

Workers' Earnings in the Philippines: Comparing Self-Employment with Wage Employment

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Analysis of labor force survey (LFS) data since the early 1990s reveals several important changes in the structure of the Philippine labor force. One is the movement from self-employment to wage employment across a wide range of production sectors. To evaluate this change in terms of workers' earnings, we combine information on household incomes from the Family Income and Expenditure Survey with information on household members' employment-related activities from the LFS. We also examine broad structural trends for employment, wages, and earnings. The findings indicate high variance in the earnings of the self-employed and their earnings and educational profiles resemble those of casual wage employees. Both are surpassed by those of permanent wage employees even when observable worker characteristics are controlled for. As self-employment gives way to wage employment, especially casual wage employment in the services sector, the key policy challenge is tackling the slow growth of wages and earnings.

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, a clear shift is 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? Both are consistent with the “stylized facts” of development suggesting that the evolution of labor market outcomes in the Philippines is progressing well. However, such a conclusion would be premature without directly assessing the implications of these changes on some

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specific measure of worker welfare. This paper uses individual- and household-level data from the Labor Force Survey (LFS) and Family Income and Expenditure Survey (FIES) to do so.

Starting with an examination of broad trends in the structure of employment and wages between 1994 and 2007, we match sample households across the LFS and FIES to shed light on whether or not the movement away from self-employment to wage employment represents an improvement in workers' welfare as captured by their earnings. While several attributes of a "job" matter for the job holder's welfare—such as work conditions and prospects for future mobility—the most important one, arguably, is the earnings it generates for the worker.

The analysis of earnings is complicated by a lack of data for the self-employed. Obtaining reliable information on earnings of 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.¹ The absence of high-quality written accounts complicates the task even more. This has led some national statistical agencies to entirely omit questions about self-employment earnings from their labor force surveys. In the Philippines, the practice has changed over time. While the self-employed were asked about their earnings in earlier rounds of the LFS, the most recent rounds have refrained from doing so.

Fortunately, it is possible to use information from both the LFS as well as the FIES to fill this data gap. In particular, the household sample used for the FIES (carried out every three 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), and remittances, it is possible in principle to work out the amount of earnings 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 the LFS and FIES should shed much more

¹This tends to be the case in both industrialized and developing countries. For example, Deaton (1997) describes the findings from a study that compared income data from the United States' Current Population Survey with income data from fiscal and tax sources. The study found estimates of nonfarm self-employment income from the Current Population Survey to be 21 percent lower than those derived from fiscal and tax sources. Estimates for farm self-employment income were even lower, at 66 percent less than those derived from fiscal and tax sources. Meanwhile, the Current Population Survey estimates of income for wages and salaries were almost identical to those from the fiscal and tax sources.

light on the evolution of earnings than would be possible utilizing either one of the data sets alone.

By bringing to bear information on the earnings of the self-employed and comparing these to earnings of wage workers, this paper contributes to the literature on labor market outcomes in developing countries.² In addition, it is able to shed some light on the debate on how the self-employed in developing countries should be viewed. As de Mel, McKenzie, and Woodruff (2008) note, one strand of the literature views the self-employed as “capitalists in waiting,” their entrepreneurial potential stymied by credit constraints, weak property rights, and heavy regulation (for example, de Soto 1989). Another strand believes these workers are the product of the “failure of the economic system to create enough productive employment,” and that given the opportunity for regular salaried work, they would be more than willing to abandon their businesses (for example, Tokman 2007). While this paper does not examine the entrepreneurial potential of the self-employed and whether or not they choose to be self-employed, the comparisons of the earnings of different types of workers provide some suggestive evidence on these issues.

The findings indicate that in terms of earnings and education profiles, many of the self-employed look similar to casual wage workers and that, on average, permanent wage workers earn much more than the other two groups of workers. This holds across major production sectors and even when observable worker characteristics are controlled for. Thus, the decline in self-employment seems to be a welcome finding. At the same time, the data also suggest strongly that the self-employed are a heterogeneous group with wide dispersion in earnings. To take the starkest case, the Gini coefficient of the earnings of the self-employed in manufacturing was found to be around 20 points higher than that of casual wage workers or permanent wage workers.

Turning to the growth in wages and earnings, both are found to be quite weak. Indeed, without remittances from overseas workers, household incomes would have been significantly lower in 2006 compared to 1994. As self-employment gives way to wage employment, especially casual wage employment in the services sector, the key policy challenge is tackling the slow growth of wages and earnings indicated by both LFS and FIES data.

The rest of this paper is organized as follows. Section II describes briefly the FIES and LFS data sets used in this paper. 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 in 1994 and

²The earnings of the self-employed reflect the returns from both capital and labor (including human capital). The earnings of wage workers, on the other hand, reflect only the returns from labor. The analysis here does not attempt to distinguish between the earnings due to these separate factors (including human capital). Instead, the focus is on comparing earnings based on whatever endowments workers possess. Section VI discusses some implications of this.

2006. 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 then uses propensity score matching techniques to evaluate earnings differentials between the employment types, controlling for various observable attributes of workers and households. The final section provides some concluding thoughts, including placing the findings in the context of recent work on informality and labor market outcomes in developing countries.

II. THE DATA

The two sources of data are the LFS, carried out quarterly, and the FIES, carried out every three 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., self-employment income and wage employment income) from the FIES with information on household members' employment status from the LFS. The remainder of this section describes some key aspects of both data sets as they pertain to the analysis.

