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Assessing Labor Market Conditions in Madagascar, 2001-2005

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June, 2007

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EXECUTIVE SUMMARY

This study assesses the labor market conditions in Madagascar using household survey data from 2001 and 2005. Labor markets are important because poor people derive most of their income from labor – the one asset that they possess in abundance. Thus in a country like Madagascar where nearly seven out of ten individuals live below the poverty line, understanding employment and earnings conditions is essential to understanding poverty.

Summary information on basic labor market indicators appear in Tables 1 and 2 to highlight the main messages of this report.

MACROENOMIC CONTEXT

During the 2001-2005 period, the Madagascar economy was in flux as a result of experiencing several large-scale shocks. In additions to chronic weather problems, these shocks include the 2002 political crisis which resulted in a major disruption of economic activity due to general strikes and roadblocks on major national roads, along with the strong depreciation of the currency and rise in international oil and rice prices that occurred in 2004 and 2005. While the political crisis appears to have had a widespread impact, the latter shocks may have affected the richer segments of society more adversely.

Between 2001 and 2005 poverty declined more rapidly in rural areas than in urban areas. This was a marked contrast to 1997–2001, when the small decline in poverty was largely the result of declining urban poverty. Growth in 1997–2001 was driven largely by the export processing zone sector, based in Antananarivo/Antsirabe, which improved job opportunities and reduced poverty in urban areas. The decline in poverty in rural areas between 2001 and 2005 is linked to greater emphasis on rural development, accelerated implementation of the roads program, and higher rice prices, which gave incentives to rural farmers.

PATTERNS OF EMPLOYMENT

Workforce participation in Madagascar is high, especially in rural areas. Overall participation in income generating activities is high in Madagascar; 85.8 percent of the population report some form of employment in 2005. This is an increase of 3.3 percentage points from 2001. With an employment rate of 90 percent, up from 88 percent in 2001, the vast majority of rural residents are economically active. While urban employment also grew, it remains lower than in rural areas at 72.3 percent.

Employment growth was driven by greater participation among women who currently make up half the workforce. Much of the increase in overall employment has come from growth in the number of women in the work place. With female employment growing from 77.8 percent to 83.2 percent, relative to male employment rising from 87.5 to 88.6, women now account for half of the working population. This convergence is primarily rural, as the share of women among the employed remained roughly 47 percent in urban areas.

The primary sector accounts for over 88 percent of rural employment and 45 percent of urban employment. Although the primary sector generates only 34.3 percent of total output, it employs 80.1 percent of the working population. Further, 97.0 percent of these workers are involved in agricultural activities. But agriculture represents only 16.1 percent of GDP. By

contrast, the service sector employs only 17.4 percent, but accounts for 53.0 percent of national output. Finally, the industrial sector generates 12.7 percent of total output, but employs only 2.5 percent of the working age population. Naturally, the employment structure differs between urban and rural areas. Nearly 9 out of 10 working-age adults in rural areas are employed in primary activities, while services account for most of the remainder. In urban areas, on the other hand, services account for 46.9 percent of primary jobs, and industry 7.9 percent. Nonetheless, agriculture is also an important generator of urban employment (45.2 percent).

Employment in the primary sector increased mainly among the non-poor, while employment in services increased among the poorest. The structure of employment changed substantively since 2001. The share of workers in the primary sector (primarily agriculture) has risen by 6.2 percentage points at the expense of both services and industry. It is the non-poor whose employment in agriculture has risen and they appear to be producing more beans and legumes. While employment among the poor in the primary sector remained relatively unchanged, the percent of the non-poor employed in agriculture rose from 38.2 percent to 62.5 percent. Employment in services among the poor rose (8.6 percent to 11.3 percent) and was driven by jobs in public works and commerce. Job losses in the industrial sector were concentrated in textiles and energy.

Current sectoral trends are uncertain given the timing of the data. A word of caution is necessary with regard to interpreting the sectoral employment trends. The employment shifts observed in the household surveys follow from snapshots of circumstances just prior to the 2002 political crisis (i.e. 2001 EPM) and three years after the crisis (i.e. 2005 EPM). Consequently, they may be the product of both the political crisis and on-going structural changes in the economy, which are not necessarily working in the same direction.

Over 85 percent of workers in Madagascar are employed in non-wage activities. With the number of non-wage workers rising at a rate faster than the increase in the labor force, the share of non-wage to total employment rose by 3.4 percentage points between 2001 and 2005. Not only did the share of those employed in wage and salaried positions fall (18.3 percent to 14.9 percent), but the absolute number in this category also fell from 1.29 million to 1.17 million. This followed from of a loss of non-agricultural wage employment, which more than offset the increase of agricultural wage employment (from 2.3 percent to 3.1 percent of total employment).

Non-wage labor is predominantly agricultural. Nearly nine out of ten non-wage workers are employed in agricultural activities (including livestock rearing). This is due to the importance of this sector in rural and secondary urban areas. Consistent with the observed overall employment trend out of industry and services into agriculture, the number of individuals employed in non-wage agriculture activities rose by 30.2 percent between 2001 and 2005.

Large urban areas are different from the rest of the country. The patterns and changes in employment status have not been uniform across the country. Large urban areas differ from the rest of the country with regard to wage and non-wage employment patterns. For example, the majority of the employed in large urban centers[1] earn their living from wage employment (65.9 percent). Further, the number of wage employed in large urban areas grew by nearly 50 thousand. This growth was driven by an increase in the number of private sector non-agricultural jobs.

Most of jobs do not require substantial skills. Of the 14.9 percent of the workforce with wage and salaried jobs, 55.1 percent are employed in unskilled positions. In large urban areas, where

[1] These areas are made up of the provincial capitals.

65.9 percent of the workforce receives a wage, 42.8 percent of wage workers are unskilled. In secondary urban this figure is 48.8 percent. Not surprisingly, in rural areas, unskilled labor accounts for 65.6 percent of wage labor. Nearly two-thirds of women with wage employment hold unskilled positions, while just under half of men do so.

The informal sector dominates the labor market in Madagascar. A conservative estimate places 64.5 percent of the 1.2 million wage laborers in the informal sector. Considering the total workforce, including non-wage workers, approximately 95 percent of the 8.3 million working age adults are informally employed.

Most workers in Madagascar have no formal education. More than half of the working-age employed Malagasy work force has no formal education, while 30 percent has primary education, and 15 percent has secondary education. Further, three-quarters of entrants into the workforce are uneducated. The urban workforce is better educated than the rural workforce. Employment rates are highest among those without any education (93.2 percent), and lowest among those with upper secondary education (64.6). In addition, employment rates fall steadily as educational attainment levels increase up through secondary education.

Uneducated workers are more likely to be employed in agriculture. As education levels increase, individuals shift out of agriculture and into industry and services, though much more rapidly into the latter – the percentage of the workforce in agriculture decreases persistently with education levels (from 89.8 percent to 14.6 percent), while the percentage in industry (from 1.0 percent to 12.8 percent) and services (from 9.1 percent to 72.6 percent) increase.

Open unemployment is low in general, though it may be problematic in urban areas. Although unemployment in Madagascar has been rising, it remains low at 2.6 percent. Open unemployment rates are three times greater for those in the richest household expenditure quintile compared to those in the poorest quintile (5.1 percent compared 1.6 percent, respectively). In the same manner, open unemployment is largely an urban phenomenon and is concentrated among those with higher levels of education. Unemployment rates of 12.0 percent in large urban areas, and 3.5 percent in secondary cities, are substantially higher than the 1.4 percent in rural areas. Whereas Glick (1999) found that urban unemployment rates in 1993 were highest among younger age groups, in 2005 the highest rates were found among older age groups who primarily lost high skilled wage jobs. Nonetheless, nearly a quarter of young urban residents (21-30) with post secondary education are unemployed.

QUALITY OF EMPLOYMENT

The majority of workers in Madagascar can be characterized as "working poor." Policy issues thus revolve around creating "good" jobs rather than creating any jobs. Access to employment does not necessarily translate in to pathways out of poverty for many workers and their families in Madagascar. Although 86 percent of the working age population was gainfully employed in 2005, 65.4 percent of them live in poverty. Despite improvements since 2001, job quality remains low. Median monthly earnings for all adult workers were Ariary 35,600 (approx. US$ 17).

"Bad" jobs are in agriculture, while "good" non-agricultural jobs pay wages. The lowest quality employment – as measured by earnings – appears to be in agriculture, while the highest quality jobs are those non-agricultural ones that pay wages. "Bad" jobs can also be characterized by low earnings, i.e. ones for which earnings fall below the poverty line. The highest percentage of low earners is in the agricultural sector (37.5 percent), which is over three times as great as among wage workers (11.8 percent). Nearly three quarters of low earnings among wage workers

can be attributed to low productivity as opposed to hours worked. Further, poverty rates among low earners are higher than among all workers, indicating that low earnings are a major contributor to poverty in Madagascar.

Nonetheless, there were improvements in agricultural earnings. Between 2001 and 2005, agricultural earnings improved while both wage and non-wage non-agricultural earnings deteriorated on average. Median agricultural earnings rose by 31 percent, while non-wage and wage real non-agricultural earnings fell 23 percent and 12 percent, respectively. Similarly, the quality of employment in agriculture improved as measured by changes in the low earnings rate.

"Good" jobs are found in the formal sector. The formality status of the job is also an important indicator of job quality. Wage workers in the private formal sector have median earnings that are 60 percent higher than for informal wage workers. Further disaggregation of won-wage employment by formality is also revealing. Median earnings among employees in registered NFEs earn more than two and a half times more than those working in unregistered enterprises.

Access to "good" jobs depends on educational attainment. Workers with little or no education are primarily found in the lowest paying sectors. Of those workers with no education, 86 percent are employed in agricultural activities, while 76 percent of those with only a primary education are in this sector. Less than two percent without any education are employed in the formal sector. This evidence thus suggests that individuals with low levels of education are vulnerable. Unless their skills are developed, this set of workers which make up more than half of the workforce, are likely to remain in low paying jobs with little promise for access to good jobs.

Despite equal access to the general workforce, men have greater access to "good" jobs than women. Men and women have similar non-wage agricultural earnings, but men fare better than women in terms of earnings in every other employment category. Women tend to be employed more in agriculture and the informal sector where earnings are relatively low, while men tend to have higher rates of employment in the formal sector where earnings are relatively high. Further, for those women who are employed in the formal sector and/or have better wage jobs, their earnings fall below those of men in the same sectors on average.

Child labor fell 23 percent, but nearly one in five children works. Children are an especially vulnerable group since employment may either prevent them from attending school, or leave them with less time and energy to devote to their studies if they do attend. In 2005, 18.8 percent of all children between the ages of 6 and 14 were involved in income-earning activities. The participation of children in the workforce is positively correlated with household poverty status and negatively correlated with per capita household expenditures and educational attainment of others in the household. Child labor is 42 percent higher among poor households than among non-poor households, and children are employed in the sectors with the lowest earnings and the highest low earnings rates. On a brighter note, the percent of working children who attend school rose by 223 percent to 46 percent.

Over a quarter of the employed work in more than one job, and they do so primarily because earnings are low, not because employment is seasonal. Temporary employment and holding multiple jobs can be an indicator of vulnerability. In Madagascar, 28.9 percent of the working age population has more than one job. This is more than a 100 percent increase from the 13.3 percent that reported holding multiple jobs in 2001. The percentage with temporary or seasonal employment is nearly half of the multiple job holding rate (14.8 percent), suggesting that

it is low earnings, not the lack of opportunity to work throughout the year, that is driving much of the decisions to work at more than one job.

Households increasingly rely on agriculture for most of their labor earnings. Agriculture accounts for an average of 68.6 percent of household labor earnings in Madagascar. The second largest source is from informal non-farm enterprises (11.2 percent). The formal sector accounts for 8.7 percent of household earnings. Agriculture has become a more important source of household earnings while formal sector earnings have fallen.

Poorer households, however, have begun turning to informal employment in the service sector. The structure of household earnings changed in different ways for poor and non-poor household between 2001 and 2005. Agriculture has become less important as informal non-agricultural earnings (wage and non-wage) and service sector earnings have picked up for poorer households. For richer households during this time period, the dominant income source shifted from non-agricultural wage employment to agriculture.

DETERMINANTS OF EMPLOYMENT AND EARINGS

Both labor supply and labor demand conditions affect improved employment and earnings outcomes. On the supply side, the low level of education in the workforce is an issue. According to the World Bank 2005 Investment Climate Assessment survey, the limited supply of skilled and/or trainable labor is an impediment to growth for over 60 percent of formal sector firms (30.5 percent consider this to be a major obstacle, while 30.1 percent regard it as a moderate obstacle). On the demand side, there are non-labor related factors curbing demand for formal sector labor. Issues related to macroeconomic stability, access to financial services, corruption, regulatory burden and uncertainty, and electricity ranked higher among the difficulties faced by the business community than labor-related issues.

Education and access to credit are associated with higher probabilities of formal sector wage employment. Econometric choice models indicate that those with more education are less likely to be employed in low paying agricultural jobs. A secondary level of education level of education increases the probability of not being in agriculture by more than 25 percent, while the probability of formal sector employment increases by more than 10 percent. Access to credit is associated with a 10 percent higher probability of formal sector and wage employment, though this relationship is largely an urban phenomenon.

Returns to education are substantial though they were lower in 2005 than in 2001. Wage workers with primary education earn 23 percent more that identical workers without schooling. The premium for upper secondary education among wage workers is 69 percent. Although the returns are lower for those in non-farm enterprises and in agriculture, the premium for upper secondary levels of education are over 42 percent. These returns fell between 2001 and 2005, though mostly for agricultural workers (e.g. return to secondary education was previously 67 percent instead of 44 percent).

There is no evidence of labor market segmentation between the private formal and informal wage sectors. Differences in earnings between those employed in the private formal and informal sectors appear to be driven by differences in endowments, not by differences in returns to education and experience. The exception is that the gap between men's earnings (higher) and women's earnings (lower) is larger in the informal sector than in the formal sector. There does appear to be segmentation between the private and public sectors as there are higher returns to education in the latter.

1. INTRODUCTION

This report assesses labor market conditions in Madagascar between 2001 and 2005. Labor markets are the focus here because poor people derive most of their income from their own largely unskilled labor – the one asset that they possess in abundance (World Bank, 1990). Thus in a country like Madagascar where nearly seven out of ten individuals live below the poverty line (INSTAT, 2006), understanding employment and earnings conditions is essential to understanding poverty. Further, the functioning of the labor market has important implication for economic efficiency, growth and poverty reduction. On the one hand, well functioning labor markets can both facilitate growth through efficient allocation of resources, and allow the poor to share in opportunities created by economic growth. On the other hand, poorly functioning labor markets can inhibit both.

Although workforce participation is high in Madagascar, formal labor markets are thin. Fewer than 15 percent of those involved in income generating activities are compensated in the form of wages or salaries. Given the agricultural orientation of the economy along with the importance of family-level production units, most workers in this country are "self-employed." As such, for this analysis we adopt a broad definition of labor markets that includes self-employment. If a labor market is a place where labor services are bought and sold, then self-employed individuals are envisioned as simultaneously buying and selling their own labor services.

The key messages coming out of the analysis of the 2001 and 2005 *Enquête Periodique auprès des Ménages* (EPM)[2] are:

- Workforce participation is high and unemployment is low in Madagascar. Given low earnings and high poverty rates, policy issues revolve around creating "good" jobs rather than creating *any* jobs.
- Urban unemployment, however, may be problematic.
- The primary sector is by far the dominant sector in terms of employment, but labor earnings are lowest in this sector. Over one third of workers in this sector do not earn enough to keep themselves out of poverty, much less their families.
- There has been an overall shift of labor out of industry and services into primary activities. This shift, however, is largely a result of employment changes among the non-poor. The poor receive an increasing share of labor income from informal service sector employment.
- More than half of the workforce has no formal education. Over 60 percent of formal sector firms in a recent survey consider this to be an impediment to their growth.
- Although investment in education improves access to "good" jobs, returns to education were lower in 2005 than in 2001.
- Children's labor may be detrimental to their schooling, but there have been improvements. Child labor rates have fallen by 23 percent to 18.8 percent, and more children who are working also attend school (46 percent).

[2] See Appendix 1 for more details on the household survey data including seasonality and comparability issues.

