earn more in each of the four major production sectors (and significantly so in most cases). However, things are not as consistent when we consider the earnings differentials for workers in the bottom half of the distribution. In particular, while considering all workers together yields a result that there is no statistically significant difference in earnings between the self-employed and casual workers, the differentials can be statistically significant in the various production sectors. Nevertheless, there remains a fairly consistent pattern in the disaggregated results. With only one exception, casual workers do not earn significantly less than the self-employed. They may earn significantly more—as in manufacturing and community, social, and personal services—but not less. The only exception is for agriculture in 2006.

In summary, this section has shown that even when we control for workers' observable characteristics, permanent workers still earn more than either self-employed or casual workers. Also, there seems to be no statistically significant difference between the

[19] The unconditional differences tend to be lower than the PSM differentials when we compare self-employed vs. permanent, and self-employed vs. casual workers. On the other hand, the unconditional earnings differentials are higher than PSM when we compare permanent vs. casual workers.

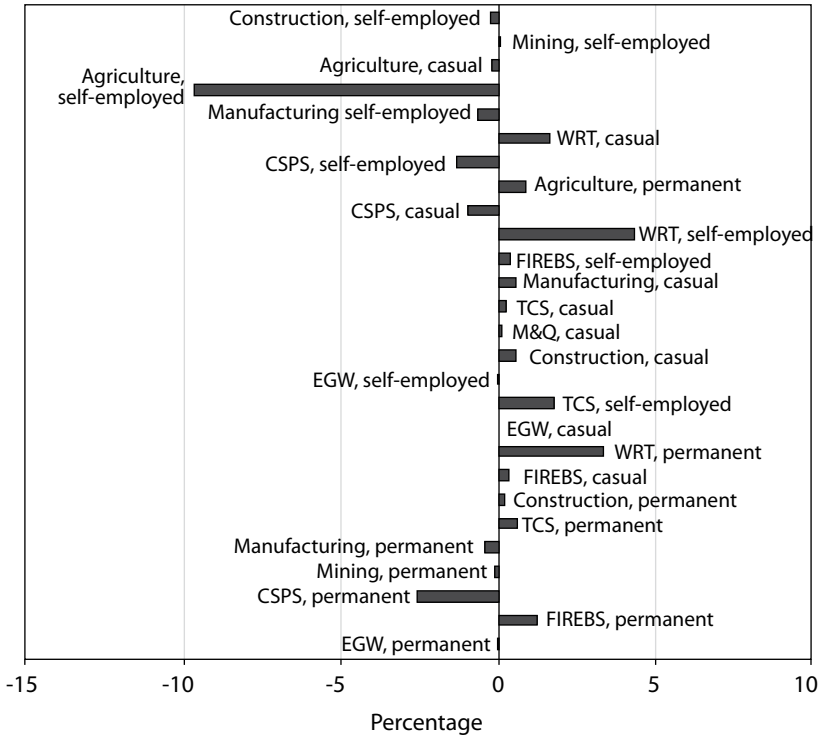
earnings of poorer casual and self employed workers; but self-employed workers coming from richer households earn more than their casual counterparts.

VII. The Share of "Good" and "Bad" Jobs in Total Employment

We have seen previously that, in general, permanent jobs are on average the highest-earning ones and that the differences in average earnings are blurred for casual and self-employed workers. However, as also seen, the relationship between employment type and earnings can differ by production sector. In this section, we push our analysis further by first classifying jobs in terms of "good" or "bad" jobs along the lines of Goos and Manning (2007) . We define a "job" as a particular combination of one of nine production sectors and three employment types. Thus we have a total of 27 "jobs" (9 sectors times 3 employment types) and rank them using their median earnings in 1994 to classify them as either "bad" (those whose median earnings are relatively low) or "good" (higher relative median earnings). We then examine whether there are any systematic patterns in terms of which jobs are gaining or losing ground in terms of their contribution to total employment shares between 1994 and 2006.

Figure 13 describes changes in each of the 27 job's share in total employment. The closer a job is to the horizontal axis, the better it is. There are several interesting features of the figure. First, the ranking by median earnings tells us that, in general, permanent wage jobs tend to be the best, while self-employment jobs tend to be the worst. Second, some of the worst jobs are declining as a share of total employment. The biggest decline has taken place in self-employed agricultural work, with its share in total employment decreasing by almost 10 percentage points between 1994 and 2006. Third, the picture is more mixed at the other end of the spectrum. In particular, an examination of the best six jobs reveals that while the share of permanent jobs has increased in transportation and communications services and, especially, financial, real estate, and banking services, permanent jobs in manufacturing—one of the bigger sectors in terms of employment—and community, social, and personal services are losing ground. Fourth, "middling" jobs appear to have absorbed the fall in shares of the worst and the best jobs. Moreover, many of the jobs in the middle of the ranking of jobs are casual jobs in the different sectors.

Figure 13: Change in Shares to Total Employment by "Job", 1994–2006



WRT = wholesale and retail trade; CSPS = community social and personal services; EGW = electricity, gas, water; TCS = transportation, communication, storage; FIREBS = finance, real estate, business services; M&Q = mining and quarrying.