A. Labor Force Survey Data

The LFS collects a variety of demographic and labor force related information from the members of sample households including their age, gender, highest educational level achieved, and labor force status. For those who are employed, i.e., working more than an hour during the reference period, there is additional information on the type of employment: whether the person 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—i.e., permanent or temporary—and on wages received over the reference period.⁴ All of the above information is available for both “primary” and “other” jobs in the case that a person has more than one job. As will be discussed in more detail below, the analysis here only utilizes information on the primary job.

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

⁴Information 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 because we are unsure that the distinction is appropriate for the self-employed.

For the analysis, we distinguish only between three types of workers: the self-employed, permanent wage employees, and casual wage employees. Casual wage employees are those wage employees who work on a short-term or casual basis (defined as a contract lasting less than a year) or who have different employers 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, prior to 2000 only the survey for the third quarter asked for information on earnings. Since then, each of the quarterly surveys has asked respondents about earnings. Additionally, while the self-employed were also asked to report earnings previously, this practice was discontinued in 2000. Perhaps most importantly, the reference period of employment-related information has changed since 2000. Previously, the reference period was a quarter (i.e., three 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.

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 Family Income and Expenditure Surveys 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 data sets 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.

Our attention is restricted to individuals who were between 21 and 59 years old and worked at least one hour in the reference period. Additionally, we work only with the characteristics of the primary job. Only about 11.34 percent 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.

We divide total wage and salary earnings from the primary job for the period 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 indices 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. Family Income and Expenditure Survey Data

The FIES, as its name implies, contains information on income and expenditure at the household level. Household income obtained within the reference period (which is one 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 including inheritance, rentals, pension, and winnings from gambling.

The FIES does not provide information on the labor force or 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 and 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 are carried out at different points in time, and entail different reference periods, there is a possibility that workers may have different labor force 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.

III. THE 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,

⁵The matched FIES-LFS data for 2006 was provided to us by the National Statistics Office. The matched data for 1994 was 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.

levels of education, and age groups.^{6, 7} We also consider how employment has changed in terms of the type of employment (i.e., whether a worker is engaged in wage employment or self-employment) and the type of contract (i.e., 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 insofar as LFS data is concerned. As also noted, the analysis in this section is restricted to employed prime-aged 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 percent or more of employment: agriculture; wholesale and retail trade 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	0.40	0.44
Manufacturing	10.64	10.60	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	8.60	9.02
FIREBS	2.30	2.81	3.12	3.67	4.46
CSPS	18.60	19.80	17.50	17.00	13.44
Total	100	100	100	100	100

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

The share of workers in agriculture—the sector that remains the single most important employer—fell from around 41 percent in 1994 to 33 percent 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 wholesale and retail trade services. Thus, while the share of employment in

⁶For a comprehensive discussion on labor market outcomes, including trends in unemployment and underemployment in the Philippines, see Felipe and Lanzona (2006).

⁷We also examined whether changes in the structure of employment have an important gender dimension to them. Broadly, the answer is in the negative. Thus, for example, the proportion of males and females in major production sectors remained more or less similar between 1994 and 2006 (except for wholesale and retail trade [WRT] and community, social, and personal services [CSPS], which registered an 8 and 10 percentage point increase in the proportion of women workers, respectively). Interestingly, levels of education among women tended to improve a little faster than those of men. Insofar as the type of employment is concerned, there was some increase in the proportion of self-employed accounted for by women (from 38 percent to 41 percent) and a slight decrease in the proportion of women accounting for casual wage employment (from 32 percent to 29 percent). Details are available upon request.

manufacturing has remained around 10 percent throughout the period being considered, the share of wholesale and retail trade services has seen an increase from around 14 percent in 1994 to 23 percent in 2006. The share of transportation, communication, and storage combined with that of finance, real estate, and business services has increased from around 9 percent in 1994 to around 13 percent in 2006.

B. Employment by Educational Attainment

Table 2 describes the distribution of workers in terms of their educational attainment. 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 percent to around 16 percent. 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 secondary and 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	36.20	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 group. 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 between 2003 and 2006). Interestingly, production workers' share has declined considerably from 65 percent in 1994 to 55 percent 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/Admin.	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 slightly out of line with the other three years. Aside from 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	24.60	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. The economy-wide level and the four most important production sectors in terms of employment show the following pattern over the period under consideration: (i) the share of workers who are self-employed has decreased; (ii) with the exception of community, social, and personal services, the share of casual wage employees has increased; and (iii) with the exception of manufacturing, the share of permanent wage employees has likewise increased.

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

Table 5. Prime-Aged Workers by Production Sector and by Employment Type (percent)

	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			

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

Table 6. Prime-Aged Wage Workers by Production Sector and by Employment Type (percent)

	1994		1997		2000		2003		2006	
	Permanent Employee	Casual Employee								
All	73.73	26.27	75.02	24.98	72.08	27.92	70.21	29.79	72.23	27.77
Agriculture	46.26	53.74	48.64	51.36	45.94	54.06	44.24	55.76	51.86	48.14
Manufacturing	82.69	17.31	81.82	18.18	78.63	21.37	76.67	23.33	75.77	24.23
WRT	79.85	20.15	79.91	20.09	77.32	22.68	74.71	25.29	75.56	24.44
CSPS	83.58	16.42	83.76	16.24	83.81	16.19	80.80	19.20	85.94	14.06

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

Since the relationship between employment type and job quality is one of the issues we are 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 groups. 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 the self-employed and casual wage employees, both of whom have similar educational profiles. Nevertheless, as Table 7a also reveals, the level of education has been 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 are less significant than in 1994.