- Although women now make up half of the workforce, men have greater access to higher paying jobs.
- The data do not provide evidence of segmentation between the private formal and informal wage sectors.

The remainder of the paper proceeds as follows. Section 2 briefly lays the foundation by describing the macroeconomic context in which we analyze the labor market conditions in Madagascar. This is followed by an assessment of the patterns of employment (and unemployment) in Section 3. In Section 4, we address the quality of employment to understand what is meant by "good" or "bad" jobs in Madagascar and what characterizes these jobs. We further examine the characteristics of certain groups of individuals to identify those who may be particularly susceptible to being stuck with low quality jobs. We then turn to econometric methods in Section 5 to address two sets of questions: (a) What determines the probability that an individual will get a "good" or a "bad" job?, and (b) Is access to higher earnings driven by segmentation of the wage-labor market or by differences in worker characteristics (e.g. education levels), or both? In Section 6, we wrap up with concluding remarks.

2. MAROECONOMIC CONTEXT

During the 2001-2005 period considered in this analysis, the Madagascar economy was in flux as a result of experiencing several large-scale shocks. In additions to chronic weather problems, these shocks include the 2002 political crisis which resulted in a major disruption of economic activity due to general strikes and roadblocks on major national roads, along with the strong depreciation of the currency and rise in international oil and rice prices that occurred in 2004 and 2005. While the political crisis appears to have had a widespread impact, the latter shocks may have affected the richer segments of society more adversely.

Between 2001 and 2005 poverty declined more rapidly in rural areas than in urban areas, in marked contrast to 1997–2001, when the small decline in poverty was largely the result of declining urban poverty. Growth in 1997–2001 was driven largely by the export processing zone sector, based in Antananarivo/Antsirabe, which improved job opportunities and reduced poverty in urban areas. The decline in poverty in rural areas between 2001 and 2005 is linked to greater emphasis on rural development, accelerated implementation of the roads program, and higher rice prices, which gave incentives to rural farmers.

After the 2002 crisis GDP growth rebounded to 9.8 percent in 2003 from a 12.7 percent plunge a year before and continued to grow at an average rate of about 5 percent per year. Growth came largely through higher tourism receipts (tourism arrivals in 2005 were 21 percent higher than in 2004), improved performance in agriculture, especially higher rice production (rice productivity increased from 2.3 tons per hectare in 2003 to 2.6 in 2005), and continued public investments. In 2005 the economy grew at 4.6 percent despite a sharp increase in world petroleum prices, and a financial crisis at the state-owned electric enterprise JIRAMA that disrupted economic activity through power cuts and tariff increases.

A complicating factor is population growth, currently at 2.7 percent a year. If the population continues to grow at this pace, in 2050 Madagascar will have a population of over 40 million people. The rapid population growth will make it more difficult for poor households to escape poverty. Under these circumstances, currently GDP per capita growth will be inadequate unless the economy grows much faster than before or the demographic growth rate decreases

significantly (for example, after a rapid decline in fertility).[3] Fortunately, there are encouraging signs that fertility may have started to decrease in Madagascar. And the government is committed to strengthening family planning efforts – it is one of the six breakthrough goals of the Madagascar Action Plan.

The upturn in the late 1990s and the rapid turn around since 2002 offer encouraging signs. Private investment increased, leading to higher and more diversified production, which was absorbed by increased exports and domestic demand. New activities around the export processing zone attracted substantial foreign direct investment to textiles and clothing. Shrimp and more recently tourism and mining also grew impressively. These activities will continue to generate opportunities and employment, but they are not likely to provide enough jobs for the country's growing labor force.

Achieving high rates of employment and income generating growth will also depend on improving performance elsewhere in the economy. Despite strong potential in agriculture, the sector's contribution to GDP is low, only 14.8 percent in 2005, and declining. Between 1997 and 2005 the sector grew 2 percent a year, well below the population growth rate of about 2.8 percent. However, recent performance improvements in agriculture, in part in response to public investments, offer hopeful signs but call for a more concerted effort building on the current momentum.

3. PATTERNS OF EMPLOYMENT

3.1. Employment Rates

Rates of employment for individuals of prime working age (15-64 years old) appear in Table 3.1. An individual is considered employed if he/she has a permanent job or worked at least one hour at an income-generating activity in the week prior to the survey.[4] Overall participation in income generating activities is high in Madagascar; 85.8 percent of the population report some form of employment in 2005. This is an increase of 3.3 percentage points from 2001. With an employment rate of 90 percent, up from 88 percent in 2001, the vast majority of rural residents are economically active. While urban employment also grew, it remains lower than in rural areas at 72.3 percent.

There are three reasons we might expect to see higher employment rates in rural areas than in urban areas. First, family farming is more abundant in rural areas, and since employment on the farm is readily available, employment opportunities in rural areas are more accessible. Since 73.5 percent of the rural population is poor and 89 percent of rural households are involved in agriculture, much of it subsistence, rural individuals are more likely to be in need of gainful employment which can be provided by the family farm. Second, and related to the first point, unemployment rates are higher in urban areas (see Section 3.2). Rural dwellers living in poor households are in less of a position to be unemployed than urban households with greater means.

[3] Current Malagasy demographic data are not fully reliable. A comprehensive population and housing census is urgently needed, followed by a high quality demographic and health survey. This would shed more light on the country's fertility determinants and the demographic transition process.

[4] This measure misses those individuals with seasonal employment who were idle during the week prior to the survey. Although the labor modules of the 2001 and 2005 EPM surveys were unable to do so, the 2004 EPM was able to capture such seasonal employment (in addition to more than three jobs). Such jobs accounted for fewer than 1 percent of total employment.

This follows because individuals in rural areas are more likely to accept work opportunities that may be unproductive compared to alternatives that they would undertake if they were available because they cannot afford to forgo income generating activities while they search for better jobs. In urban areas, on the other hand, more individuals live in households that can support them while they search for better jobs. Third, labor force participation rates are lower in urban areas than in rural areas (77.9 percent compared to 91.3 percent). This, in part, reflects higher education levels in urban areas, where individuals tend to stay in school longer due to higher returns to schooling and to easier access to secondary and post-secondary schools.

Much of the increase in overall employment has come from growth in the number of women in the work place. With female employment growing from 77.8 percent to 83.2 percent, relative to male employment rising from 87.5 to 88.6, women now account for half of the working population.[5] This convergence is primarily rural, as the share of women among the employed remained roughly 47 percent in urban areas.

In terms of geographical distribution, Antananarivo and Fianarantsoa provinces[6] employ more than half of the Malagasy working age population, while Antsiranana employs just over 5 percent. This is roughly in line with population shares. Antananarivo province witnessed the largest increase in employment, from 75.3 percent in 2001 to 84.0 percent in 2005. Nonetheless, employment rates there remain on the low end as it has the highest urban population share (33.0 percent), and since urban employment rates are lower than rural employment rates. Fianarantsoa and Mahajanga provinces witnessed increasing employment rates (to 88.2 and 87.3 percent, respectively), while overall employment in Toamasina and Toliara remained relatively unchanged (84.6 and 87.4 percent, respectively). The latter, however, were a consequence of intra-province shifts as increasing urban employment coincided with falling rural employment rates. Finally, because the decline in rural employment in Antsiranana province was so large (93.3 to 85.4 percent), total employment fell (84.8 to 81.9 percent), despite the substantial increase in urban employment (55.4 to 64.0 percent). Both urban and rural employment rates in this province are consequently the lowest of any province in Madagascar.

Sector of Employment

Table 3.2 shows the percentage of working-age employed[7] individuals in three broadly defined sectors: primary activities, industry and services. Although the primary sector generates only 34.3 percent of total output, it employs 80.1 percent of the working population. Further, 97.0 percent of these workers are involved in agricultural activities. But agriculture represents only 16.1 percent of GDP. By contrast, the service sector employs only 17.4 percent, but accounts for 53.0 percent of national output. Finally, the industrial sector generates 12.7 percent of total output, but employs only 2.5 percent of the working age population. Naturally, the employment structure differs between urban and rural areas. Nearly 9 out of 10 working-age adults in rural areas are employed in primary activities, while services account for most of the remainder. In urban areas, on the other hand, services account for 46.9 percent of primary jobs, and industry 7.9 percent. Nonetheless, agriculture is also an important generator of urban employment (45.2 percent).

[5] Note that 51.6 percent of the working-age population are women.
[6] Although the 2005 data are representative at the level of the 22 new administrative regions, the 2001 data are not. As such, inter-temporal comparisons can only be made at the province level.
[7] Employment here refers to primary employment activity.

The distributions of sectoral employment for male and female workers are very similar in rural areas – 89 percent in agriculture, 10 percent in services, and 1 percent in industry – but not in urban areas. For example, while agriculture is an important employer of both men and women, it is of greater importance to women (48.1 percent of women compared to 42.6 percent of men). Greater percentages of men in urban areas are employed in industry than women (10.0 percent of men in industry compared to 5.5 percent of women.

The structure of employment changed substantively since 2001. The share of workers in the primary sector (primarily agriculture) has risen by 6.2 percentage points at the expense of both services and industry.[8] As illustrated in Table 3.3, there was an absolute fall in the number of working age individuals employed in the industrial sector (70.7 thousand jobs a year on average), while the average annual increase of 2.6 thousand jobs in the service sector was not fast enough to keep up with the growth in the work force. The primary sector created an average of 275.7 thousand jobs a year between 2001 and 2005.

In urban areas, industrial employment fell by 8.1 percentage points, as 24.1 thousand jobs were shed. Men lost the majority of these jobs, though they remained nearly twice as likely to have an industrial job than women. Those who lost jobs in this sector and remained in the urban work force found employment in the growing services or primary sectors. With employment in services growing at roughly the rate of growth of the urban workforce (equivalent to 22.8 thousand service sector jobs a year), this sector continues to comprise 47 percent of urban employment. However, there have been gender shifts in the service sector. Men picked up more of these jobs than women.

With an average annual increase of 50.3 thousand adults, the share of employment in urban primary activities grew by 8.1 percentage points, and contributed to the 49.0 thousand annual increase in urban employment. As a consequence of this increase, primary activities have become the largest source of employment for women in urban areas (previously was services), whereas services remains the dominant sector for men.

Already an dominant sector in rural areas[9], primary activities have become even more widespread with 225.4 thousand more individuals finding employment in this sector each year. At the same time, employment in industry and services has fallen not only as a share of rural employment, but also in absolute terms (46.6 thousand and 20.2 thousand fewer jobs on average per year, respectively). Although the losses in industrial jobs were spread relatively evenly by gender, men shed more rural service jobs than women (3.9 percentage points versus 1.2 percentage points, respectively). Combined with the growth in primary sector employment, the net effect has been an increase in 158.6 thousand rural jobs per year. As this is on par with the growth of the rural workforce, rural areas continue to employ 80 percent of the working age population.

To abstract from the effect of population growth on entry into the workforce, Table 3.3 shows the numbers employed by age cohort.[10] In the cohort of individuals who were of working

[8] Note that agro-industries are categorized as industry, not agriculture.

[9] In addition to 90 percent of rural employment being agricultural, 26 percent of those employed in non-agricultural activities live in an agricultural household.

[10] The age cohorts are defined based on the individual's age in 2001. Thus the comparison group is all of those who were between the ages of 15 and 64 in 2001 (i.e. those who were between the ages of 19 and 68 in 2005). Note that due to deaths in the cohorts, we cannot completely abstract from changes in the population.

age (15-64) in 2001, there was an annual increase of 7.3 thousand employed, as more people entered the labor market, and as more people found employment in agriculture (93.7 thousand per year). Further, female employment grew by an average of 20 thousand per year while male employment contracted by 13 thousand per year. Although employment did grow in the primary sector for both, it did so more rapidly for women than for men (52.6 thousand jobs per year compared to 41.2 thousand). A consequence of this is that in 2005, there were more women in this cohort working in primary activities than men (2.80 million compared to 2.77 million). On average, men bore the burden of all the job losses in the service sector, leaving nearly an equal number of men and women in this sector. The industrial sector simply lost jobs across the board. The average annual decrease of 71.9 thousand jobs resulted in the number employed in this sector falling by more than half. This leaves a mere 193 thousand from this cohort employed in industry.

Not surprisingly, the largest increases in employment participation were witnessed among the youngest cohorts of individuals – those between the ages of 15 and 29. What is surprising, however, is the degree to which employment rose for all cohorts up to the age of 39. Accompanied by fewer people employed in industry for each age cohort, and reductions in employment in services for most of the cohorts older than 24, the increases in overall employment were driven by substantial growth of primary sector employment across the age spectrum up to 49 years of age. For example, employment in primary activities for those between 35 and 39 in 2001 rose at an annual rate of 4.0 percent (an average of 21.0 thousand jobs a year). Even those between the ages of 45 and 49 in 2001 witnessed a 2.1 percent annual increase in primary sector employment. Employment fell for the eldest cohorts as a whole, except for women between the ages of 55 and 59, and men between the ages of 60 and 64.

Younger women experienced a rate of increase in primary sector employment faster than for young men up to the age of 29. Although the rate of growth of overall male primary employment was faster for the older age cohorts, women entered the workforce at rates faster than men in each of the cohorts up to the age of 44.

With the observed employment shifts at the aggregated sectoral level suggesting a clear trend (declining industry, struggling service sector, and the primary sector absorbing the growing number of employed), we now turn to a more disaggregated view of employment by sector. Table 3.4 shows the shares of employment by subsector, ranked by the 2005 employment shares. The striking image from this table is that share of agriculture in total employment rose from 69.7 percent to 77.7 percent at the expense of employment in all of the other subsectors, except for public works. Thus the increases in primary sector employment outlined above are chiefly due to shifts of employment into agriculture either from other sectors or from those not participating in the labor market in 2001.

In industry the two sectors for which jobs were shed the most were the two leading sectoral employers in 2001: textiles/leather (1.6 percentage point decline) and energy (1.0 percentage point decline).[11] In services, the relative employment declines are more evenly spread out across commerce, public administration, transportation, hotels and restaurants, and private education. In line with the increased effort on the part of the government at building and maintaining infrastructure, employment in public works rose.

[11] Note that the sample of individuals employed in export processing zones (*zones franches*) is too small to explain these changes. In other words, the reduction in employment in textiles observed in the data is due to factors beyond the reduction in employment in the *zones franches*.

Table 3.4 also shows employment rates in these subsectors based on poverty status.[12] Two points stand out. First, employment in primary activities (predominantly agriculture) has risen among those who are non-poor. While employment among the poor in the primary sector remained relatively unchanged, the percent of the non-poor employed in agriculture rose from 38.2 percent to 62.5 percent. Second, employment in services among the poor rose (8.6 percent to 11.3 percent) and was driven by jobs in public works and commerce.

Most of the gains in agricultural employment appear associated with the production of more grains (non-rice), tubers, beans, legumes and fruit, not with rice or cash crops. As a way of illustrating what crops are being produced by workers shifting into agriculture, Table 3.5 shows the percentage of working age adults with non-wage agricultural employment whose households produce each crop type.[13] From this table we see that, although more are producing rice, and although rice and tubers remain the dominant crops (85.9 percent and 75.3 percent of workers, respectively), the crop types that are leading the way in terms of more employment are beans and legumes. The percentage of workers producing beans rose from 22.9 percent to 44.1 percent, while those producing legumes rose from 7.6 percent to 26.5 percent. Fruits and grains also saw substantial increases. Contrary to this, the percent of agricultural workers involved in the production of cash crops (e.g. vanilla, coffee, cloves, etc) actually fell by 13.3 percent to 21.1 percent. This, however, is a rural phenomenon; the percent of urban agricultural workers producing cash crops rose 36.6 percent to 17.7 percent.

Since the non-poor were predominantly the ones who shifted into agriculture, Table 3.5 also shows the crops produced by non-poor and poor agricultural laborers, respectively. Although beans and legumes led the way, the non-poor who took up agricultural employment appear likely to have concentrated more in rice, grains and tubers than the poor. The percentage of non-poor agricultural workers producing rice and other grains increased to such an extent that percentage of non-poor producing these crops (88.3 percent and 37.6 percent, respectively) now exceeds that of the poor (84.9 percent and 35.3 percent, respectively). It is notable that a smaller percentage of poor farmers sell at least some of their crops, while the percent of non-poor farmers selling rice and tubers rose (49.7 percent to 54.4 percent for rice, and 54.7 percent to 61.7 percent for tubers).