VIII. Evaluating Changes in Job Structure and Growth in Earnings: A Decomposition Exercise

The data presented so far indicate that in spite of the transition from self-employment toward wage work the growth in average earnings has been lackluster. We now examine to what extent the growth in average earnings over the period has been driven by changes in jobs (as defined in the previous section) versus growth in earnings *within* jobs. The analysis is aided by a simple decomposition exercise. Suppose the labor force is divided into *N* "jobs" (the 27 jobs in the previous section). We can therefore write the average earnings as:

$$w = \sum_{n=1}^{N} s_n w_n$$

where s_n is the share of the nth job in total employment. Taking the difference over time and rearranging, the equation above can be written as:

$$\Delta w \equiv \sum_{n=1}^{N} s_{n,0}\Delta w_n + \sum_{n=1}^{N} w_{n,1}\Delta s_n$$

Thus, the change in the average earnings between two periods can be decomposed into a "price effect" (the first term in the right-hand side) and an "allocative effect" (the second term). The price effect captures the contribution of growth in earnings within jobs while the allocative effect captures the contribution of changes in job shares.

Table 13 presents estimates of these two effects broken down by production sector and employment type (our "jobs"). Looking at the overall picture (presented in the bottom panel of Table 13), we can see that the increase in the average earnings was predominantly driven by the allocative effect: almost three fourths of the increase in average earnings can be attributed to it. Moreover, as meager as the price effect is—only 563 pesos—a considerable part of it is driven by improvements in the earnings of permanent employees in community, social, and personal services (CSPS).

Table 13: Decomposition of Average Earnings into Price Effect and Allocative Effect

	Self-Employed		**Permanent Employees**		**Casual Employees**	
	Price Effect	**Allocative Effect**	**Price Effect**	**Allocative Effect**	**Price Effect**	**Allocative Effect**
Agriculture	−940.41	−2,015.67	−354.94	280.82	−61.65	−28.63
Mining	0.81	18.02	−29.45	−56.41	−5.02	26.59
Manufacturing	−20.14	−144.54	−160.09	−388.39	21.89	197.17
EGW	−3.09	−2.85	−2.46	−45.30	−0.54	8.56
Construction	29.50	−17.27	−65.38	73.92	−30.88	202.60
WRT	−411.57	1,500.95	178.72	2,066.53	36.18	584.19
TCS	−131.15	794.42	−52.87	402.40	−30.22	88.37
FIREBS	−16.74	188.02	145.80	1,121.40	−1.57	149.67
CSPS	−254.49	−342.98	2,647.79	−2,551.01	75.04	−343.01
	−1,747.27	**−21.90**	**2,307.14**	**903.96**	**3.22**	**885.51**
	(a)	**(b)**	**(c)**	**(d)**	**(e)**	**(f)**
Change in average earnings of all workers	**2,330.66**					
Total price effect (a + c + e)	**563.08**					
Total allocative effect (b + d + f)	**1,767.57**					

EGW = electricity, gas, water; WRT = wholesale and retail trade; TCS = transportation, communication, storage; FIREBS = finance, real estate, business services; CSPS = community social and personal services.

This and other important features of the behavior of earnings may be observed from the upper panel of Table 13. An examination of the columns pertaining to the price effect across individual industries and all three job types shows quite clearly that with the exception of permanent employees in CSPS, increases in earnings have improved for very few job types. The weakest performance is for the self-employed for whom real

earnings have declined on average in a majority of industries.[20] For permanent jobs, the price effect is likewise negative in many cases, with agriculture and manufacturing exerting the largest drag on the overall price effect for permanent work.

Some permanent jobs have experienced a positive price effect, but with the exception of CSPS jobs these are fairly marginal. Moreover, in so far as CSPS jobs are concerned, their positive impact on total average earnings gets diminished by the fact that the share of permanent CSPS jobs has declined considerably. This can be seen from both Figure 13 as well as the large negative entry on account of the allocative effect in Table 13.

Overall, it is wage jobs in the WRT sector that played an important role in driving increases in total average earnings. Not only has the price effect been positive for both permanent and casual wage employment, the share of such jobs has also increased over time. For the casual workers, the price effects are mostly positive in the four biggest production sectors although the numbers involved are very small. The bigger impact of the sectors on total average earnings comes from the allocative effect. In fact, with the exception of agriculture and CSPS, all allocative effects are positive. Thus the casual job's combination of a modest price effect (driven by increase in average earnings) and a large allocative effect (driven by the increase in the share of casual jobs to total employment) has increased average earnings of all workers and stands in contrast to the contribution of self-employment.

IX. Concluding Remarks

This paper has used information from matched LFS–FIES data in order to examine various aspects of the structure of employment, wages, and earnings in the Philippines over the last 12 years. Consistent with the pattern exhibited by successful developers in East Asia, the Philippines has seen a sharp decline in the share of workers engaged in agriculture. Also consistent with the pattern of successful development, there has been a steady decline in the share of self-employment and expansion in wage employment.