Insofar as the age profile of the three types of workers is concerned, matters are different in that the age profiles of both types of wage employees—permanent and casual—are fairly similar and distinct from that of the self-employed. In particular, the largest share of wage employees belongs to the 21–30 age group, especially for casual wage employees. In contrast, the single largest share of the self-employed belongs to the 41–50 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 share of production workers has declined for all three employment types. On the other hand, there has been 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 (percent)

	1994			2006		
	Self-Employed	Permanent Employee	Casual Employee	Self-Employed	Permanent Employee	Casual Employee
Below primary	27.34	10.20	23.33	21.90	8.92	17.20
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 (percent)

	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 (percent)**

	1994			2006		
	Self-Employed	Permanent Employee	Casual Employee	Self-Employed	Permanent Employee	Casual Employee
Professional/Admin.	15.80	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. As mentioned previously, 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 from 2.1 percent and 2.3 percent for permanent and casual workers, respectively, in 2000 to 13.4 percent and 10.9 percent 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. 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 the remainder of this section, 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 percent to control for potential outliers. Finally, we adjust wages for spatial price differentials using the regional poverty lines of Balisacan (2001). Temporal price differentials are adjusted for using regional consumer price indices from the National Statistics Office.

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) 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), are much more in line with earlier

estimates. Nevertheless, they indicate fairly lackluster growth in wages, especially since 2000.

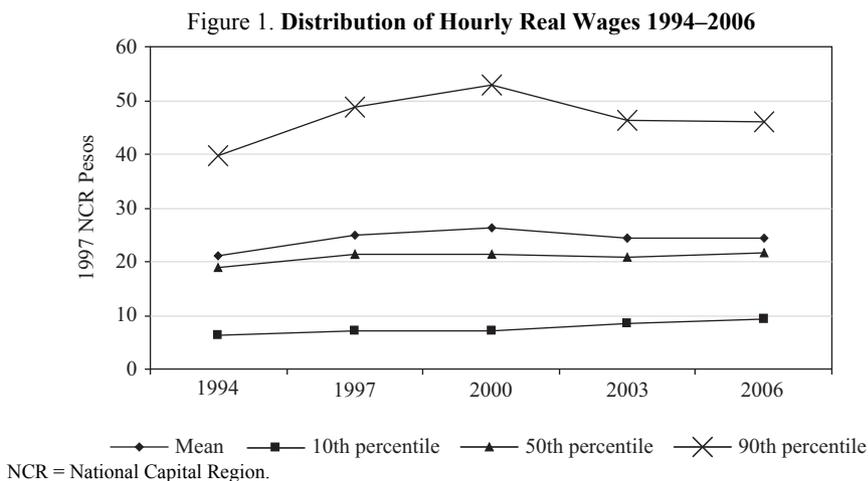


Table 8 describes average real hourly wages in 1994 and 2006. In addition to the overall average wage in these two years, averages are also provided for various subgroups of the population of wage employees.

A number of important patterns are clear. 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 percent 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 percent higher than in industry while industry wages were 58 percent higher than in agriculture). Third, wages increase with educational attainment and tend to be the highest for those employed in professional and administrative occupations—occupations closely associated with skilled white-collar jobs. Surprisingly—at least from the typical developing (and even developed) country context—average wages for men were lower than those for women in 2006 (though this was not the case in 1994).⁸

⁸A closer look at the data shows that growth in wages was higher for women in seven out of the nine production employing sectors considered in Table 1. In terms of the four major employing sectors, growth in women's wages was higher than that of men in three of the sectors (agriculture, manufacturing, and wholesale and retail trade).

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

	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 (PE)	23.38	27.40	1.23	0.34	0.31
Casual employee (CE)	16.02	18.21	0.99	0.32	0.27
PE vs. CE (%)	45.96	50.51			
Education					
Below primary (BP)	14.22	15.68	0.75	0.33	0.28
Primary (P)	16.69	17.72	0.46	0.33	0.27
Secondary (S)	21.61	22.39	0.27	0.31	0.25
Tertiary and up (T)	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 and sales	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
Industry vs. Agriculture (%)	64.36	58.23			
Services vs. Industry (%)	–1.13	26.01			

NCR = National Capital Region.

The third column of Table 8 describes annualized growth in average wages between 1994 and 2006 by all the different groupings. Wages of permanent workers grew faster than those of casual workers (1.23 percent versus 0.99 percent, respectively). Wages of the college-educated grew faster than those of the less educated (0.94 percent for the college-educated versus 0.27 percent for the secondary educated and 0.46 percent for the primary educated).⁹ Wages of professional workers grew much faster than those of production workers (1.54 percent versus 0.06 percent, respectively) but slower than clerical and sales workers (1.68 percent). Service sector wages grew considerably faster than those in the industry sector (1.84 percent versus –0.05 percent, respectively). The faster

⁹The 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).

growth in wages of female workers—2.24 percent versus 0.50 percent for the wages of male workers—was sufficient to make the average wages of women 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. Within categories, 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, two are especially important from the perspective of this paper and it is worth reiterating these. First, the growth of wages has been lackluster. Despite average gross domestic product growth of 4 percent between 1994 and 2006, real wages have grown on average by just over 1 percent. 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 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, it is difficult to make a judgment on what has happened to earnings 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 income from other sources including inheritance, rentals, pension, and winnings from gambling. Figure 2 shows the share of each income component in total per capita household income by decile groups in 1994.¹⁰

Figure 2 shows that for households with per capita income below the median, there was greater reliance on income from entrepreneurial activity in 1994. A little above 40 percent of household income of such households came from entrepreneurial activities.