Finally, a word of caution is necessary with regard to interpreting the sectoral employment trends. The employment shifts observed in the household surveys follow from snapshots of circumstances just prior to the 2002 political crisis (i.e. 2001 EPM) and three years after the crisis (i.e. 2005 EPM). Consequently, they may be the product of both the political crisis and on-going structural changes in the economy, which are not necessarily working in the same direction. For example, as illustrated in Table 3.6, although the share of agriculture in national output was one percentage point higher in 2005 than in 2001, the trend prior to and after the 2002 political crisis has been declining. Thus, the increase in agricultural employment observed between 2001 and 2005 could be due in part to the increase in the relative importance of

[12] Naturally some care must be taken in interpreting these results given the possibility of transitory poverty (i.e. individuals who are poor in 2001 but not in 2005, or non-poor in 2001 and poor in 2005). Given the lack of a nationally representative panel data set, the extent of transitory poverty cannot be established. Nonetheless, since the poor have made and continue to make up such a large share of the population, statements about the poor as a whole based on repeated cross-sectional data are likely to be reliable.

[13] Two measurement issues arise because crop information is available at the household level. First, individual household members cannot be linked to any particular crop produced by the household. Second, information on the crop types for household members who provide wage labor for other farming households is not available.

agriculture immediately following the political crisis. But as agricultural output declines relative to other sectors, agricultural employment may also be falling relatively. With our snapshots, however, we may be missing this since the share of agricultural output in 2005 remains above its 2001 level.

In a similar fashion, the pre- and post-crisis trends have been increasing vis-à-vis the output share for services.[14] In fact, by 2005, the sector more than recovered and surpassed the 2001 share of total output. Driven by increases in public administration and public works output, the recovery has yet to filter down to a relative increase in employment (though total employment in this sector did grow – see Table 3.3).

Employment Status

The majority of workers in Madagascar are employed in non-wage activities (85.1 percent; see Table 3.7). And since the number of non-wage workers rose at a rate faster than the increase in the labor force (24 percent compared to 21 percent, respectively), the share of non-wage to total employment rose by 3.4 percentage points between 2001 and 2005. Not only did the share of those employed in wage and salaried positions fall (18.3 percent to 14.9 percent), but the absolute number in this category also fell from 1.19 million to 1.17 million. This followed from of a loss of non-agricultural wage employment, which more than offset the increase of agricultural[15] wage employment (from 2.3 percent to 3.1 percent of total employment).

These patterns and changes in employment status, however, have not been uniform across the country. Large urban areas differ from the rest of the country with regard to wage and non-wage employment patterns. For example, the majority of the employed in large urban centers[16] earn their living from wage employment (65.9 percent). Further, while rural and secondary urban wage employment fell both absolutely (60 thousand and 54 thousand, respectively) and relatively (2.8 percentage points and 13.2 percentage points), the number of wage employed in large urban areas grew by nearly 50 thousand. This growth was driven by an increase in the number of private sector non-agricultural jobs – again, contrary to what is observed in rural and secondary urban areas. Despite these trends, however, the number of rural individuals with wage employment remains larger than that for urban individuals (590 thousand compared to 583 thousand).

- *Wage Employment*

Wage employment among women increased marginally in absolute terms (2.2 thousand for the entire period). Nonetheless, because non-wage employment grew at a much more rapid pace, the percentage of women employed in wage labor fell (1.6 percentage points). Although the number of men holding wage jobs fell by 121.2 thousand, there remains a gap between men and women with regard to total wage employment (710 thousand for men compared to 463 thousand for women).

Non-agricultural employment accounts for the lion's share of wage employment (79.4 percent, or 12.1 percent of total employment) despite an absolute and relative decline. This is

[14] Preliminary projections for 2006 suggest that this patterns is continuing with services becoming more important with 53.8 percent of national output and the primary sector declining further in relative terms to 33.5 percent.
[15] Agriculture is defined here to include not only crops, but also livestock production.
[16] These areas are made up of the provincial capitals.

especially the case in large and secondary urban areas where 98.8 percent and 85.5 percent of wage workers are non-agricultural, respectively (this represents 95.1 percent of all urban wage employment). In rural areas the majority of wage labor is also non-agricultural, though not to the extent seen in urban areas (63.6 percent). Although the shares of employed men and women with agricultural wage jobs are the same (3.1 percent), men are 72 percent more likely to be employed in non-agricultural activities if they have wage or salaried positions; 15.0 percent of men hold such jobs, while only 8.7 percent of women do.

Wage employment fell due to losses in both the private (58 thousand) and public (61 thousand) sectors.

Private sector wage employment gains in large urban areas (53.8 thousand) were simply too few to offset across-the-board losses in the public sector, and private sector losses in secondary urban and rural areas (40.2 thousand and 71.7 thousand, respectively).

With 60.9 thousand fewer jobs[17], public sector wage employment fell from 4.0 percent to 2.9 percent of total employment among working age adults. Most of this was observed in secondary urban areas. State enterprises were hit the hardest, accounting for 50.4 percent of the lost jobs (30.7 thousand), followed by para-statal enterprises, accounting for 25 percent (15.2 thousand).

Public sector wage employment is more important in urban areas as a percentage of total employment than in rural areas. For example, although the number of public sector jobs in urban areas fell by 29.9 thousand compared to 31.1 thousand in rural areas, as a share of employment, the fall was most rapid in secondary urban areas (9.3 percent to 4.7 percent). In large urban centers, however, there was a substantial compositional change in public sector employment as the 16.5 thousand jobs shed in state enterprises and para-statals were offset partly by the 12.6 thousand jobs gained in administrative positions, resulting in a net loss of 4 thousand jobs. Further, with more than two and a half times as many men employed in the public sector than women in 2001, men bore the brunt of the job losses. Indeed, they lost more than 6 times as many jobs as women in this sector, the result of which is that 3.9 percent of men were employed in the public sector in 2005, while 1.8 percent of women were.

Turning to the skill-status of wage workers, Table 3.8 shows the distribution of working-age wage workers employed as managers, skilled labor and unskilled labor. Of the 14.9 percent of the workforce with wage and salaried jobs, 55.1 percent are employed in unskilled positions, while 34.8 percent are skilled laborers. In large urban areas, where 65.9 percent of the workforce receives a wage, the largest group is made up of skilled laborers (45.4 percent), followed closely by unskilled (42.8 percent). Wage workers in secondary urban areas similarly are dominated by those with skills (51.2 percent), though there are more unskilled laborers than skilled (48.8 percent compared to 34.7 percent). Not surprisingly, in rural areas, unskilled labor accounts for 65.6 percent of wage labor. Nearly two-thirds of women with wage employment hold unskilled positions, while just under half of men do so. Thus, while a greater percentage of men are wage employed (18.1 percent compared to 11.8, respectively), even greater percentages hold management level positions (11.4 percent compared to 8.2 percent, respectively) and skilled labor jobs (38.8 percent compared to 28.6 percent, respectively).

The 119 thousand person decline in wage employment observed at the national level is largely driven by the decline in the number of management level positions. Falling by 6.8

[17] 49.6 thousand fewer among all age groups.

percentage points (or 100 thousand jobs) to 10.2 percent of wage employment, the loss of management jobs is exacerbated by the absolute decrease in the number of individuals employed as skilled and unskilled labor (1.5 thousand and 17.5 thousand, respectively). Although the decline in management positions fell across the board, they were largest in rural areas (57 thousand) and among men (76 thousand). Along with this, the loss of wage laborers in rural areas (e.g. 5.9 thousand decrease in the number of unskilled wage workers in rural areas, along with 40 thousand skilled labor positions lost) combined to result in a total loss of 103 thousand rural wage employment positions. Among men, the decline of 51.7 thousand unskilled wage labor jobs was only partly offset by an increase of 6.5 thousand skilled laborers. The result, along with the loss of management positions, is a total loss of 121 thousand wage jobs for men.

In large urban areas, the loss of 22.5 thousand management positions was more than offset by the 55 thousand person increase in skilled labor and by the 17 thousand increase in the number of unskilled laborers. The result was an increase of 50 thousand wage employment positions. A similar dynamic was experienced by women, though nearly all of the wage employment gains have been found in terms of unskilled labor (34 thousand). In secondary urban and rural areas wage employment fell for all skill types.

Employment in Madagascar is also characterized by formality status. In this analysis we use two definitions of formality in the wage employment sector to capture extremes.[18] At the less restrictive end, we define an individual[19] as being employed in the formal sector if she or her employer contributes to a pension fund, or if she receives social protection. At the more restrictive end, we define an individual as being "protected" if she simultaneously has a pension fund, receives social protection, and is given paid leave.[20] Table 3.9 shows the percentages of wage workers who are considered to be employed informally and who are unprotected. In addition, assuming that non-wage labor can be classified as informal, the percentages of total employment that are informal and are unprotected are also provided.

A conservative estimate places 64.5 percent of the 1.2 million wage laborers in Madagascar in the informal sector. Using the more restrictive measure, "protected", we find that 74.2 percent are informally wage employed. When we consider the total workforce, including non-wage workers, approximately 95 percent of the 8.3 million working age adults are informally employed.

In rural areas, between 72.4 percent and 79.1 percent of the wage workers are informal. This is not surprising considering that one third of rural wage workers are employed in agricultural activities. Further, given that 90.6 percent of rural workers are employed in the non-wage sector, the informal sector accounts for nearly the entire rural workforce (between 97.4 percent and 98 percent). Although the informality share of the wage sector is lower in urban areas, it is still considerably large at between 56.9 percent and 70.7 percent in large urban areas, and between 55.4 percent and 65.6 percent in secondary urban areas. Because of the predominance of non-wage employment in secondary urban areas and wage employment in large

[18] There is a lack of consensus in the literature as to how to appropriately distinguish between formal and informal employment. The definitions used in this analysis are influenced by the data available in the household survey.

[19] The definitions employed here are based on the formality status of the job, not on the formality status of the firm. As such, it is possible that a formally registered firm that pays taxes may hire informal workers. The distinction made here is based largely on the data available for the analysis (i.e. household survey data, not enterprise survey data).

[20] The latter definition is consistent with Lachaud (2006).

urban areas, the share of the total workforce that is informal in secondary urban areas is noticeably larger than in larger urban areas (e.g. 92.4 to 94.1 percent compared 71.6 to 80.7 percent).

Among those with wage employment, men are less likely than women to be in the informal sector (conservative estimates are 61.4 percent for men compared to 69.2 percent for women). Although a greater share of men are wage employed and consequently there are more men with informal wage jobs, women are more likely in general to be in the informal sector. For example, 96 percent of all employed women are in the informal sector, compared to 93 percent of men.

How has the degree of informality changed over time? Our answer to this question depends on which measure of formality we use. For example, our less restrictive measure suggests that the informal wage sector is growing (54.4 percent to 64.5 percent). Conversely, our more restrictive measure implies that the informal sector is getting smaller as a percentage of the wage workforce (77.7 percent to 74.2 percent). Nonetheless, informality is growing in the general workforce according to both measures (91.7 percent to 94.7 using the less restrictive measure, and 95.9 percent to 96.2 percent using the more restrictive measure).

- *Non-Wage Employment*

Not only are most workers employed in non-wage activities (85.1 percent), but non-wage labor is also predominantly agricultural (Table 3.10). Nearly nine out of ten non-wage workers are employed in agricultural activities (including livestock rearing). This is due to the importance of this sector in rural and secondary urban areas. In rural areas, for example, 92.8 percent of non-wage labor is in agriculture, while in secondary urban areas the figure is 81.1 percent. In large urban areas, the figures are almost completely reversed; 88.6 percent are employed in non-farm enterprises, whereas only 11.4 percent are in agriculture.

The number of individuals employed in non-wage agriculture activities rose by 21.6 percent between 2001 and 2005. This is consistent with the observed overall employment trend out of industry and services into agriculture. The 15.3 percent fall in non-farm non-wage employment is also consistent with the overall sectoral trends. Interestingly, however, this latter decline is due to fewer individuals employed in family non-farm enterprises that hire non-family workers. At the same time, the number employed in such enterprises without hired non-family workers rose by 1.5 percent. This distinction between enterprises with and without hired workers is a rough measure of prosperity of the enterprise – NFEs with hired workers earn over 200 percent more per employee than those without such workers. Thus, the observed trend (fewer with hired workers, more without) does not convey improving conditions.

The national trend is reflected in the rural and secondary urban areas trend. In particular, total non-wage employment rose because employment in agriculture grew rapidly, despite fewer working in NFEs. This does not, however, imply a contraction in the number of NFEs in these areas. Indeed the percentage of individuals living in households with an NFE increased from 20.4 percent to 25.1 percent in rural areas, and from 26.9 percent to 32.8 percent in secondary urban areas (Table 3.11). What appears to be happening is that, although more households earn income through non-farm activities, fewer household members (and hired laborers) are involved in these activities. This is consistent with the decline in the average number of workers per enterprise and the increase in the percentage of NFEs with two or fewer workers. Those no longer working in NFEs appear to be turning to agricultural activities.

Although large urban areas are similar in that the percentage of individuals living in households with NFEs also grew markedly to 38.4 percent, they differ in that non-wage employment in NFEs grew. An additional difference, consistent with the decline in primary sector employment, is that the number of non-wage agricultural workers fell. The drop was so large that the share of agriculture in total non-wage employment dropped from 34.4 percent to 11.4 percent in large urban areas.

In terms of the gender distribution of non-wage employment, more women are employed in NFEs than men. Nonetheless, men tend to benefit more than women from NFE employment based on using hired workers as a proxy for higher quality NFE jobs – a greater percentage, indeed a greater number, of men are employed in NFEs with hired workers than women despite accounting for only 41 percent of all non-wage employment in NFEs.[21] Both men and women have shifted out of NFEs, though this is more so for women. There were 58 thousand fewer women employed as non-wage workers in NFEs in 2005 than in 2001, compared to 23 thousand for men.

Due to a 32 percent increase in agricultural employment, total non-wage employment among women grew by 25 percent to account for 88.2 percent of all female employment. For men, the 24 percent increase in non-wage employment was driven by the 28 percent increase in agricultural labor.

Education and Employment

Turning to the relationship between educational attainment and employment rates (Table 3.12), more than half of the working-age employed Malagasy work force has no formal education, while 30 percent has primary education, and 15 percent has secondary education. Given that educational attainment levels are higher in urban areas, it is not surprising that the urban workforce is better educated than the rural workforce. For example, 55.3 (23.2) percent of the workforce in large (secondary) urban areas has secondary levels of education or higher, compared to 12.9 percent in rural areas.

Employment rates are highest among those without any education (93.2 percent), and lowest among those with upper secondary education (64.6). In addition, employment rates fall steadily as educational attainment levels increase up through secondary education. Employment rates pick up among those with post secondary education (74.3). This phenomenon of lower employment rates with higher levels of education has continued from 2001 to 2005, and may be a result of individuals with more education searching for better jobs or remaining out of the labor market. Either explanation requires such individuals to have the financial capability to not work. To illustrate this, Table 3.13 shows employment rates for working age adults according to household expenditure quintiles and poverty status. Employment rates are highest among the poor (88.7 percent compared to 80.8 percent for the non poor) given that they lack the luxury of not working. Higher levels of education and the consequent higher income levels correspond to more flexibility in choosing a job and to the financial capability to wait for that job or simply to not work.

Individuals with post secondary levels of education have higher employment rates which could reflect scarcity of such individuals as well as more favorable demand for their labor services. This is consistent with the small share of workers with post secondary education in total

[21] This does not imply that women do not receive any of the indirect income benefits that men derive from employment in NFEs. It does suggest, however, that more direct benefits accrue to men.

rural and secondary urban employment (1.1 percent and 3.7 percent, respectively) corresponding to high employment rates (82.6 percent and 82.8 percent, respectively). Given that there are more with post secondary education in large urban areas (15.2 percent of the workforce), it follows that they have lower employment rates (74.3 percent). Nonetheless, one would also expect there to be more demand for such skilled labor in large urban areas.

Employment rates rose among the working age population in each education category, but there is no distinguishing pattern.