The decline in self-employment does not appear to be undesirable. This paper's analysis reveals that the profile of the self-employed matches that of casual wage employees—the group of workers who are commonly believed to be at the bottom of the hierarchy of workers—in two ways. First, the educational attainments of the two groups of workers are fairly similar and lag behind those of permanent wage employees. Second, and more importantly, the earnings profiles are fairly similar for the self-employed and casual wage employees. Indeed, the evidence examined here indicates that even when we

[20] This negative price effect for the self-employed is reflected by the drop in average self-employment earnings as shown in Table 10 and the Pen Parades in Figure 12.

control for workers' observable characteristics there is generally no statistically significant difference between the earnings of poorer casual and self-employed workers, although self-employed workers coming from richer households earn more than their casual counterparts. Permanent wage workers tend to earn significantly more than either self-employed or casual workers.

Overall, the similarities between the self-employed and casual wage workers and the dominance of earnings of permanent wage workers are in line with the recent analysis of Banerjee and Duflo (2007). Based on an examination of household surveys from 13 developing countries, and defining the middle class as those whose daily consumption per capita is between $2 and $4 or between $6 and $10 (at purchasing power parities), Banerjee and Duflo (2007, 21) are led to the following conclusion:

> Nothing seems more middle-class than the fact of having a steady well-paid job. While there are many petty entrepreneurs among the middle class, most of them do not seem to be capitalists in waiting. They run businesses, but, for the most part, only because they are still relatively poor and every little bit helps. If they could only find the right salaried job, they might be quite content to shut their business down.

The earnings differentials between the self-employed and casual wage workers on one hand and permanent wage employees on the other—differentials that appear fairly stable over time even after controlling for various observable characteristics, especially education levels—suggests that Banerjee and Duflo's characterization of the economic lives of the middle-class would certainly apply in the Philippine context as well. That is, given the chance of getting a steady salaried job, which is precisely what permanent wage employment provides, the self-employed would make the switch.

This conjecture is strengthened by the fact that casual wage work has been more rewarding for poorer workers (i.e., those at the bottom of the earnings distribution) while self-employment has been more rewarding for richer workers (i.e., those at the top of the earnings distribution). Casual wage work also appears to be more rewarding for the nonpoor—i.e., those between poor and rich. In other words, with the exception of the self-employed rich, self-employment seems to be a halfway house as workers look for (stable) wage work.

There are some caveats, however, to this line of argument. First, the self-employed are a very heterogeneous group and as Fields (2007) notes, there can be a fundamental duality among the self-employed. Workers may choose self-employment (or casual wage employment) as a "fallback sector" if they cannot obtain secure wage employment. But there are bound to be those who choose to be self-employed. Second, there is Maloney's (2003) caution about judging self-employment on the basis of comparisons of earnings. Based on the data that is available, we are unable to consider the possibility that

self-employment provides nonwage benefits that influence the decision to remain self-employed. Third, the relatively low earnings of the self-employed may be a reflection of the difficult circumstances in which the self-employed may be operating their enterprises. In other words, a confluence of factors including lack of access to credit, lack of access to information (about markets, production technologies, etc.), and various features of regulation (a la de Soto 2000) may be constraining the self-employed from generating greater earnings from their businesses.

Indeed, as noted by de Mel, McKenzie, and Woodruff (2008, 3) in their analysis of own-account workers (a group comprising the large majority of the self-employed considered here):

> From a policy perspective, understanding who the [self-employed] are is critical given their weight in the labor force. If the sector is an incubator for larger firms, then policies should aim to help microentrepreneurs grow and generate employment. If on the other hand, the owners of the smallest businesses are unlikely to grow to be employers, then policies aimed at job generation should focus instead on constraints to growth among those who are already employers above some threshold and there is less reason to encourage growth of the smallest enterprises.

Disentangling the precise nature of self-employment, and the constraints that operate on different groups of the self-employed in the Philippines context, is an important area for future research.

In the meantime, it must be noted that while the decline in importance of agriculture and self-employment may well be treated as welcome findings, this paper's examination of trends in the labor market reveal findings that deviate from the familiar pattern of successful development. First, the share of employment in manufacturing—a sector that continues to account for relatively large numbers of well-paying permanent jobs—has been stagnant. Thus it is the services sector that has "absorbed" the shift of employment from agriculture. Second, the fastest-growing job type is not permanent wage employment—the job type that the data analyzed here indicate are the most remunerative and by definition stable. Instead, it is casual wage jobs that have increased the fastest. Finally, and most importantly, both the LFS wage data as well as the matched FIES-LFS earnings data indicate weak growth in wages and earnings for workers in general. The question of what explains this weak growth in wages and earnings is outside the scope of this paper. But it is clearly one of the most important questions to consider for policy-oriented research on the Philippines.

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About the Paper

Rana Hasan and Karl Robert L. Jandoc combine information from the Philippines's Labor Force Surveys and Family Income and Expenditures Surveys in order to evaluate the shift from self-employment toward wage employment over the last 13 years. Their findings suggest that the self-employed do not seem to be "capitalists in waiting" and that the decline of self-employment is no bad thing. As self-employment gives way to wage employment, especially casual wage employment in the services sector, the key challenge for policy is tackling the slow growth of wages and earnings indicated by the survey data.

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