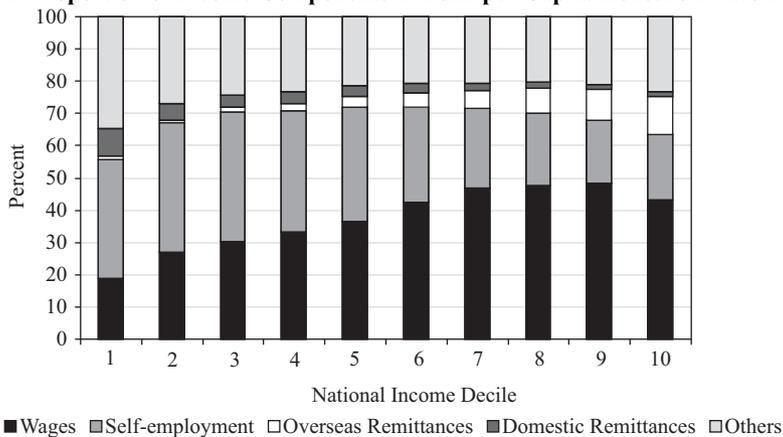
¹⁰That is, using information on household size, per capita income is computed for each household. Households are then assigned to one of ten decile groups based on their per capita incomes.

Figure 3 shows that between 1994 and 2006, the share of wage earnings in household income 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 3 also shows that the decline in importance of income from self-employment is an across-the-board phenomenon.

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 percent. The share for these households was around 10 to 16 percent in 2006, which was 3 to 4 percentage points higher than its share in 1994.¹¹

Figure 4 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—whether they are based on wages or on self-employment income of the remitter—drawing inferences can be tricky.¹² 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 made an insignificant contribution to per capita income and its growth. With the exception of this lowest decile, the growth of overseas remittances has outstripped growth in wages—which has rarely grown faster than 2 percent 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 2. **Proportion of Income Components in Total per Capita Household Income, 1994**



¹¹Son (2007) pointed out that this phenomenon of fast growth of overseas remittances has the tendency to increase income inequality.

¹²The source of foreign remittances can be expected to be largely based on wage employment.

Figure 3. **Change in Proportion of Income Components between 1994 and 2006**

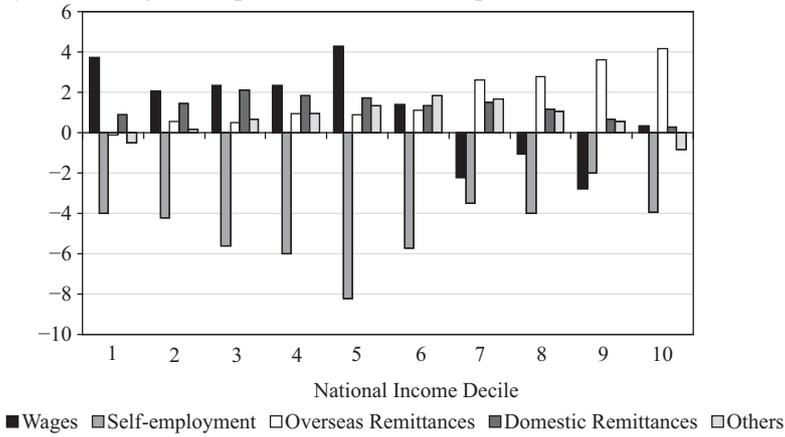
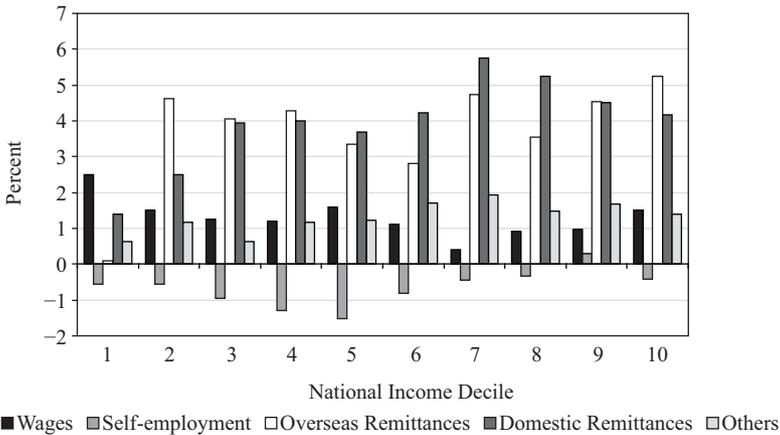


Figure 4. **Annualized Growth of Per Capita Income Components by National Income Decile, 1994 and 2006**



In summary, this brief analysis of FIES income data seems to corroborate the findings on wages from the FIES, i.e. that of their 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 in buoying household incomes for all but the very poorest. Of course, some of these inferences must remain tentative. For one, no control has been 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 within the family. Therefore, we turn to a more complete analysis of earnings from wage employment and self-employment using our matched FIES-LFS data.

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 a 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 earnings in the Philippines that omits self-employed jobs could be seriously incomplete. This section attempts to incorporate into the analysis the earnings of not only wage employees, but also of the self-employed.

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 provide us information 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 discuss 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 that round of the survey, the information on household incomes from the corresponding FIES pertains to the 365-day period in 2006. Thus, in using information from the LFS to inform us about the labor force related sources of household income, we have to assume that the details on individuals' labor force status and participation, especially whether or not they are employed and their type of employment, are 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. In 1994, 43 percent of households had multiple earners accounting for 70 percent of self-employed workers and 63 percent of wage workers. In 2006, 44 percent of households had multiple earners accounting for 66 percent of self-employed workers and 59 percent of wage workers.