Education by Sector

Those with low levels of education are more likely to be found employed in the primary sector, while those with higher levels are typically employed in the service sector. For example, 89.8 percent and 92.0 percent of those with no education and with just primary education, respectively, undertake primary activities for their principle income earning activity (Table 3.14). Conversely, 56.0 percent and 72.6 percent of those who have attained upper and post secondary levels of education, respectively, are in services. As education levels increase, individuals shift out of agriculture and into industry and services, though much more rapidly into the latter – the percentage of the workforce in agriculture decreases persistently with education levels (from 89.8 percent to 14.6 percent), while the percentage in industry (from 1.0 percent to 12.8 percent) and services (from 9.1 percent to 72.6 percent) increase.

While these patterns are observed in rural and secondary urban areas, a greater percentage of each education category is employed in agriculture in rural areas. Indeed over a quarter of rural workers with post secondary education undertake agricultural activities.

The sectoral distribution of employment by education category in large urban areas is unlike that observed elsewhere in the country. Regardless of educational attainment, workers in the big cities are typically found in the service sector, followed by industry. Indeed, contrary to the patterns observed in other areas, those with primary or no education are more likely than others in large urban areas to be employed in the service sector. This is a relatively new development, however, as the data suggest that there were large shifts out of agriculture into services in these cities between 2001 and 2005.

In terms of distributional dynamics, the largest changes at the national level are observed among those with secondary levels of education. For this educational category, the importance of agriculture in employment has come at the expense of industry, with the former increasing by more than 10 percentage points and the latter decreasing by more than 10 percentage points. This is driven by rural areas where the largest shifts are out of both industry and services into agriculture for those with secondary and post-secondary levels of education. In secondary urban areas, similar shifts were observed, but for lower levels of education (none, primary and lower secondary).

In large urban areas, despite an increase in the uneducated workforce of over 16 thousand between 2001 and 2005, the absolute number of those without education working in agriculture fell by an average of 12.5 thousand a year. Thus, not only were the new uneducated entrants into the labor force drawn to the services sector, but many left agriculture for this sector as well. The increase in the importance of the services sector for those with primary education has come entirely at the expense of agriculture and industry, while the shift out of industry and services for those with higher levels of education were complemented by entrants into the labor force also being drawn to services.

As noted previously, the number of working age adults employed in Madagascar grew annually by 207.6 thousand on average. What Table 3.15 illustrates, however, is that 75% of this increase was due to entry into the work force among those with no education. The 156.4 thousand annual increase in uneducated workers is made up primarily of those going into agricultural activities, though 13.2 thousand fewer were employed in industry and 15.9 thousand more were employed in services. Further, the 153.7 thousand increase in the number of uneducated workers in agriculture accounts for 56 percent of the 275.7 thousand increase in overall agricultural employment. Although the patterns of change observed for uneducated workers are similar for those with primary and lower secondary, the magnitudes of the growth of employment and agricultural employment in particular are considerably smaller for the latter.

The 70.7 thousand decrease in the number of jobs in the industrial sector is spread across all education categories and for both men and women. The education category hit the hardest was primary, where some 27.4 thousand jobs were lost.[22]

At the same time that the number of less educated workers grew, there appears to have been a reduction in the number of skilled jobs. Each year between 2001 and 2005, there was an average of 34.7 thousand fewer workers with upper and post secondary education. Most of these were from men located in rural and secondary urban areas leaving the industrial and service sectors (11 thousand and 17.8 thousand, respectively). Women were less affected partly because there were half as many employed women as men with higher levels of education, and partly because more women with upper secondary education found work in the primary sector. In 2001, 15.2 percent of women with upper secondary education were employed in agriculture. This figure rose to 34.8 percent in 2005.

Finally, the gender breakdown of employment by education category (Table 3.15) shows that women who are employed have lower levels of education than men. Indeed, although there are more women than men employed in the primary sector, there are fewer women than men with any level of education. Similarly, although there are more men than women employed in the service sector, there are more men than women in this sector who have no education or only primary education. This is likely to translate into higher quality jobs for men than women within each of these sectors.

3.2. Open Unemployment

> *Things are very difficult in Madagascar now. It is hard to find a job. I cannot find a job.*
>
> *Mr. Daddy (taxi driver)*
> *Antananarivo, September 2006*

Although unemployment in Madagascar has been rising, it remains low at 2.6 percent (Table 3.16). To gain insight into this phenomenon, which is typical of developing countries, it should be noted that the conventional definition of an unemployed individual is someone who is not working in the reference period (past week) but is actively seeking work. The unemployment rate is then the ratio of unemployed to the total labor force (sum of the employed and unemployed). Now, consider the status of the taxi driver from Antananarivo quoted above. He is employed. Nonetheless, he laments the fact that he "cannot find a job," and considers his current job a

[22] Note that the samples of individuals employed in export processing zones (*zones franches*) were too small to explain the changes in industrial employment.

temporary one (or more accurately, hopes that it is temporary) that will tie him over as he searches for "better" work. Because his family income is low, he is compelled to work to support his family – even if his productivity and earnings are low – while he searches for a better job. He prefers not to since his search is less productive when he does so. He is among the working poor – those who cannot afford to be unemployed while they search for more lucrative employment. Thus, although he is not officially unemployed, his employment is unproductive compared to alternative work he would undertake if it was available to him. Given a weak social security system, poor workers often have to take up any employment opportunity that appears in order to support their families.

This is a case of "disguised unemployment" that likely is an accurate depiction of the employment status of many rural household members involved in agriculture activities.[23] But because this form of unemployment is difficult to measure, however, we proceed with an analysis of "open unemployment," remaining cognizant of its weakness as a measure of labor market performance in Madagascar. In particular, it only measures one part of "total unemployment." In other words it only captures one of two possible outcomes for individuals who seek but are unable to attain better paying employment in the public or modern private sectors. An assumption underlying this is that for some structural reasons there is an excess demand for "good jobs" beyond what might be expected due to some natural level of frictional unemployment.

The evidence in Table 3.16 is consistent with this notion that the poor can ill afford to be unemployed. Open unemployment rates are three times greater for those in the richest household expenditure quintile compared to those in the poorest quintile (5.1 percent compared 1.6 percent, respectively). Further, these rates rise monotonically from the poorest to richest income quintiles. Again, since individuals from better-off households are more likely to receive the financial support necessary to enable them to remain out of work while they search for a better job, open unemployment rates are likely higher for them while disguised unemployment rates are lower. Unfortunately, we do not have enough information to assess differences in "total unemployment."

In the same manner, open unemployment is largely an urban phenomenon.[24] With a high of 12.0 percent in large urban areas and a low of 3.5 percent in secondary cities, the urban unemployment rate of 7.2 percent is substantially higher than the 1.4 percent in rural areas. Nonetheless, because 88 percent of the population lives in rural areas, rural unemployed accounts for 42.5 percent of total unemployment. Even so, open unemployment in rural Madagascar may be inefficiently low from a societal point of view in the sense that it is below the natural rate of unemployment. In other words, if on-the-job search for alternative employment is not as effective in matching employers and employees as unemployment-cum-job-search (i.e. frictional unemployment is too low), then higher rates of unemployment associated with a better matching of labor supply and demand could lead to higher growth rates and better labor market outcomes.

[23] To be clear, disguised unemployment is a situation in which the marginal product of labor is positive but the removal of a worker from an activity does not lead to a drop in output (Sen, 1966). This concept was developed in the context of the models of surplus labor in the rural sector (Lewis, 1954; Ranis and Fei, 1961). In our example above, the marginal product of the taxi driver is positive, although the production of taxi services is likely not to fall if his total labor is withdrawn and not replace by another driver.

[24] Due to sample size limitations, analysis of unemployment rates at the province level are not feasible. For example, only 8 of the 204 unemployed individuals in the 2001 sample are in Toliara, while 11 are in Antsiranana.

Viewed from this lens, it is not clear up front how to interpret the more than doubling of the national open unemployment rates since 2001 from 1.2 to 2.6 percent. The increase has been fastest in urban areas, especially large cities which now make up 41.6 percent of total unemployment, up from 33.9 percent. At the same time, the increase in rural unemployment as been marginal. Madagascar is thus experiencing two different issues related to unemployment depending on area of residence. In urban areas, open unemployment rates are rising and are likely becoming excessively high. While in rural areas, open employment rates remain be very low and are masked by high levels of disguised unemployment. Again, since we are unable to measure disguised unemployment, we concentrate on open unemployment where it is appears to be a problematically high – in urban areas.[25]

Urban unemployment rates are higher and have risen faster for women than for men. With nearly 10 percent of women in the labor force unemployed (Table 3.17) – more than twice the rate for men (4.6 percent) – women now account for 66.9 percent of the urban unemployed. This is up from 62.4 percent in 2001. Recall from section 3.1 (Table 3.1) that employment rates for women in urban areas are substantially lower than for men (65.3 percent compared to 80.0 percent, respectively), and that women make up only 47.4 percent of the urban workforce. The combination of higher unemployment rates and lower employment rates suggest that women have more difficulty finding employment in urban areas. This does not appear to be the case in rural areas where women make up more than half of the workforce, though this might just be the result of rural women substituting disguised unemployment for open unemployment.

As Glick (1999) found for Madagascar in 1993, urban unemployment rates in 2001 were highest among younger age groups. For instance, 7.8 percent of women between the ages of 15 and 20 were unemployed while, 5.7 percent of those between 21 and 30 were unemployed. For older women of ages 31-50 and 51-64, these rates dropped precipitously to 2.0 and 0.9 percent, respectively. Although the rates were lower for men of each age group, the pattern was similar.

This pattern has changed, however, since the political crisis as the highest rate of urban unemployment is now found among the oldest age group (51-64). The negative association between urban unemployment and age persists for both men and women up to the age of 50. But for the 51-64 age group, urban unemployment rose to 22.5 percent for women and 12.5 percent for men; well above the levels for all other age groups. This is puzzling, but is not inconsistent with the employment data in Table 3.3, which showed that the number of employed men and women in older age cohorts fell by 3.0 percent for women and 0.8 percent for men between 2001 and 2005. These losses were found in all three sectors, but the largest absolute declines were found in the primary sector.

All of those in the more mature age group reported being unemployed because they were laid off from their previous jobs. In the 31-50 age group, 86.6 percent of the unemployed were laid off, compared to less than 60 percent of the younger age groups. Further, most of the unemployed in the 31-50 and 51-64 age groups were seeking skilled jobs (76.7 percent and 99.6 percent, respectively), whereas less than 40 percent of those in the younger age groups were. This indicates that the sharp rise in unemployment in the more mature age group is due to losses of high-return wage jobs.[26]

[25] In addition, sample sizes are very small for rural areas. In the 2001 sample, only 29 rural respondents were openly unemployed.

[26] Although respondents were asked questions about the duration of their unemployment, a 32 percent non-response rate in the 2005 survey makes any inference on these data unreliable at best.

A pattern that did not change over this time period (and was observed in1993; Glick, 1999) is the positive association between urban unemployment and education level. As those with higher levels of education are more likely to be qualified for higher paying jobs, and are more likely to come from better-off households, they are also more likely to have the incentive and financial means to remain out of work while they search. For example, while 5.0 percent of the uneducated urban labor force is unemployed, 11.0 of those with post secondary education are unemployed. These rates are considerably higher for women, with over 15 percent of those with upper secondary education or higher unemployed, relative to 7.6 percent among the uneducated. For men, the rates are much lower – 2.2 percent for uneducated, and 8.2 percent for those with post secondary education.

The sharp rise in unemployment rates among those with higher levels of education are due to changes among younger and older workers (Table 3.18). While the 31-50 age cohort was relatively unaffected, unemployment among the more mature group rose by over 20 percentage points for those with secondary and post secondary levels of education. As noted previously, these are all individuals who lost jobs that were presumably high paying wage jobs. What is disconcerting is that nearly a quarter of those in the younger age groups with post secondary education were unemployed. This was up from 16 percent.

4. QUALITY OF EMPLOYMENT

Access to employment does not necessarily translate in to pathways out of poverty for many workers and their families in Madagascar. In fact, although 86 percent of the working age population was gainfully employed in 2005, the 65.4 percent of them live in poverty. As such, the majority of the employed are characterized as "working poor." In this environment, policy issues revolve around the creation of "good" jobs rather than the creation of any jobs. In this section, we thus turn to the quality of employment opportunities and concentrate on identifying "good" jobs, their characteristics and how the quality of these jobs has changed over time. We also highlight vulnerable groups of individuals who are more likely than others to end up with low quality jobs.

4.1. Earnings, Low Earnings and Poverty

One dimension of job quality is earnings. Based on median monthly real earnings[27] for agricultural (wage and non-wage collectively), non-farm non-wage and wage workers (Table 4.1), we find that the lowest quality employment appears to be in agriculture, while the highest

[27] Wage earnings include the value of in-kind compensation (e.g. food) provided by the employer. Non-wage earnings for self-employed or family workers in non-farm enterprises are defined as enterprise income divided by the number of adult workers. Non-wage agricultural earnings at the household level are defined as the residual between the value of household consumption on the one hand and wage earnings, transfers and non-farm enterprise earnings on the other. The residual is then divided by the number of adult workers employed in agriculture and deflated regionally to approximate individual non-wage agricultural earnings. We caution that an implicit assumption underlying the use of this approximation of agricultural earnings is that household net savings are zero. (See Appendix 2 for more details.) Another approach, to value agricultural production, was also taken but the unit prices used to value unsold production proved to be problematic.

quality jobs are those non-agricultural ones that pay wages.[28] The monthly earnings of workers in agriculture (Ar 31,500) are 65 percent of those in non-farm enterprises (NFE) (Ar 51,900), and almost three times lower than those of wage workers (Ar 87,100). These differences were even more substantial in 2001 when wage earnings were more than four times greater than agricultural earnings, and NFE earnings were almost three times larger. This trend is the result of a rise in agricultural earnings (31.7 percent), and a fall in real earnings among those employed in NFE s (22.7 percent) and wage activities (11.8 percent).[29]

Note that, although employment in agriculture rose at the same time that agricultural earnings rose, not all individuals employed in agriculture in 2005 necessarily have higher earnings than they did in 2001. Some, if not many, of those that left wage and NFE employment for agricultural employment likely took an earnings cut. The fall in earnings for the former two and the rise in the latter are consistent with this. Unfortunately, since the EPM are cross-sectional surveys, we cannot follow individuals over time to determine which individuals were better off or worse off in 2005.

To better illustrate how the distributions of earnings among these three employment types translates into job quality, we plot density estimates of earnings distributions in Figures 4.1 - 4.3. There are three points to take out of these figures. The first is that there is considerable overlap between the earnings distributions for each employment type. Although the median earnings for those employed in agriculture are lower than for those employed in other non-wage and wage activities, not every agricultural worker has earnings that are lower than those of other workers. Indeed these figures clearly illustrate that there are agricultural workers who earn more than the median earnings for wage workers, at the same time that there are wage workers who earn less than the median earnings for agricultural workers. We will return to this point shortly when we distinguish between different types of wage and non-wage employment.

Second, the compression of the distributions indicate a decrease in earnings inequality in each of these categories. This is further indicated in Table 4.1, by the 9-10 percent decreases in the gini coefficients between 2001 and 2005.

Third, the earnings distributions also illustrate one particular way to distinguish between "good" and "bad" jobs. A "bad" job can be defined as one that is characterized by low earnings, i.e. one for which earnings fall below the poverty line. The percentage of workers in each employment category with low earnings is illustrated by the area under the curve to the left of the poverty line in Figures 4.1-4.3, and are reported in the right-hand set of columns in Table 4.1.[30] These estimates are consistent with the ranking according to earnings. The highest percentage of low earners is in the agricultural sector (37.5 percent), which is over three times as great as among wage workers (11.8 percent). The differences in these low earning rates also are similarly much less than they were in 2001 when 55.2 percent of agricultural workers, 23.6 percent of NFE workers, and 10.5 percent of wage workers had low earnings.

[28] Differences in job quality are more distinguished by this categorization than by sector of employment (primary, industry and services). As such, we proceed in the analysis by emphasizing the differences among agricultural, other non-wage and other wage employment.

[29] Note that while the cost of living rose 54.4 percent over this time period (as measured by the ratio of 2005 to 2001 poverty lines), that the average rise in rice prices was 101 percent in Antananarivo, Antsiranana, Fianarantsoa and Toamasina. This improvement in the agricultural terms of trade can explain the rise in earnings for households that are net sellers of rice (22 percent of all households, 37 percent of rice-producing households)

[30] The low earning rates in the Table 4.1 are the percentage of employed adults whose annual earnings fall below the national poverty line.

In terms of the geographical distribution, the highest quality jobs tend to be found in large urban areas, while job quality in rural and secondary urban areas are remarkably similar. Median earnings are highest and low earning rates lowest in large urban areas for all employment categories. And except for agriculture earnings, where rural and secondary urban areas are similar, earnings are lowest and low earning rates highest in rural areas. For example, median earnings for wage workers in large urban areas are Ar 100,000 per month, compared to Ar 78,3000 in secondary urban and Ar 55,600 in rural areas. Even agricultural earnings are higher in the big cities (Ar 44,600 a month compared to less than Ar 32,000 in secondary cities and rural areas), though this follows in part because these earnings more than doubled since 2001.

We also report poverty rates among workers in the various employment categories in Table 4.1. This is done because low earning rates are distinct from poverty in that the former measures individual earnings relative to the poverty line, while the latter measures household consumption relative to the poverty line. Thus it is possible that a low earner may be non-poor because despite not earning enough to support herself adequately, she may live in a sufficiently wealthy household. Conversely, an individual whose earnings are above the poverty line (i.e. not a low earner) may live in a poor household if her earnings are not sufficient to support all of the dependents who rely on her.

The poverty rate among agricultural workers is the highest at 72.3 percent. Thus, although just over one third of agricultural workers have low individual earnings, over two thirds do not earn enough to pull their households out of poverty. The poverty rate among wage workers is 45 percent lower than for agricultural workers. Nonetheless, the 38.7 percent living in poor households is over three times a large as the percent who are individually classified as low earners.

Poverty among agricultural workers in 2005 was a marked improvement from the 83.1 percent in 2001. Further, the 10.6 percentage point increase in poverty among wage workers, resulted in a smaller poverty discrepancy between agricultural and non-agricultural wage workers in 2005 than in 2001.

Interestingly, there was no significant change in the poverty rate among non-farm enterprise workers at the national level despite a 23 percent decrease in median earnings and an 8.6 percentage point increase in low earnings rate. This level of aggregation masks the increase in poverty among these workers in large urban areas (24.2 percent to 32.6 percent), and the decrease in secondary urban (42.7 percent to 41.1 percent) and rural areas (49.0 percent to 46.7 percent).

Formality matters

According to the general classifications of employment types used in the preceding analysis, non-agricultural wage workers are better off than agricultural and non-wage workers. But as illustrated in Figure 4.3, there is a wide distribution of wage earnings, and as is made evident in Table 4.2, the formality status of the job is also an important indicator of job quality. For example, wage workers in the private formal sector have median earnings that are 60 percent higher than for informal non-agricultural wage workers (Ar 108,100 compared to Ar 67,000). The median wage earnings for public sector employees is a further 35 percent higher.

As illustrated in Figure 4.4, even when classifying wage labor by formality status and differentiating public from private sector, there remains considerable overlap in the distributions

of earnings. Further, compared to private formal sector wage workers, public sector workers either fare very well, or for those who are at the lower end of the pay scale, they do worse. This is reflected also in the estimates of low earnings rates – they are higher for public sector workers (4.6 percent) than for private sector formal workers (2.8 percent). Nonetheless, a distinct ranking continues to be discernable overall with informal, followed by private sector formal, and then public sector in terms of desirability based on earnings.

Further disaggregation of won-wage employment by formality is also revealing. Median earnings among employees in registered NFEs earn more than two and a half times more than those working in unregistered enterprises, and more than three and a half times more than family agricultural labor. Employment in formal NFEs is also attractive relative to wage work. The median monthly earnings of Ar 115,600 in non-wage formal employment is higher than the median earnings among formal private sector wage employees.

There is considerable dispersion among formal NFE earnings as illustrated by the 18.1 percent whose individual earnings fall below the poverty line (compared to 3.5 percent among all formal wage employees). This is roughly in line with the low earnings rate for informal non-agricultural wage employees. Thus while formality status is useful in further ranking the quality/desirability of non-wage jobs, it is more effective in doing so for wage employment.

In urban areas (large and secondary), median earnings and low earning rates are generally similar for informal NFEs and informal wage workers. This is especially the case for secondary cities where the median earnings for workers in informal NFEs is Ar 54,4000 compared to Ar 56,200 for informal wage workers. In large urban areas, the low earnings rate is roughly 13 percent for informal workers regardless of wage status.

This similarity between earnings and low earnings rates breaks down with regard to formal earnings and the relationship depends on the area of urban residence. On the one hand, formal wage employment is generally more attractive than formal non-wage employment in secondary cities. The median formal sector wage worker and public sector worker earns more than the median formal sector NFE worker (Ar 91,500 and Ar 156,700 compared to Ar 88,000, respectively). On the other hand, formal non-wage employment is more attractive than formal wage employment in large cities *on average*. Although the median earnings for the former (Ar 149,000) are greater than for the latter (Ar 117,100), the low earnings rate is 8.8 percent for formal NFE workers compared to 2.1 percent for formal private sector wage employees.

Poverty and Low Earnings

Although the relationship is not one-to-one, there is considerable overlap between workers with low earnings and poor households. The extent to which poverty rates among low earners are higher than among all workers (Table 4.3) provides evidence that low earnings are a major contributor to poverty in Madagascar. This is especially the case for those households and individuals for whom labor is their abundant asset. The overlap is greatest for agricultural labor where 85.5 percent of wage workers with low earnings reside in poor households and where 92.0 percent of non-wage low earners are poor. This is primarily a rural phenomenon, though it is also observed in secondary urban areas as well. Despite higher median earnings for agricultural wage labor relative to agricultural non-wage labor, and despite lower poverty rates among low earners for the former relative to the latter, the poverty rate and low earnings rate among agricultural wage workers is higher than among agricultural non-wage workers. The reason for this is that almost 58 percent of agricultural wage workers are employed seasonally and therefore their annual earnings are lower than those of permanent workers.

The least overlap between low earnings and poverty is found among formal sector workers particularly those in the non-wage sector. Of the 18.1 percent of the non-wage formal sector workers with low earnings, only 35.4 percent are poor. Similarly, 40.1 percent of the low earners in the formal wage sector (3.5 percent) live in poor households. Interestingly, the poverty rate among all formal non-wage workers (17.9 percent) is lower than for all of the other employment categories including formal wage workers (23.2 percent) whose median income is higher (Ar 132,600 compared to Ar 115,600, respectively) and whose low earning rate is lower. Individuals employed as non-wage labor in formal NFEs thus are more likely to reside in households more sources of labor and non-labor income than those employed in other sectors.

Formal non-wage workers in rural areas have higher earnings (Ar 105,600 compared to Ar 88,000) and lower poverty rates (21.2 percent compared to 25.8 percent) than those in secondary urban areas[31], despite higher low earnings rates (25.2 percent compared to 18.0 percent). This follows in part from a much lower overlap between poverty and low earner among these workers in rural areas. Among the formal non-wage low earners in rural areas, only 27.7 percent also live in poor households, whereas 42.4 percent in secondary urban areas are also poor.

"Bad" jobs are characterized by low productivity

For wage workers, it is possible to further explore the sources of low earnings. In particular, earnings may fall short of the poverty line for several reason. First, hourly earnings may be adequate, but the opportunity to work may not be adequate. In this case, low earnings are due to only to short hours, and consequently, the quality of the job would improve by extending the hours worked. We illustrate this in Table 4.4 by showing the percent of low earners whose earnings fall below the poverty line because of short hours. Specifically, this is the percentage of low earners who, given their hourly earnings, would no longer be low earners if their weekly hours were increased to 40. Second, the opportunity to work may be adequate, but hourly earnings may be inadequate. In this case, low earnings are due only to low productivity, and improvements in job quality require increases in productivity (e.g. hourly earnings). This is measured by the percent of low earners who work 40 or more hours a week. Finally, some individuals may have low earnings due to short hours *and* low productivity. Such cases require both improvements in productivity and more opportunities to work longer in order for the quality of employment to improve.

Roughly 43 percent of low earnings in the wage sector is due to low productivity alone, while just over a quarter is due only to short hours. Taken together, this means that nearly three quarters of low earnings are due in low productivity. This is especially the case in the formal sector, and in particular in secondary urban areas, where 78 percent of low earnings are due to low productivity (i.e. 22 percent due to short hours only).

This does not mean that productivity in the formal wage sector as a whole is necessarily low. Rather it indicates that for the 3.5 percent of the employees in this sector with low earnings (i.e. those with low quality jobs), their earnings are low primarily because their wages are so low (and for 36 percent of them, they also do not work enough hours).

For agricultural wage workers, who have the highest low earnings rate among wage workers (44.6 percent), 76.6 percent of low earners have earnings below the poverty line because their productivity is low. Further, 44 percent of those with low productivity work few hours. In

[31] The number of formal sector low earners in large urban areas in the sample were too few to get accurate estimates.

rural areas, 43.8 percent of low earners work at least 40 hours per week, while only 28.7 percent do so in secondary urban areas. Thus, given similar low earning rates, a greater percentage of agricultural wage laborers in secondary urban areas suffer from lack of work *and* low productivity than in rural areas (46.8 percent compared to 32.9 percent).

Primary Sector – A haven for low quality jobs

Earnings are lowest and low earning rates are highest in the primary sector (Table 4.5), where coincidentally 80 percent of the workforce is employed (Table 3.2). Median wage earnings in the primary sector are 25 percent higher than non-wage earnings in this sector. Nonetheless, the low earnings rate is higher among wage workers (42.4 percent compared to 37.2 percent), which indicates that there is more variation in primary sector wage earnings that non-wage earnings.

Wage workers in the services and industrial sectors, on the other hand, have the highest earnings on average. The median wage earnings of Ar 88,900 per month in the service sector is nearly three times larger than the Ar 31,200 earned by non-wage workers in the primary sector, and 72 percent larger than the median earnings of both industrial and service non-wage workers. Low earnings rates are approximately 37 percent lower for wage workers in industry and services than for non-wage workers in these sectors. Although the median industrial wage earnings is 5 percent lower than the median earnings for wage service workers, low earnings rates are lower for the industrial sector than for the service sector.

In terms of geographical distribution, rural areas – where most of the population is located – are characterized by the highest incidence of low earning rates for each sector. There is one exception. The rates among non-wage primary sector workers in secondary urban areas are similar. A similar pattern is exhibited with regard to earnings, with an additional exception being that the median earnings of industrial wage workers are highest in rural areas. The data indicate that this is due to nearly half of the rural industrial wage workers being employed in textiles. We caution that, although this may be worthy of further attention, the relatively small sample size (100) for this particular set of workers may also explain the observed phenomenon.

In rural areas, non-wage employment in industry and services does not guarantee a better job than in the primary sector. Although median non-wage earnings are higher for services and industry, low earning rates in these sectors exceed those non-wage primary workers. Further, the 45 percent of non-wage service sector workers with low earnings is on par with agricultural wage workers, the group with the highest poverty rate.

Trends – How has the quality of employment changed?

Between 2001 and 2005, agricultural earnings improved while both wage and non-wage non-agricultural earnings deteriorated on average. Median agricultural earnings rose by 31 percent, while non-wage and wage real earnings fell 23 percent and 12 percent, respectively (Table 4.1). The drop in non-wage earnings, however, were due entirely to a deterioration in informal sector earnings.[32] There was actually a one percent increase in the median formal non-wage earnings which followed from a 33 percent increase in rural earnings that more than offset the 14 percent and 12 percent decreases in secondary and large urban areas, respectively (Table 4.2).

[32] We caution that there were more missing values in the non-farm enterprise module for 2001 than for 2005. It is possible that some lower paying activities were not recorded in 2001, thus biasing upward the estimates of NFE earnings. This may explain the difference in the shape of the distribution of earnings in Figure 4.2.

Similarly, the quality of employment in agriculture improved as measured by changes in the low earnings rate. Although low earnings rates for both wage and non-wage agricultural workers remain higher than for other employment categories, they each fell substantially (8.3 percentage points and 18.0 percentage points, respectively). While there was little change for non-agricultural wage worker, the quality of (non-agricultural) non-wage jobs deteriorated as low earning rates increased substantively and as employment fell in secondary urban and in rural areas.

With the exception of public sector wage workers, low earnings rates fell for wage workers. Despite the fall in median non-agricultural wage earnings, part of the decrease in low earnings can be attributed to increases in productivity. In particular, increases in productivity at the lower end of the earnings distribution. Evidence of this is that low earnings due to short hours increased, while low earnings due to low productivity fell for these wage types (Table 4.4). It should be stressed however that employment in these sectors is relatively small and that it fell over this time period. As such the "increase" in productivity at the lower end of the distribution may be a result of relatively less productive workers leaving this sector and taking up agricultural employment.

With regard to output sectors, median earnings fell for each worker type in each sector, except non-wage workers involved in primary activities (Table 4.5). This sector also witnessed the largest increase in total employment – 1.05 million additional individuals were employed as non-wage workers in the primary sector, which accounts for 76.7 percent of total employment (up 6 percentage points from 2001). In other words, although median earnings in the non-wage primary sector rose 31 percent, the largest increase in employment in Madagascar was is in this sector which has the lowest median earnings and the second highest low earnings rate.

4.2. Worker Characteristics and Job Quality: Vulnerable groups?

We now turn from the relationship between types of employment and job quality, to types of individuals and job quality. In particular, we explore the characteristics of individuals that may make them more vulnerable to ending up with bad jobs. A question that underlies this analysis is: "Are there certain characteristics that trap people in bad jobs?" A follow up to this question is: "What characteristics can help put people on trajectories to higher paying jobs?" In addition to the cross-tabulations analyzed here, these questions are explored further in Section 5 where we use econometric analysis to control for confounding effects in our study of the determinants of employment and earnings.

Education

Access to higher quality jobs is positively associated with educational attainment. At the extreme, there is a 245 percent difference between the median earnings of workers with no schooling (Ar 30,900) and those with an upper-secondary level of education (Ar 76,000).[33] The association between job quality and education remains if we consider earnings for different worker types, however, it is not as strong (Table 4.6). This is especially the case in agriculture where wage earnings for those with an upper secondary education are only 20 percent higher than for those with no schooling.

[33] Earnings for those with a post secondary education are more than twice this amount, but this describes a small percentage of the workforce.

For the most part, there are systematic gains to achieving higher levels of education. With the exception of those agricultural wage workers with primary and lower secondary and non-wage informal workers with no or primary education, earnings increase as each higher level of education is attained for each employment type. Median earnings for formal sector wage workers, for example, rise an average of 19 percent for each education level from Ar 83,400 for those with no schooling, to Ar 166,300 for those with post-secondary education.

Gains in earnings are larger across employment types within education categories than across education categories for those up through upper secondary. For example, wage workers in the formal sector earn approximately 50 percent more than informal sector workers within each education category. Similarly, a average agricultural wage worker without an education could earn 50 (220) percent more if he were to get an informal (formal) wage sector job, whereas he would earn only 20 percent more in agriculture if he had a post secondary level of education.

Access to better jobs, however, is associated with higher levels of education. The distribution of workers according to their educational attainment in Table 4.7 illustrates that those with higher levels of education are more likely to get formal sector wage jobs. For example, 56 percent of those employed in this sector have an upper secondary or post-secondary level of education. Relatedly, over 60 percent of those employed individuals with post-secondary levels of education are employed in this sector. Conversely, 84 (89) percent of those employed in the agricultural wage (non-wage) sector have a primary level of education or less.

Workers with little or no education are primarily found in the lowest paying sectors. Of those workers with no education, 86 percent are employed in agricultural activities, while 76 percent of those with only a primary education are in this sector. Less than two percent without any education are employed in the formal sector. This evidence thus suggests that individuals with low levels of education are vulnerable. Unless their skills are developed, this set of workers which make up more than half of the workforce, are likely to remain in low paying jobs with little promise for access to good jobs.

Gender

Men and women have similar non-wage agricultural earnings, but men fare better than women in terms of earnings in every other employment category (Table 4.2). These differences range from 10 percent for formal NFE employment (Ar 121,900 compared to Ar 111,200) to 67 percent for informal NFE employment (Ar 60,800 compared to Ar 36,500). Informal male wage workers earn 55 percent more than women.