There is no foolproof 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 Section III), simply dividing household wage income by the number of wage employees is not an appropriate way to compute individual earnings.¹³

We experimented with a number of approaches for assigning household entrepreneurial income and wage income to multiple self-employed or multiple wage earners within households. Our preferred approach is to 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 within households.¹⁴ More specifically, we start out by first estimating a Mincerian earnings equation 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 casual wage employees, respectively.

More formally, we estimate using the ordinary least squares method¹⁵:

$$\ln y_{iz}^s = \beta_{iz}^s \mathbf{X}_{iz}^s + \varepsilon_{iz}^s, \quad (1)$$

where y is the earnings of single-earner (denoted by the superscript s) individual i employed as a worker of type z (z is either self-employed or a permanent or casual employee), and \mathbf{X} is a vector of individual characteristics that include age and its square, education, gender, urbanity, region, sector, and occupation controls. The β s are the coefficients of the regression and ε is an error term assumed to be identically and independently distributed.

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 *actual* FIES wage income for wage workers and entrepreneurial income for the self-

¹³ 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.

¹⁴ "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.

¹⁵ While our estimated coefficients are potentially biased on account of the fact that they do not account for possible self-selection of individuals into the three types of employment (i.e., self-employment and casual and permanent wage employment) based on unobservable characteristics, it is not clear how serious potential biases are in our application where we use the estimated coefficients only to divide household wage income (or entrepreneurial income) between multiple wage earners (or multiple self-employed) within the household. Thus, to the extent that the most important selection effects take place on account of household characteristics, the use of coefficients based on ordinary least squares should not be a serious issue.

employed workers to compute the earnings to be attributed to each specific worker in the household.¹⁶

Before proceeding to the analysis of earnings, it is worth reporting the results of the Mincerian regressions for single earners described above. Several features stand out in Table 9. First, the various observed characteristics explain the higher share of variation in log earnings for permanent workers than for 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) and 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 permanent workers, for whom there was a big increase. These patterns and their similarity with previous work using LFS data and complete samples (i.e., not limited to single earners) are reassuring.

Table 9. Mincerian Regression of Single Earners

Dependent variable:	Self-Employed			
	1994		2006	
Log earnings	Coefficient	P-value	Coefficient	P-value
Age	0.063	0.00	0.060	0.00
Age squared	-0.001	0.00	-0.001	0.00
Primary	0.051	0.00	0.120	0.00
Secondary	0.165	0.00	0.209	0.00
Tertiary	0.623	0.00	0.607	0.00
Male	0.632	0.00	0.648	0.00
Urban	0.102	0.00	0.097	0.00
Industry	0.025	0.00	0.082	0.00
Services	0.245	0.00	0.250	0.00
Sales/Service	-0.251	0.00	-0.276	0.00
Production	-0.345	0.00	-0.339	0.00
Constant	8.806	0.00	8.411	0.00
R-squared	0.1878		0.1719	
Number of obs (unweighted)	6,866		11,453	

Dependent variable:	Permanent Employee			
	1994		2006	
Log earnings	Coefficient	P-value	Coefficient	P-value
Age	0.062	0.00	0.065	0.00
Age squared	-0.001	0.00	-0.001	0.00
Primary	0.136	0.00	0.091	0.00
Secondary	0.391	0.00	0.379	0.00
Tertiary	0.893	0.00	1.004	0.00
Male	0.336	0.00	0.233	0.00

Continued

¹⁶The other approaches considered for estimating individual earnings in multiple earner households included using individual-level LFS wage earnings to calculate the share of household wage earnings earned by each wage worker and applying these shares to FIES household wage income (and simply dividing entrepreneurial income equally between multiple self-employed individuals within the household). The main results of this section are hardly affected by applying these alternative approaches. Results are available from the authors upon request.

Table 9—Continued

Urban	0.176	0.00	0.285	0.00
Industry	0.453	0.00	0.493	0.00
Services	0.305	0.00	0.383	0.00
Sales/Service	-0.078	0.00	-0.230	0.00
Production	-0.093	0.00	-0.216	0.00
Constant	8.863	0.00	8.831	0.00
R-squared	0.2997		0.3882	
Number of obs (unweighted)	5,750		9,342	

Dependent variable:	Casual Employee			
	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: Regression included region dummies, but these results are 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.¹⁷ Table 10 describes average earnings for the three employment types. 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 by far are to be found in permanent wage employment. Compared to the wages reported in Table 8, 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 percent more than casual workers in 2006, but the earnings of permanent workers as suggested in Table 10 are more than double those 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

¹⁷As with the analysis of wages in Section III, the earnings are adjusted to account for temporal and spatial price differentials. We also trim the top and bottom 1 percent to control for outliers.

including permanent workers. Permanent workers' earnings also decreased in manufacturing. Disaggregating the results by gender, as shown in Table 11, we can see that in general women earn less than men. This can be reconciled with the results of Table 8 on wages by noting that earnings of female permanent workers overtook those of males in 2006. Putting aside the agriculture sector, earnings of wage workers tended to increase or decrease slightly (except for those of male permanent employees in manufacturing, which decreased significantly), while self-employment earnings for both men and women decreased in all four major sectors.

Table 10. Average Estimated 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

CSPS = community, social, and personal services; NCR = National Capital Region; WRT = wholesale and retail trade.