The male-female differential in non-agricultural earnings is not driven by differences in educational attainment. As Table 4.8 shows, the earnings gap between men and women exists at each level of education in both the formal and informal sectors. In some cases, the difference has diminished since 2001 (e.g. among those with no education and with post-secondary education), but in most cases the gap has widened.

Women's low earnings rates are higher than those of men. Further, low earnings for women wage workers were due more to short hours than for men (28.6 percent compared to 25.5 percent). Indeed, 35 percent of women wage workers with low earnings suffered from both short hours and low productivity, compared to 24 percent for men.

As seen in Section 3, women tend to be employed more in agriculture and the informal sector where earnings are relatively low, while men tend to have higher rates of employment in

the formal sector where earnings are relatively high. Further, for those who are employed in the formal sector and/or better wage jobs, their earnings fall below those of men in the same sectors on average. This is reflected not only in the median earnings, but also in the higher low earnings rates in Table 4.3. Thus, despite accounting for half of the adult workforce, women's access to better jobs is restricted relative to those of men.

Child Labor

Children are an especially vulnerable group since employment may either prevent them from attending school, or leave them with less time and energy to devote to their studies if they do attend. Further there is ample evidence of a strong negative relationship between household income and the incidence in poor countries.[34] Child labor is generally regarded as a symptom of poverty. But as Udry (2004) points out, it is also a cause of future poverty. As illustrated earlier, inadequate levels of education are likely to diminish the future earnings of these children. It is the access to quality jobs for these children when they grow up that leaves them vulnerable.

In 2005, 18.8 percent of all children between the ages of 6 and 14 were involved in income-earning activities (Table 4.9).[35] This is a 23 percent drop in the rate from 2001 (24.3 percent), as the absolute number of children working decreased from 920 thousand to 900 thousand.

Boys make up marginally more of the child work force than girls (51.7 percent) as their employment rates are slightly higher than that of girls (19.2 percent compared to 18.4 percent, respectively). Interestingly, Glick (1999) found that 34 percent of boys and 27 percent of girls were employed in 1993. Thus, over the period from 1993 to 2005, not only have child employment rates fallen, but they have fallen faster for boys than girls to the extent that the likelihood of open child employment[36] no longer depends on gender.[37]

Rural areas are more exposed to child labor. As is illustrated below nearly all of child employment is in family farming activities which are predominantly located in rural areas. The result is that 87.2 percent of child workers are found in rural areas, and that one out of every five rural children works. In urban areas 12.1 percent of children are employed. The decline in national child labor can be attributed entirely to a drop in the percentage of rural children employed (down 7.3 percentage points), unlike urban areas where the child employment rate rose nearly a percentage point.

Antananarivo had the lowest child employment rate in 2001 (12.9 percent). But, because this was the only province to experience an increase in the rate of child employment (by 7.5 percentage points), it is now second only to Toliara for the highest rate (20.4 percent and 32.9

[34] In a review of the literature, Fallon and Tzannatos (1998) find this relationship to be weaker among more affluent countries.

[35] An additional 1.8 percent reported 28 hours or more of unpaid domestic work, resulting in a total of 20.6 percent employed in some form or another. Because this information is not available in the 2001 EPM, and because the patterns of child labor are not qualitatively different when this type of child labor is included, the remaining discussion is limited to income earning employment.

[36] Note also that even when domestic work is included (2005), boys continue to have marginally higher employment rates (e.g. 20.9 percent and 20.4 percent).

[37] Glick's (1999) sample was limited to those children of age 7-14, so this is not directly comparable to the figures in Table 3.18. When we calculate employment rates for children of age 7-14 using the 2005 EPM, we find that 20.2 percent of boys and 19.4 percent of girls are employed, respectively. The general conclusion that there has been a convergence remains valid.

percent). There were substantial declines in the number of children working in Toamasina, Mahajanga, Toliara and Antsiranana. Currently Antsiranana has the lowest rate of child employment (9.1 percent), followed closely by Toamasina (11.3 percent).

The participation of children in the workforce is negatively correlated with household poverty status and per capita household expenditures. Child labor is 42 percent higher among poor households than among non-poor households (20.3 percent compared to 14.3 percent, respectively). Further, nearly one in every four children in the poorest expenditure quintile works, which is 88 percent higher than in the richest quintile work. This suggests that children play an important role in coping strategies among poor households. For decision makers in poorer households, the value of a child's current labor income in terms of survival may outweigh the future benefits from schooling, thus compelling them to send their children to work.

Household coping strategies may also explain the changes in child employment rates over time – falling among the poor and rising among the non-poor. For example, the large declines in child employment rates among households in the three lowest quintiles may be due to substantial increases in real per capita household expenditures for these households. Table 4.10 illustrates that median real expenditures for households in these quintiles rose by over 20 percent. Further, the largest declines in child labor occurred among the poorest quintiles, which simultaneously witnessed the largest increases in expenditure. For example, child employment rates in the poorest quintile fell by 12.4 percentage points while median expenditures rose 45.5 percent, compared to an 8.1 percentage point drop in child labor and a 34.6 percent increase in expenditures in the second quintile, and so on. This negative correlation between the change in child labor and household expenditures suggests that as incomes rise and the need to rely on child labor as a coping strategy diminishes, child employment rates decline. Although it is not surprising then that employment rates rose by 5.9 percentage points for children in the richest quintile as median expenditures fell by 17.9 percent, it is disconcerting that even these households must rely on child labor when incomes fall.

Children in Madagascar are employed in the sectors with the lowest earnings and the highest low earnings rates. They are primarily employed as non-wage workers (95.6 percent) and in agricultural activities (96.0 percent; Table 4.11). Those not employed in agriculture, tend to gravitate toward the service sector (3.7 percent). Over 70 percent of the children consider their jobs to be permanent, not seasonal. This is somewhat surprising considering that many are employed in agriculture.[38] This suggests that families rely on these children for more tasks than those required during the peak demand periods (e.g. planting, re-planting and harvest). Nonetheless, the share of permanent employment has fallen as total child employment is dropping.

For the most part, the type of employment undertaken by children reflects the nature of income generating activities of their households. For example, approximately 90 percent of employed children live in a household in which the household head is employed in agriculture or as a non-wage worker. This follows in part because the majority of household heads fall into this category, but also because employment rates are highest for children living in such households.

Given that it is clear that children play an important role in family income generating activities, we now return to the detrimental effects of child labor, for which there are two primary

[38] This also suggests that much seasonal employment among children is missed in these data due to the questionnaire design and the timing of the surveys. Indeed, child employment rates may be higher than reported if such seasonal employment were captured.

concerns. The first is that children may be exposed to dangerous and/or demeaning work environments. Since the EPM were not designed to measure such employment characteristics, nothing more can be said about it here. The second, that children's schooling may be compromised by excessive work,[39] can be addressed with these data. For example, Table 4.12 shows school attendance rates by work status for all children by gender and separately for those of ages 6-11 and 12-14. Fewer than half of all employed children were enrolled in school at the time of the 2005 survey, while eight out of ten non-employed children were. Not only are attendance rates low for employed children compared to non-employed children, but they also differ little by age. For non-employed children attendance rates increase substantially as the children get older (e.g. from 75.0 percent for the 6-11 age group to 93.6 percent for the 12-14 group). For employed children, however, the increase is only marginal (from 45.6 percent to 46.8 percent, respectively). It is notable that there is little distinction between boys and girls.

Of course, current absence from school may only be a temporary phenomenon. Thus to capture the possibility that the observed absences represents permanent absence (at least up to the time of the survey), Table 4.12 also shows the percent of children who never attended school. Nearly half of the employed children of age 12-14 not attending school have never attended school. In other words, for 26.2 percent of employed children in this age range, employment appears to have come at the expense of *any* schooling. This represents 7.5 percent of all children between the ages of 12 and 14.[40] In this case, permanent absence affects boys more than girls (27.3 percent compared to 25.0 percent, respectively).

Substantial improvements in attendance rates among employed children were witnessed between 2001 and 2005. Indeed, the soaring attendance among employed children (14.3 percent to 46.1 percent) is responsible for the increase in overall enrollment rates. In addition, the percentage of older children who never attended school fell by nearly 50 percent from 51.8 percent to 26.2 percent, with the greatest gains experienced by boys.

While the rise in school attendance among employed children is commendable, an additional concern regarding child employment and schooling is that long work hours may diminish the ability of employed children to devote time and energy to their studies. In other words, although more working children are attending school, they may not learn as much as non-working children if they are working long hours. As indicated in Table 4.13, working children who are also enrolled in school work an average of 22.0 hours a week (20.1 hours among those age 6-11, and 24.1 among those age 12-14), which is just under half of the average for adults and about two-thirds for children not in school. For girls, the average is lower at 19.7 hours a week, compared to 24.0 for boys. Note that there is a similar discrepancy between men and women adult workers – men work 48.8 hours on average, while women work 41.9 hours. Although the child average in 2005 is lower than the 26.4 hour average for 2001, it remains substantial.

[39] Although the extent to which work affects schooling is a widely studied question. Nonetheless, it remains controversial because schooling and child labor decisions are joint outcomes of a single decision making process. Causation is difficult to determine: Are children working because they are not attending school, or are they not attending school because they are working? (Edmonds, 2007)

[40] It is possible that, for some households, causality may run in the other direction. For example, if school quality is low and the benefits to an education are perceived to be minimal (i.e. if the economy is doing poorly and opportunities for skilled workers are scarce), parents may choose to not send their children to school, and to ask them to work instead.

Multiple and Temporary Jobs

Temporary employment and holding multiple jobs can be an indicator of vulnerability. Those who work at more than one job predominantly do so because their primary sources of income are insufficient for their needs and/or for purposes of risk mitigation (Jørgensen and Domelen, 1999). Further, those with temporary or seasonal employment are more prone to holding multiple jobs to compensate for lack of income.

In Madagascar, 28.9 percent of the working age population has more than one job (Table 4.14). This is more than a 100 percent increase from the 13.3 percent that reported holding multiple jobs in 2001. The highest rate of multiple job holdings is among agricultural wage workers, where 66.1 percent report at least a second job. Not surprisingly, this group of workers is also the poorest in the country (78.9 percent; see Table 4.3). The least poor group of wage workers, those in the private formal sector, also have the lowest rate of multiple job holdings (12.2 percent). Interestingly, 29.4 percent of public sector workers hold additional jobs. This is a greater percentage than non-wage agricultural workers (28.2 percent) who make up the second poorest group of workers. There are two points to take from this comparison. First, public sector wage workers are either compelled to seek additional sources of income or are in positions to take advantage of their positions to earn additional income. Second, those working on family farms are more likely to work on the farm year round (especially in comparison to wage workers.).

The percentage with temporary or seasonal employment is nearly half of the multiple job holding rate (14.8 percent), suggesting that it is low earnings, not the lack of opportunity to work throughout the year, that is driving much of the decisions to work at more than one job. The exception is for agricultural wage workers. With 57.9 percent reporting their primary jobs as being seasonal, it is not surprising that 66.1 percent holding multiple jobs. It is noteworthy that for half of those with multiple jobs, the secondary job is temporary or seasonal. Few (9.7 percent) report both their primary and secondary jobs as being seasonal.

Temporary workers tend to work more during the rainy season.[41] Over 60 percent of seasonal/temporary employees reported being employed between the months of November and March, (Figure 4.5) Interestingly, this coincides with what is generally the secondary cropping season, not the main cropping season during which as few as 50 percent reported working. Note that 85 percent of temporary workers are employed in agriculture, and that 56.4 percent of temporary employment is for secondary employment. Thus the seasonal employment pattern suggests labor is more slack during the agricultural off-season, and it is during this period that individuals from farming household seek temporary employment.

Temporary/seasonal workers are more likely to have low earnings than those with permanent employment. The discrepancy between permanent and seasonal employment and low earnings is largest for wage workers. 45.6 percent of seasonal wage workers have earnings that fall below the poverty line, while 10.4 percent of those with permanent wage employment have low earnings (Table 4.15). Among non-wage workers, the difference is only 18 percent as 42.3 percent of seasonal non-wage workers have low earnings compared to 35.8 percent of those with permanent non-wage jobs. Despite improvements in earnings and reductions in low earning rates

[41] The 2004 EPM survey recorded the months that each household member was employed in their respective employment activities. Using these data, we are able to determine the percentage of temporary workers who were employed month by month. We caution, however, that the data collection period was disrupted for this survey and as such are not entirely comparable to the other EPM surveys. For the purposes of illustrating seasonal employment patterns, however, these data are informative.

since 2001, those employed as seasonal agricultural workers fare the worst in terms of job quality – 57.6 percent of seasonal agricultural wage workers earn less than the poverty line and 42.4 percent of seasonal non-wage agricultural workers have low earnings.

Remoteness & insecurity

A final characteristic that we examine is not an individual or employment characteristic. Rather it is one that describes the community in which individuals reside – remoteness and insecurity in rural areas. Stifel et. al (2003) find that more remote areas[42] are characterized by higher rates of poverty and lower levels of agricultural productivity. Further, Fafchamps and Moser (2003) find that crime/insecurity increases with distance from urban centers. As such, we consider employment outcomes in rural areas by quintile of remoteness (defined by cost of transporting rice to cities, see Stifel et. al, 2003) and by perceptions of security as defined in the 2001 commune census.[43]

Surprisingly, there is no clear systematic difference in the distribution of employment by remoteness. In the middle three quintiles, approximately 90 percent of all rural labor is involved in agricultural activities (Table 4.16). Although agriculture is also dominant in the most and least remote quintiles, the percentages drop off, though it is more so the case in the least remote quintile (87.2 percent in agriculture in the most remote quintile, compared to 80.7 percent in the least remote). In the least remote quintile, non-farm enterprises pick up the difference (8.6 percent), while it is wage labor in the least remote quintile.

Median earnings are highest in the least remote quintile and lowest in the most remote quintile for each employment sector. Interestingly, earnings tend to be lowest (and low earnings rates highest) in the second most remote quintile. This is also the case for the middle quintile for agriculture and non-farm enterprises, but not for wage workers. For the latter, earnings are higher in the middle quintile than the two most remote quintiles.

In both secure and insecure areas, agriculture accounts for approximately 87 percent of employment. Although median agricultural earnings do not differ by degree of security, low earning rates are slightly higher in more secure areas (38.1 percent compared to 36.6 percent, respectively). We note that these cross tabulations do not control for other determinants of agricultural earnings. As such, differences in land quality could be a determining factor among the lower tails of the agricultural earnings distributions for secure and non-secure areas.

Secure areas tend to have more employment in the wage sector than insecure areas (6.5 percent compared to 4.4 percent, respectively). Earnings in this sector are higher in secure areas. The median earnings of Ar 79,700 for wage workers is 21 percent higher than in insecure areas. This translates into a low earnings rate of 13.3 percent in secure areas compared to 17.6 percent in non-secure ares. Although a greater percentage of those in insecure areas are employed in non-farm enterprises (e.g. 8.4 percent compared to 5.9 percent, respectively), earnings are lower and low earnings rates are higher than in secure areas.

[42] As defined by travel time to the nearest city to which members of the commune travel on a regular basis, as well as by cost of transporting a 50 kg sack of rice to the same city.

[43] We thank Bart Minten and the Cornell University *Ilo* Project for graciously providing these complementary data.

4.3. Household livelihood strategies

Most of the analysis thus far has focused on individual labor market outcomes (e.g. employment rates, individual earnings, low earnings rates, etc). In low income countries like Madagascar, however, many labor allocation decisions are made at the household level as part of the households' livelihood strategies. Further, standard models of labor markets that apply to developed economies consider the labor suppliers and labor demanders to be distinct entities. In developing countries like Madagascar, however, much of the labor supply and demand decisions are made within the same institutions, such as family farms and/or firms (Behrman, 1999; see also Singh, Squire and Strauss, 1986). We thus alter our approach in this section to examine the characteristics of employment and earnings viewed at the household level.

Agriculture accounts for the lion's share of household earnings in Madagascar. The average household acquires 68.6 percent of its total earnings from agricultural activities (Table 4.17). The second largest source is from informal non-farm enterprises (11.2 percent). The formal sector accounts for 8.7 percent of household earnings.

Consistent with the employment shifts into agriculture observed in Section 3, agriculture has become a more important source of household earnings while formal sector earnings have fallen. Agricultural earnings as a share of total household was 9.4 percent less in 2001 (62.1 percent) than in 2005 on average. At the same time, formal sector employment contributed 51.6 percent more to household earnings (13.2 percent). Even earnings from informal wage employment fell as a share total household earnings (9.5 percent to 7.8 percent, respectively).