Table 11. Average Estimated Earnings by Gender, Production Sector, and Employment Type (in 1997 NCR pesos)

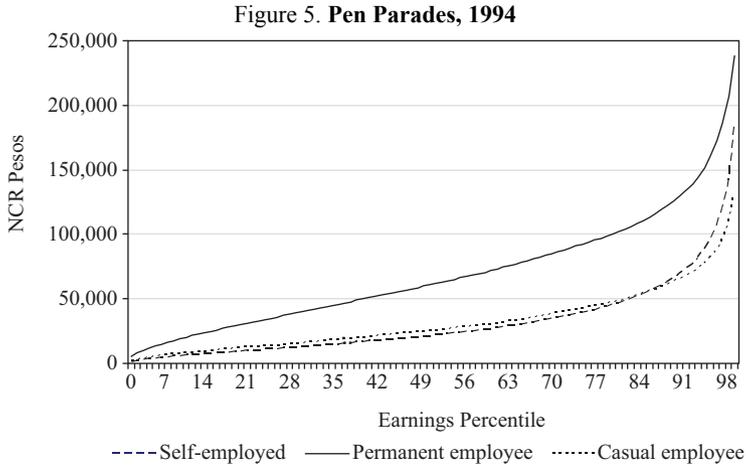
	1994					
	Self-Employed		Permanent Employee		Casual Employee	
	Male	Female	Male	Female	Male	Female
All	29,999.82	22,645.87	67,994.39	61,390.89	29,863.35	22,945.89
Agriculture	25,228.15	12,436.68	38,607.57	25,081.72	18,484.24	13,360.43
Manufacturing	43,368.47	20,322.62	76,795.46	57,495.02	37,104.34	32,164.55
WRT	51,615.09	34,024.44	61,438.36	45,383.23	33,042.37	26,392.76
CSPS	52,800.14	35,445.93	82,355.57	66,164.69	39,655.92	27,292.59

	2006					
	Self-Employed		Permanent Employee		Casual Employee	
	Male	Female	Male	Female	Male	Female
All	29,555.28	22,379.39	64,541.12	77,267.44	30,653.04	25,893.13
Agriculture	22,382.54	11,595.78	28,232.26	21,389.41	17,386.58	11,852.48
Manufacturing	40,140.70	19,338.88	68,082.12	63,234.09	40,425.13	31,889.44
WRT	46,561.18	29,572.76	63,387.27	55,841.54	38,166.65	30,785.31
CSPS	39,381.91	27,421.22	94,451.16	95,676.52	38,741.80	31,069.58

CSPS = community, social, and personal services; NCR = National Capital Region; WRT = wholesale and retail trade.

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. Figure 5, therefore, looks into the entire distribution of earnings for different types of workers in 1994. The figure, using

Pen Parades, shows the average earnings at each percentile for all three types of workers.¹⁸ The line representing the earnings of permanent workers lies above the lines of both casual and self-employed workers. This suggests that the worst paid permanent worker earned more than the worst paid casual or self-employed worker and the best paid permanent worker earned more than the best paid casual or self-employed worker. This is true in the middle of the distribution as well.¹⁹



NCR = National Capital Region.

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 exceed those of casual workers. The line for casual workers, though, lies above the self-employed line for the majority of the distribution.

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. Figure 6 shows that the distribution of earnings from casual wage employment tends to lie to the right of the distribution of earnings from self-employment. However, 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 compared to casual wage employees. This is consistent with the notion that self-employment is very heterogeneous. Thus, while many self-employed may earn relatively meager amounts, some earn

¹⁸Pen 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.

¹⁹We find similar results for 2006.

very large amounts. Table 12 confirms this by looking at two measures of inequality of our estimated earnings. Both the Gini coefficient and the 90th percentile–10th percentile ratio suggest that self-employment earnings are much more unequal compared to those of permanent and casual wage workers.

Table 12. Inequality Measures (Gini Coefficient and P90–P10 Ratio) of Estimated Earnings by Production Sector and Employment Type

	1994					
	Self-Employed		Permanent Employee		Casual Employee	
	Gini	P90/P10	Gini	P90/P10	Gini	P90/P10
All	0.49	12.25	0.37	7.28	0.41	9.09
Agriculture	0.46	10.36	0.44	9.32	0.39	7.28
Manufacturing	0.54	11.72	0.34	5.34	0.35	6.22
WRT	0.46	10.34	0.37	6.34	0.37	6.73
CSPS	0.48	9.74	0.36	7.54	0.39	7.94

	2006					
	Self-Employed		Permanent Employee		Casual Employee	
	Gini	P90/P10	Gini	P90/P10	Gini	P90/P10
All	0.49	11.94	0.40	8.44	0.39	8.22
Agriculture	0.46	9.83	0.40	7.05	0.37	6.35
Manufacturing	0.54	17.35	0.33	5.08	0.32	5.14
WRT	0.47	11.13	0.35	5.40	0.35	6.04
CSPS	0.51	16.69	0.36	7.99	0.35	6.50

CSPS = community, social, and personal services; P10 = 10th percentile; P90 = 90th percentile; WRT = wholesale and retail trade.

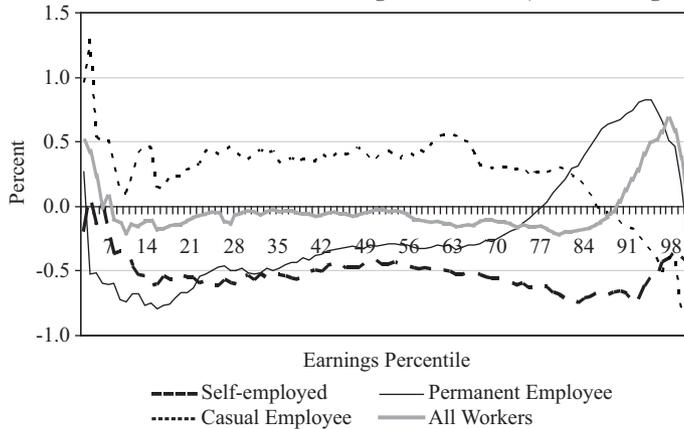
Figure 6 also shows that permanent workers are located to the right of both casual and self-employed density plots, suggesting that most permanent workers earn more than casual or self-employed ones. However, the long left tail of the permanent worker density graph indicates that there are still permanent workers who earn relatively low amounts.

Figure 6. Kernel Density Plots of Log Earnings by Employment Type, 1994



The most logical question to ask next is: how did workers' earnings perform over the period 1994–2006? Recall that in Table 10, the average earnings of the self-employed were seen to decline a little while those of wage workers (both permanent and casual) increased. However, a cursory examination of Figure 7 (depicting what are often called growth incidence curves) reveals that earnings hardly grew for workers except for those at the top end of the earnings distribution.

Figure 7. **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 percent 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 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 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 because 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 can be misleading. We use propensity score matching (PSM) to control for worker characteristics.²⁰ 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, we can determine the difference in earnings between them. The matching is disaggregated into the four biggest production sectors in terms of employment: agriculture; manufacturing; wholesale and retail trade; and community, social, and personal services. 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 whether the earnings differentials vary between the poor and rich.

To obtain the propensity score used to match workers, a multinomial logit model is estimated first in order to find out how the three discrete employment types are related to observable characteristics of workers.²¹ The spirit behind this model of "occupational choice" closely resembles that of McFadden (1974).²² Table 13 presents the results of the multinomial logit model. Comparing self-employed and permanent workers reveals that having a higher level of education increases the probability of being employed as a permanent worker. The same thing can be said of male workers—i.e., men are more likely to have permanent employment than to be self-employed and this relationship has strengthened over time. The presence of other self-employed workers in the household increases the probability of the worker 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.

²⁰A good introduction to PSM can be found in Caliendo and Kopeinig (2005). Vandenberghe and Robin (2003) provides 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.

²¹It is important to note that we must assume that our observable characteristics are not affected by an individual's employment type. This may be a strong assumption, but it is one we are forced to make.

²²Although the McFadden occupational choice model gives a description of preference by an individual, it may not be fully justified because 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 13. Multinomial Logit Model of Choice of Employment Type

Dependent Variable: Worker Type	Permanent Employee versus Self-Employed			
	1994		2006	
	Coefficient	P-value	Coefficient	P-value
Age	-0.009	0.00	-0.032	0.00
Age squared	0.000	0.00	0.000	0.00
Primary	-0.100	0.00	-0.052	0.00
Secondary	0.138	0.00	0.196	0.00
Tertiary	1.911	0.00	1.892	0.00
Clerical/Sales	1.786	0.00	1.260	0.00
Production	0.953	0.00	0.713	0.00
21–30 years old	0.001	0.89	0.256	0.00
31–40 years old	-0.073	0.00	0.161	0.00
41–50 years old	0.033	0.00	0.116	0.00
Industry	2.692	0.00	2.468	0.00
Services	1.937	0.00	1.229	0.00
Male	0.612	0.00	0.679	0.00
Urban	0.046	0.00	0.076	0.00
Number of other self-employed workers in HH	-0.541	0.00	-0.676	0.00
Number of other permanent workers in HH	0.339	0.00	0.427	0.00
Number of other casual workers in HH	0.144	0.00	0.245	0.00
Married	-0.515	0.00	-0.364	0.00
Separated	-0.611	0.00	-0.396	0.00
Constant	-2.169	0.00	-1.391	0.00

Dependent Variable: Worker Type	Casual Employee versus Self-Employed			
	1994		2006	
	Coefficient	P-value	Coefficient	P-value
Age	-0.125	0.00	-0.174	0.00
Age squared	0.001	0.00	0.002	0.00
Primary	-0.212	0.00	-0.061	0.00
Secondary	-0.335	0.00	-0.202	0.00
Tertiary	0.679	0.00	1.043	0.00
Clerical/Sales	2.415	0.00	1.972	0.00
Production	1.925	0.00	1.492	0.00
21–30 years old	0.294	0.00	0.122	0.00
31–40 years old	0.305	0.00	0.180	0.00
41–50 years old	0.246	0.00	0.200	0.00
Industry	1.983	0.00	2.233	0.00
Services	1.051	0.00	0.383	0.00
Male	0.258	0.00	0.455	0.00
Urban	-0.057	0.00	0.083	0.00
Number of other self-employed workers in HH	-0.595	0.00	-0.800	0.00
Number of other permanent workers in HH	-0.090	0.00	-0.040	0.00
Number of other casual workers in HH	0.975	0.00	0.968	0.00
Married	-0.686	0.00	-0.598	0.00
Separated	-0.564	0.00	-0.360	0.00
Constant	-0.605	0.00	1.180	0.00

HH = household.

Comparing casual and self-employed workers, the results indicate that better educated workers are more likely to be engaged in casual employment. Older workers are also more likely to be casually 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. The constant term in the permanent–self-employment comparison significantly increased in favor of permanent employment, 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 14 in terms of the average treatment effect on the treated (ATT) and earnings differential ratios. The ATT measures 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. For example, consider the results in the 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 against which it is compared (i.e., permanent wage workers).