Poor households depend more on agriculture as a primary source of earnings than non-poor households. Nearly 80 percent of earnings for households in the poorest quintile emanate from agricultural activities, whereas this figure is only 45.7 percent for those in the richest quintile. Those in the richest quintile also earned considerably more from wage employment (27.8 percent) and from informal non-farm enterprises (14.8 percent).

The structure of household earnings changed in different ways for poor and non-poor household between 2001 and 2005. In 2005, households in the poorest quintile relied less on agriculture as a source of household earnings than in 2001 (79.9 percent came from agriculture in 2005, compared to 84.4 in 2001). Agriculture has become less important as informal non-agricultural earnings (wage and non-wage) have picked up for poorer households. Conversely, nearly half of earnings for the richest 20 percent of households derived from non-agricultural wage labor in 2001, while agriculture accounted for only 21 percent. Thus, for these richer households during this time period, the dominant income source shifted from non-agricultural wage employment to agriculture.

In Table 4.18, we break down household earnings slightly differently into primary, industry and service sectors, rather than agriculture, non-wage and wage. Because agriculture makes up most of primary sector employment and earnings, the primary sector also accounts for most of household earnings. The average household acquires 70.7 percent of its total earnings from primary activities. The second largest source is from services (21.4 percent), while industry accounts for 3.5 percent of household earnings.

As with agriculture, primary activities have become a more important source of household earnings while industrial earnings have fallen. In 2005, earnings from the primary sector accounted for 6.0 percentage points more of total household earnings on average than in 2001 (64.8). At the same time, industrial sector employment contributed 4.4 percentage points

less to total household earnings. On average, there was little change in the share of earnings attributed to the services sector.

This table sheds additional light on the important differences in the changes in the composition of household labor income. For example, while we already know that the structure of household earnings changed in different ways for poor and non-poor household between 2001 and 2005, we now know that service activities have become more important for the two poorest quintiles, rising by 7.2 and 9.4 percentage points respectively. Conversely, richer households have become substantially more dependent on primary activities as earnings from both the industrial and service sectors fell. For example, the share of earnings derived from the primary sector for the richest quintile rose by 26.9 percentage points to represent over half of household earnings.

Another approach is to decompose the temporal changes in household labor income. To do so, we adapt a methodology from Kakwani, Neri and Son (2006) to describe the average labor income profile of households. The starting point is to note that the average weekly labor income of household *j* can be written as:

$$\frac{I_j}{N_j} = \frac{I_j}{H_j}\frac{H_j}{E_j}\frac{E_j}{L_j}\frac{L_j}{N_j}$$

where I_j is total weekly labor income of the household, N_j is the number of household members, H_j is the total number of hours worked per week by household members, E_j is the number of household members who are employed, and L_j is the number of household members participating in the labor force. Using this terminology, we can define $i_j = I_j / N_j$ as average weekly household labor income (averaged over all household members). In the same way $w_j = I_j / H_j$ is the average earnings per hour worked, $h_j = H_j / E_j$ is the average hours worked per week by those employed, E_j / L_j is the household employment rate, and $l_j = L_j / N_j$ is the household participation rate. Note that because an important fraction of labor stems from child and elderly workers, we define the participation rate among all household members, not just those of working age. For simplicity, the above equation can be written as:

$$i_j = w_j \, h_j \, (1- u_j) \, l_j$$

where $(1- u_j)$ corresponds to the household employment rate which is rewritten as one minus the household unemployment rate (u_j).

To analyze the source of changes, we start by taking logs to get,

$$\ln i_j = \ln w_j + \ln h_j + \ln(1- u_j) + \ln l_j .$$

Averages of each of these components can then be calculated over the entire sample or over relevant groups (e.g. expenditure quintiles, poverty status, etc.) for each survey year. The differences in these averages provides us with the following:

$$\Delta \frac{1}{N}\sum_{j=1}^{N} \ln i_j = \Delta \frac{1}{N}\sum_{j=1}^{N} \ln w_j + \Delta \frac{1}{N}\sum_{j=1}^{N} \ln h_j + \Delta \frac{1}{N}\sum_{j=1}^{N} \ln(1-u_j) + \Delta \frac{1}{N}\sum_{j=1}^{N} \ln l_j \, .$$

Dividing this equation through by the left-hand side, we can see what portion of the average change in average household labor income is due to changes in household hourly earnings, hours worked, unemployment, and participation. These results appear in the bottom panel of Table 4.19.

There was a 15 percent increase in average household per capita weekly labor income between 2001 and 2005, from Ar 3,995 to Ar 4,599. This followed primarily from a 20 percent increase in average hourly earnings among household members. Indeed 138 percent of the increase total household earnings is explained by this increase in hourly earnings, offsetting both the fall in average hours worked (from 43.8 hours to 41.4 hours) as well as the rise in household unemployment (from 1.1 percent to 2.4 percent). Note that although there was an overall increase in the household participation rate, it appears that not all could find jobs.

Average household earnings rose in each of the poorest three quintiles (by 53.0 percent, 37.6 percent, and 18.1 percent, respectively). Meanwhile, they fell by 2.5 percent and 20 percent in the two richest quintiles, respectively. Interestingly, it was changes in hourly earnings that explain both the increase in total earning among the poorer households and the fall in total earnings among the richer households. Note that the rate of growth of hourly earnings falls from 76 percent for the poorest quintile to 26.9 percent for the middle quintile. It then turns negative for the fourth (-5.6 percent) and richest (-25.6 percent) quintiles. As such, changes in hourly earnings accounts for between 133.3 percent and 149.3 percent of the changes in total household per capita labor income.

For households in all five expenditure quintiles, the average number of hours worked per week fell as the household unemployment rates rose. This contributed further to falling earnings among households in the two richest quintiles which were only offset by the increase in labor force participation among members of these households. Among the three poorest quintiles, the increases in unemployment and decreases in number of hours worked were compounded by decrease in average household participation rates, though their effect was only to dampen the positive effect of increased hourly earnings.

5. DETERMINANTS OF EMPLOYMENT AND EARNINGS

With a clearer understanding of which types of employment are associated with better welfare outcomes (i.e. which are "good jobs") and hence which are more desirable, we shift gears and address the individual and household characteristics that affect both the probability of getting these jobs and the earnings of those with these jobs. Based on the evidence in the preceding section, the implicit assumption underlying this analysis is that, on average, the best jobs are associated with non-agricultural formal and wage sector employment, while the lowest paying are associated with agriculture. The basic question that we pose here is: "What determines employment types and earnings?" This is presented in an effort to address the larger question posed previously: "What characteristics can help put people on trajectories to higher paying jobs?"

It is worth noting that both labor supply and labor demand conditions affect improved employment and earnings outcomes. Indeed, while most people prefer the best possible employment option, not all of the options are available to them since many lack the education and skills needed to perform high quality jobs. In a 2005 survey, the World Bank's Investment Climate Assessment found that over 30.5 percent of formal sector enterprises in Madagascar considered the skills available in the labor force to be a major or a very severe obstacle to their

operation and growth, while an additional 30.1 percent considered them to be a moderate obstacle (Table 5.1). This indicates that for over 60 percent of the formal sector firms (i.e. those providing higher quality jobs), the limited supply of skilled and/or trainable[44] labor is an impediment to growth and the improvements of labor market outcomes that accompany growth. Further, this phenomenon is occurring despite an abundant supply of unskilled labor, which suggests that a skills mismatch is a constraint to growth.

Nonetheless, there are also non-labor related factors curbing demand for formal sector labor. For example, issues related to macroeconomic stability, access to financial services, corruption, regulatory burden and uncertainty, and electricity ranked higher among the difficulties faced by the business community (Table 5.2). Labor-related issues may become a binding constraint when the non-labor issues are eventually addressed. But for the time being, labor skills and regulations were not among the most important obstacles for firms in the survey (only 4.5 percent of firms reported them as such). It is non-labor related matters such as macroeconomic instability and lack of access to finance (46.5 percent) that are a priority with regard to growth of the demand for formal sector labor.

5.1. Employment "Choice": What affects the probability of getting a good or a bad job?

In light of the evidence that there are both labor demand and supply constraints affecting formal sector employment, we now turn to a more detailed look at the supply side using the information available in the household surveys. In doing so, we start with employment categories, and ask what characteristics affect the "choices" that individuals make with regard to their work status. This status is defined as either working in the (a) non-agricultural formal, (b) non-agricultural informal[45], or (c) agricultural sectors. Individuals may also choose to (d) not work. Since these choices are not necessarily available to each individual, the results of multinomial logit model that appear in Tables 5.3 - 5.6 should not be interpreted literally as determinants of choices. Rather they should be interpreted as reduced form estimates of how individual and household characteristics affect probabilities that individuals will end up in one of the four employment categories. Note that the last category (not employed) includes both those who are unemployed and those who are out of the labor force. A distinction between the two is not made here because too few individuals are openly unemployed for estimation purposes.

The models are estimated using the 2005 EPM separately for men and women of working age in both urban and rural areas. The tables show the marginal effects which are interpreted as the average change in the probability of an individual finding himself/herself in an employment category as a result of a one unit change in the independent variables. Because the average marginal effects are shown instead of the estimated coefficients, all four employment status categories (including the left-out category) can be shown. The marginal effects sum to zero across the categories.

The most striking result from these models is the effect of educational attainment on employment categories. Individuals with more education are more likely to be employed

[44] Nelson and Phelps (1966) and Schultz (1975) suggest that education may improve an individual's ability to adjust to changing economic environments and to take on different types of work.

[45] Because the models include both wage and non-wage employment, two means are used to identify formal sector employment. Wage employment is considered formal if the employer contributes to a pension fund for the employee, or if she provides social protection. Non-wage employment is defined as formal if the enterprise is registered with the authorities.

activities other than agriculture regardless of gender or area of residence. Further, the higher the education level, the greater the probability of not working in agriculture. In rural areas, for example, women are 6 percent more likely to be employed in other sectors or not employed if they have primary education (Table 5.4). Those with a lower secondary education are 26 percent more likely, while those with upper secondary and post secondary are 39 percent and 53 percent more likely to not work in agriculture, respectively. The effects are even larger for men in rural areas (Table 5.6).

Of these other sectors, higher levels of education increase the probability of formal sector employment the most. This follows from formal sector jobs being more accessible to those with skills or to those who can more easily be trained (i.e. those with higher levels of general education). There are no systematic difference in these marginal effect by gender or region, though it is worth noting that women living in urban areas with a post secondary education are 45 percent more likely to be employed in the formal sector than those without an education, and are 23 percent more likely than those with an upper secondary education.

The effect of education on the probability of informal employment is mixed. In urban areas, men with more education are 3 to 13 percent less likely to be employed in the informal sector, while women with only a primary education are 4 percent more likely to be in this sector. In rural areas, lower levels of education are associated with a greater probability of informal non-agricultural employment.

Consistent with the unemployment estimates in Table 3.17, the probability of non-employment is higher for those with an education than for those with no education. Unlike the relationship between education and formal sector employment, the effect of education on the choice to not be employed is not monotonic (except for women in rural areas). Indeed the effect does increase monotonically from primary to lower secondary to upper secondary, but then it drops off for post secondary. This may follow from relatively more lucrative employment opportunities being available for the limited number of individuals with post secondary education, thus raising the opportunity cost of remaining ether unemployed or out of the labor force.

There are other interesting results that come out of these models. For example, individuals in urban households that have successfully obtained credit are more likely to be employed in the formal sector, and less likely to be employed in agriculture.[46] Urban men are 10 percent more likely to have a formal sector job if they have access to credit. Only part of this can be explained by credit improving the prospects of family non-farm enterprises. Similar sets of models were estimated for wage and non-wage non-agricultural employment choices (Tables 5.7-5.10) and we find that the increase in the probability of wage employment is in fact greater than the increase in the probability of non-wage employment with access to credit. The 5 percent greater likelihood of formal sector employment among women, however, can plausibly be attributed to credit affecting non-farm enterprise profitability.

Although non-labor income appears to have no effect on employment choices, individuals in households who have accumulated agricultural assets are more likely to remain in the agricultural sector than any other employment option. The direction of causality may go the other way with regard to these assets, however. Individuals living in agricultural households who

[46] These estimates need to be interpreted with caution. They may be biased given that there may be other factors (e.g. relations and/or social capital) that simultaneously influence access to credit and wage employment, and because the direction of causality has not been firmly established in these models.

expect to remain in agriculture are more likely to accumulate agricultural-specific assets than those who expect to work in some other sector. As such, it is the employment in agriculture that leads to the accumulation of agricultural assets, not the accumulation of these assets which affect the probability of employment in agriculture.

Age matters. Older individuals are more likely to be employed in some form or another. For urban women this employment comes primarily in the form of non-agricultural labor (0.3 percent more likely with each year of age), while urban men are more likely to find formal sector jobs (0.5 percent more likely with each year of age). In rural areas, the default sector is agriculture.

Individuals from migrant households are most likely to be employed in the informal sector and then the formal sector, while the probability that they are in agriculture is less than for non-migrants. Rural migrant women are the exception as they are no more likely than non-migrant women to be employed in the informal sector. Except for urban women, migrants are no more likely than non-migrants to be unemployed or out of the labor force. Urban migrant women are 4 percent more likely to not be employed.

Finally, since the capital city is the manufacturing and industrial center of the country, and the seat of most central government offices, it is not surprising that men (women) in Antananarivo are 84 percent (88 percent) more likely than those in other urban areas to be employed in the formal sector. They are also least likely to be employed in agriculture.

Adolescents – Determinants of Work and/or Schooling

Using a similar framework, we return to the question of employment among youths. Our interest here is the trade-off for adolescents between attending school and working. The implication once again is that current work among youths negatively affects their human capital formation and future earnings. Thus household decision makers are essentially trading-off current household income and consumption for future income consumption of the adolescent. The question we address here is: "What household and individual characteristics affect the probability that an adolescent will work or attend school?"

We consider two age groups (10-14 and 15-20) based on a natural cut point in the data. The rationale for considering these age groups separately is that the older group is in more of a stage of transition from school to work than the younger group. For the latter, schooling decisions are also based on higher levels of education achieved. We estimate separate multinomial logit models for these age groups by urban and rural areas. The choices that the adolescent and/or her family makes are for her to (1) only attend school, (2) only work, (3) work while attending school, and (4) neither work nor attend school (for simplicity, we refer to this a doing "nothing").

Education: The majority of young adolescents (10-14) attend school. Attendance rates are higher in urban areas where 78.5 percent are in school only and 7.7 percent combine schooling and work (see the third row from the bottom in Table 5.11). In rural areas (Table 5.12), a larger share attend school while working (14.3 percent), but most are still only in school (68.4 percent). Older adolescents (15-20) are more likely to be employed, but the relative importance of work relative to school differs by area of residence. For example, 45.8 percent of older urban adolescents are in school (42.5 percent in school only, and 3.3 combining school and work), while only 25.3 of older rural adolescents attend school (only 21.4 percent in school only) (see

Tables 5.13-5.14). In rural areas, the alternative is primarily work (68.6 percent), while urban adolescents are also likely to neither attend school nor work (13.7 percent).

The most striking message that comes out of these models is that children in more educated households are more likely to attend school only, and to not work. The measure of household education used here is the education level of the most educated member of the household based. In doing so, we assume that there are household public good characteristics to education.[47] For instance, young adolescents living in urban areas with a household member with a primary level of education is 18 percent more likely to attend school only than a similar youth living in a household with no educated members. She is also 10 percent less likely devote all of her time to work, 3 percent less likely to combine work and schooling, and 5 percent less likely to do nothing. This effect is larger, the higher the level of education of members of the household.

The effect of education on schooling for young adolescents is larger in rural areas than urban areas. For example, those between the ages of 10 and 14 in rural areas with a member with secondary levels of education are 25 percent more likely to only attend school than those in uneducated households, compared to 23 percent in rural areas.

The positive association between household education and school attendance is even stronger for older adolescents. In urban areas, for example, older adolescents living in a household with a member who attained an upper secondary level of education are 56 percent more likely to attend school and 49 percent more likely to not work. The pattern and magnitudes in rural areas are similar, except that, those in households with primary or secondary levels of education are also marginally more likely to combine work with schooling.