Table 14. 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 (in 1997 NCR pesos)	-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	
	Number untreated	2,924	11,720	5,768	14,202	
Agriculture	Number treated	10,022	8,810	16,287	11,975	
	ATT (in 1997 NCR pesos)	-6,422	-19,253	-4,991	-12,392	
	t-stat	-5.86	-4.20	-6.35	-3.20	
	Earnings differential ratio	0.75	0.68	0.77	0.75	
Manufacturing	Number untreated	885	520	2,130	692	
	Number treated	7,548	3,155	11,490	3,856	
	ATT (in 1997 NCR pesos)	-14,531	-8,868	-16,328	-22,628	
	t-stat	-6.03	-1.20	-9.60	-5.96	
WRT	Earnings differential ratio	0.52	0.89	0.50	0.69	
	Number untreated	362	2,400	606	2,131	
	Number treated	399	719	549	638	
	ATT (in 1997 NCR pesos)	-1,253	10,693	-10,596	-5,681	
CSPS	t-stat	-0.40	1.64	-6.18	-1.52	
	Earnings differential ratio	0.95	1.18	0.66	0.91	
	Number untreated	253	907	716	2,400	
	Number treated	1,110	2,921	2,866	5,175	
Self-Employed versus Casual Employees	ATT (in 1997 NCR pesos)	-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	
	Number untreated	707	4,975	892	5,060	
All	Number treated	292	885	278	369	
	Self-Employed versus Casual Employees					
			1994		2006	
			Bottom 50%	Top 50%	Bottom 50%	Top 50%
All	ATT (in 1997 NCR pesos)	-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	
	Number untreated	2,217	2,477	4,325	3,480	
Agriculture	Number treated	10,022	8,810	16,287	11,975	
	ATT (in 1997 NCR pesos)	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	
Manufacturing	Number untreated	1,142	379	2,243	377	
	Number treated	7,554	3,162	11,490	3,856	
	ATT (in 1997 NCR pesos)	-14,753	18,802	-10,857	8,547	
	t-stat	-4.92	3.27	-5.19	2.16	
WRT	Earnings differential ratio	0.51	1.49	0.60	1.20	
	Number untreated	169	388	315	569	
	Number treated	378	608	554	592	
	ATT (in 1997 NCR pesos)	7,928	31,593	-2,597	8,376	
CSPS	t-stat	1.16	5.06	-0.93	2.21	

Continued

Table 14—Continued

	Earnings differential ratio	1.56	1.84	0.89	1.17
	Number untreated	84	200	318	697
	Number treated	1,174	3,025	2,863	5,219
CSPS	ATT (in 1997 NCR pesos)	-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
	Number untreated	362	703	331	618
	Number treated	292	885	276	369
Permanent Employed versus Casual Employees					
		1994		2006	
		Bottom 50%	Top 50%	Bottom 50%	Top 50%
All	ATT (in 1997 NCR pesos)	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
	Number untreated	2,217	2,477	4,325	3,480
	Number treated	2,924	11,720	5,768	14,202
Agriculture	ATT (in 1997 NCR pesos)	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
	Number untreated	1,142	379	2,243	377
	Number treated	872	465	2,094	643
Manufacturing	ATT (in 1997 NCR pesos)	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
	Number untreated	169	388	315	569
	Number treated	343	2,398	602	2,057
WRT	ATT (in 1997 NCR pesos)	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
	Number untreated	84	200	318	697
	Number treated	236	872	704	2,381
CSPS	ATT (in 1997 NCR pesos)	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
	Number untreated	362	703	331	618
	Number treated	696	4,972	890	4,987

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

A quick inspection of the first set of results provided in Table 14 (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, 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.²³ In effect, self-employed workers in the bottom half only earn three fourths of what permanent workers earn. The same thing is true for the top half of

²³ Amounts here and elsewhere in this section are in 1997 NCR pesos.

the distribution: the self-employed earn less than 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. Insofar 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. This same pattern was shown by the Pen Parades—the self-employed earn more than the casual workers only in the upper end of the distribution. We can now see that this result holds even when we control for observable worker characteristics.²⁴

It is important to consider how these earnings differentials look if we consider each of the four major production sectors separately. Insofar as the comparison between the self-employed and permanent workers is concerned, the results are essentially the same. With the exception of the top half of the distribution of earnings in wholesale and retail trade 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 insofar 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 earnings of poorer casual and self-employed

²⁴The 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.

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

VII. 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 an accompanying expansion in wage employment.

The decline in self-employment does not appear to be undesirable. This paper's analysis has revealed 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 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 far 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 higher 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 using two alternative definitions of the middle class as those whose daily consumption per capita is between US\$2 and US\$4 or between US\$6 and US\$10 (1993 purchasing power parity), Banerjee and Duflo reached 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. (p. 21)

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—suggest that Banerjee and Duflo’s characterization of the economic lives of the middle-class would apply in the Philippines 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—clearly seen in this paper in terms of the dispersion in earnings of the self-employed—and as Fields (2007) noted, 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 non-wage 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 (à la de Soto 2001) may be constraining the self-employed from generating higher earnings from their businesses.

Indeed, as noted by de Mel, McKenzie, and Woodruff (2008) in their analysis of own-account workers (a group that comprises 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. (p. 3)

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 has revealed 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 is 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 and the matched FIES-LFS earnings data indicate weak growth in wages and earnings for workers in general. The issue of what policy can do to tackle the slow growth of wages and earnings is one of the most important questions for policy-oriented research on the Philippines to consider.²⁵

²⁵In this regard, it is worth noting that several recent analyses of the Philippines economy have highlighted a narrow industrial base (along with inadequate infrastructure) as critical constraints to private investment and growth in the Philippines (see, in particular, ADB 2007c and Bocchi 2008). It is likely that these constraints are the underlying cause of the weak growth in wages and earnings. As argued by these analyses, tackling the narrow industrial base will require addressing a variety of regulatory and market failures due to imperfections in credit markets and information and coordination externalities. One area that seems ripe for research is an examination of current efforts by agencies such as the Department of Trade and Industry for promoting enterprise development and entrepreneurship using rigorous impact evaluation tools.

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