Gender: There do not appear to be gender effects for young adolescents, while older adolescent girls are 5 percent more likely than boys to be out of school. That they are also more likely to neither be in school nor in the workforce (similar to rural young adolescent girls) suggests that they may be involved in domestic household activities that the survey respondents did not consider to be income-earning activities.

Migrants: In rural areas, young adolescents who live in migrant households are 11 percent more likely to work than non-migrants. In both urban and rural areas, these adolescents are also less likely to do nothing. There is weak evidence that in urban areas, young adolescent migrants are 4 percent more likely devote all of their time school. Migrant status does not have perceptible effects on schooling/employment choices among older adolescents.

Individual's Age: Beginning at age 12, adolescents become more likely to work and less likely to attend school as they get older. This result is not terribly surprising. What is interesting, though, is that there appears to be an inverted-U relationship with regard to age and the combination of work and school. In both urban and rural areas, young adolescents are more likely to both attend school and work as they get older. But, but as older adolescents age, the are less likely to do so, as they presumably finish their targeted level of schooling and devote all of their time to employment.

[47] Basu and Foster (1998) suggest that literacy may have public good characteristics in the household and formalize an "effective" literacy rate based on this public good aspect of education (See also Valenti (2001) and Basu et. al (2002)). Sarr (2004) finds evidence from Senegal that illiterate members of households benefit from literate household members in terms of their earnings. Almeyda-Duran (2005) also finds that in some situations there are child health benefits to village level proximity to literate females.

Household Characteristics: Adolescents whose parents are also the head of household are more likely to attend school only and less likely to work. This effect is stronger in urban areas and for older adolescents. For example, while older adolescents in urban areas are 12 percent more likely to only attend school and 11 percent less likely to work, in rural areas they are 9 percent more likely to devote all their time to schooling and 10 percent less likely to work. Similarly, young rural adolescents are 7 percent more likely to attend school and 4 percent less likely to work. Interestingly, if the household head is under 21 years of age, then adolescents in urban areas are more likely to spend all of their time in school and less likely to work at all.

5.2. Determinants of Earnings - Segmentation & Access to "good" jobs

We now turn to the use of econometric methods to gain a better understanding of the determinants of earnings and, by extension, good jobs. The advantage of this approach is that by simultaneously controlling for the effects of other possible determinants, we more accurately estimate the impact of various individual and household characteristics on individual earnings. Part of the motivation of this analysis is to understand these determinants and how their "returns" have changed over time. This is addressed in the first part of this section. Another motivation is to test the degree to which the wage sector is segmented. The evidence in section 4 suggests that the highest quality jobs are found in the formal wage sector. As such, it is important not only to understand the determinants of access to jobs in this sector, but also to see if there is excess demand for these jobs. In other words, do there exist rigidities that prevent wages from adjusting to clear the market? One way to assess this is to test if individuals in both the formal and informal wage sector with similar characteristics have different returns to these characteristics. Although they do not permit us to determine the mechanisms through which rigidities manifest themselves, the wage earnings model presented in the second part of this section do allow us to address the existence of segmentation (or duality) in the wage sector.

Determinants of Earnings – Levels and Changes

Earnings functions are estimated separately for those who are employed in (a) non-agricultural wage, (b) non-agricultural non-wage, and (c) agricultural activities (Table 5.15). The dependent variable in each of these models is the log of real daily earnings.[48] The explanatory variables are typical of those found in standard Mincerian earnings functions and include experience[49], levels of education, hours worked, a dummy variable that takes on a value of one if the individual is female, and controls for location (not shown).[50] We estimate the models for 2001 and 2005 and test the difference in the parameters.

[48] Since we use the log of earnings, the estimated coefficients represent a percentage change in earnings for a one unit change in the dependent variable.

[49] Experience is difficult to measure because we do not know when individuals began working. Here we use the difference between individual's age and the number of years of schooling (plus 5 years). It is important to account for experience because experience and educational attainment are negatively correlated. Since experience is likely to contributed positively to earnings (up to some point), the error terms in the estimated models are likely to be negatively correlated with educational attainment if experience is not included as an explanatory variable. The result is likely to be a downward bias in the estimates of returns to schooling.

[50] We also control for selection bias by using a correction method proposed by Bourguignon, Fournier and Gurgand (2007). This correction method is an extension of Lee's (1983) method in which the selectivity is modeled as a multinomial logit, rather than as a probit (Heckman, 1979). The results of the multinomial logit selection models are not shown here but are based on those that appear in the previous section.

Education: We find positive and significant effects of schooling that are substantial and that increase monotonically with the level of schooling.[51] We caution, however, that these returns are likely to be overestimated because the correlation between education and earnings do not necessarily represent causation. Indeed, as the adolescent choice models in the previous section clearly show, those adolescents who reside in households with more education are more likely to attend school (only). In other words, schooling is not distributed randomly among the individuals in the sample, thus resulting in biased estimates. [52] Thus we proceed with caution.

Returns to schooling are largest among wage employed individuals. For example, while earnings are 23 percent higher for wage workers with a primary education compared to those without any education, the returns to primary schooling are 12 percent for non-wage workers, and 8 percent for agricultural workers. Wage workers with an upper secondary level of education earn 69 percent more than those without schooling, while those with post secondary schooling earn 105 percent more on average.

Returns to primary and lower secondary education are greater for non-wage labor than for agricultural labor.[53] Non-wage workers in non-farm enterprises with lower secondary levels of education earn 26 percent more than those without education, while those in agriculture with lower secondary schooling earn 22 percent more. Returns to upper and post secondary schooling are higher for agricultural labor than for now-wage labor. This latter finding, however, should be treated with care since the sample is small – these workers represent less than two percent of the entire workforce.

Although they are positive and statistically significant, returns to education have fallen since 2001. These changes are most evident in the agricultural sector where statistically significant declines in returns are observed for primary (17 percentage points), lower secondary (15 percentage points) and upper secondary (24 percentage points) levels. Although returns fell for each level of education in the wage sector, they were only significant for lower secondary schooling (11 percentage points). No significant changes were observed in the non-wage sector

Experience: Years of experience contribute positively to wage earnings, and to agricultural earnings after the age of 25. The significance of the quadratic term for experience in the wage earnings equation for 2005 indicates that experience is associated with increases wage earnings up to the age of 40, after which point earnings fall. This is considerably lower than the

[51] This differs from Glick (1999) who found no statistically significant effect of primary education.

[52] As Behrman (1999) notes, "individuals with higher investments in schooling are likely to be individuals with more ability and more motivation who come from family and community backgrounds that provide more reinforcement for such investments and who have lower marginal private costs for such investments and lower discount rates for the returns to those investments and who are likely to have access to higher quality schools.

[53] We experimented with various measures of education for the non-wage earnings models. In all cases, the qualitative results are comparable to those presented here. For example, because non-wage earnings are defined as the total farm/enterprise earnings shared equally among those employed there, individual education may not be the appropriate determinant of earnings. In other words, these are shared earnings from a joint production process which may be affected more by the level of education of the worker with the highest educational attainment (see footnote 47). As such, NFE and agricultural models were also estimated using as an independent variable the level of education of the most educated member working on the farm/enterprise. The returns to education fall slightly with this specification, though the differences over time remain similar.

turning point of 78 in the 2001 model and may be a consequence of the deterioration in overall wage earnings affecting older workers more than younger workers.[54]

In agriculture, experience affects earnings in a negative manner up until the age of 25, after which point the returns are increasing. In the 2001 model, the turning point was higher (35 years of age). Experience does not have a discernable effect on non-wage earnings.

Gender: Controlling for education, experience and other factors determining employment selection, we find that women's non-agricultural earnings are 32 percent lower than those of men. Further, this difference has not changed significantly over time. Although we do not find a significant difference between the earnings of men and women in agriculture, this does not imply that the earnings are necessarily equal because our measure of agricultural earnings is based on equal sharing of total household agricultural earnings.[55]

To further explore the differences in wage earnings between men and women, we use the 2005 data to estimate earnings equations separately for men and women, and test the differences in the parameters. These models confirm that returns to education and experience differ by gender. As illustrated in Table 5.16, the returns to primary education are 14 percentage points higher for men than for women (31 percent compared to 17 percent, respectively). Conversely, the returns to post secondary schooling are 19 percent higher for women than for men (126 percent greater than no education for women compared to 107 percent for men). There is no statistical difference between the rates of return for men or women with a secondary level of education once we control for experience and selection.

To illustrate the independent effects of returns to education on the wage earnings gaps, we simulate the effects of education alone on the wage earnings of men and women by scaling the mean wage earnings of those without education by the coefficients in Table 5.16 (see Table 5.17). The upshot of this is that only at higher levels of education (upper secondary and above) does educational attainment have an equalizing effect. Compared to the 16.2 percent difference in wage earnings for those with no education, the gender gap falls to 10.3 percent for those with upper secondary education and to 8.4 percent for those with post secondary education. This, however, follows a widening of the gap to 25.1 percent for those with a primary education only.

The returns to experience for women are initially greater than for men, but diminish at a faster rate. An additional year of experience for a women with five years of experience results in a 4.7 percent increase in wage earnings, compared to a 2.3 percent increase for men. By the time men and women attain 26 years of experience, the returns to are the same for each (1.3 percent).

The differences in returns to primary education are the only ones in these models that help to explain the gender earnings gap for wage workers. Further, the statistically significant difference in the constant term (160 percent) suggests that there is part of this gap that is

[54] Note that our models control for selection into wage employment based on age and other factors. Thus, in theory, the finding that older wage workers have lower earnings, *ceteris paribus*, follows from factors other than exit from the wage sector.

[55] There are two sources of error implicit in this measure of agricultural labor earnings. The first is the assumption of equal productivity among all household agricultural labor. The second is the assumption of equal sharing of resources within the household which is not necessarily the case (Quisumbing and Maluccio, 2000; Sahn and Stifel, 2002).

unexplained by the models. In other words, independent of experience[56] and age differences, some other factors lead to women earning less in wage activities than men.

Is the wage sector segmented?

Is access to higher earnings driven by segmentation of the wage-labor market (i.e. labor market rigidities) or by differences in endowments, or both? In an effort to address this question, we estimated separate earnings functions for wage earners in the public, private formal and informal. The distributions of these earnings are illustrated in Figure 4.4, and the differences among in the estimated coefficients are reported in Table 5.18 to test for labor market rigidities. The basis for this test is that, with flexible and functioning labor markets, labor will be allocated across sectors in such a way as to equalize wages across these sectors. In other words, similar workers should be expected to receive similar wages for comparable types of jobs – the estimated coefficients should be the same – in the absence of rigidities.[57]

Except for secondary levels of education, the estimated coefficients are similar for workers in the public and private formal sectors.[58] While the returns to lower secondary education are 46 percent for public sector workers, they are 'only' 21 percent for formal sector wage employees. Similarly, the returns to upper secondary education are 53 percent for public sector workers compared to 27 percent for those in the formal sector. The differences in these returns are both significant at the 10 percent level. Using simulated earnings of public sector workers in which the returns to education were no different than those of private formal sector workers, we find that 30 percent of the difference in earnings between these two sectors is due to the difference in returns education. Interestingly, the intercepts in the regressions (i.e. constants) are not statistically different. As such, we can infer that 70 percent of the differences in earnings for public and private formal sector workers are due to differences in endowments such as education and experience.

As with the public-formal sector comparisons, there is little systematic difference between the estimated coefficients in the private formal and informal sector models. The only difference is that women's earnings are 14 percentage points lower on average than men's earnings in the informal sector than in the formal sector. Simulations indicate that 10 percent of the difference in median earnings is due to this gender difference in returns. Figure 5.1 illustrates how the gender differences in earnings distributions are much greater among the those employed in the informal sector than in the formal sector. From the earnings estimates in Table 5.18, we see that women who are otherwise similar to mean earn 40 percent less than men in the informal sector, compared to 26 percent less in the formal sector. Separate estimates of earnings functions for men and women by formality status (not shown here) further indicate that the differences in earnings cannot be explained by differences in returns to experience or education. In addition, simulations indicate that the large differences in the constant terms for both the formal and

[56] It is possible that not all of the experience differences are captured in these models since experience is proxied by age and educational attainment. Our measure does not account for absences from work due to maternity leave.

[57] Funkhouser (1998) points out that the allocation of workers across sectors is determined by the marginal worker, not the mean worker. In other words, those workers who switch sectors are not necessarily the average worker. Thus these workers compare the earnings they give up to the earnings that they will receive if they switch. Since these changes are made at the margin, the appropriate comparisons are marginal earnings, not average earnings. Our analysis, along with those of others (e.g. Dickens and Lang, 1985), is admittedly based on the average worker. The direction of the bias in the estimates is not clear *a priori*.

[58] To be more precise, they are not statistically different.

informal sector (similar to Table 5.16) account for more than the total difference in observed earnings between men and women in each of these wage sectors. As suggested earlier, these models are consistent that there is an unobserved form of gender discrimination in the private wage sector.

6. CONCLUDING REMARKS

In this report we use the 2001 and 2005 nationally representative household survey data (EPM) to better understand the employment and earnings conditions in Madagascar that are essential to understanding poverty. In doing so, we adopt a broad definition of labor markets that includes self-employment.

The key messages coming out of this analysis are the following:

First, workforce participation (85.8 percent) is high and unemployment is low (2.6 percent) in Madagascar. Given high poverty rates and low earnings, policy issues thus revolve around creating *good* jobs rather than job creation in general.

Second, although overall unemployment is low, urban unemployment may be problematic. While Glick (1999) found that unemployment in 1993 was a serious problem among the young in urban areas, the 2005 data suggest that it has become more of a problem among more mature groups in urban areas (17.4 percent of those between the ages of 51 and 64 living in urban areas were unemployed) who primarily lost high skilled wage jobs. Nonetheless, nearly a quarter of young urban residents (21-30) with post secondary education are unemployed.

Third, the primary sector is by far the dominant sector in terms of employment (80.1 percent). Labor earnings in this sector, however, are lower than in other sectors. Median monthly earnings for non-wage primary sector workers were Ar 31,000 thousand in 2005, compared to Ar 52,000 for non-wage workers in industry and services. Similarly, wage workers in the primary sector earned Ar 39,000 per month, while wage workers in the other sectors earned Ar 85,000 or more. Over one third of workers in the primary sector do not earn enough to keep themselves out of poverty, much less their families.

Fourth, there has been an overall shift of labor out of industry and services into primary activities. This shift, however, is largely a result of employment changes among the non-poor. For example, the percent of non-poor employed in agriculture rose from 38.2 percent in 2001 to 62.5 percent in 2005. The poor, whose labor incomes have increased, now receive a larger share of their labor income from service sector employment. Employment in services among the poor rose from 8.6 percent to 11.3 percent and was driven by jobs in public works and commerce.

Fifth, more than half of the workforce has no formal education. This Over 60 percent of formal sector firms in a recent survey consider this to be an impediment to their growth. Further, three quarters of current entrants into the workforce are uneducated.

Sixth, although investment in education improves access to “good” jobs, returns to education were lower in 2005 than in 2001. Econometric choice models indicate that those with more education are less likely to be employed in low paying agricultural jobs. In addition, for those in the higher paying non-agricultural wage sector, there are substantial gains to education. For example the earnings premium for primary education is 23 percent. It is 69 percent for upper

secondary education. The returns to education fell between 2005 and 2001, though this was mostly the case for agricultural workers.

Seventh, as noted by Glick (1999) for 1993, children's labor may be detrimental to their education as employment diverts time away from schooling. Nonetheless, there have been improvements. Child labor rates have fallen by 23 percent to 18.8 percent, and more children who are working also attend school (46 percent).

Eight, although women now make up half of the workforce, men have greater access to higher paying jobs. Men and women have similar non-wage agricultural earnings, but men to fare better than women on average in terms of earnings in every other higher paying employment category. Further, women tend to be employed more in agriculture and the informal sector where earnings are relatively low, while men tend to be employed more n the formal sector where earnings are relatively high.

Finally, the data do not provide evidence of segmentation between the private formal and informal wage sectors. Differences in earnings between those employed in the private formal and informal sectors appear to be driven by differences in endowments, not by differences in returns to education and experience. The exception is that the gap between men's earnings (higher) and women's earnings (lower) is larger in the informal sector than in the formal sector. There does appear to be segmentation between the private and public sectors as there are higher returns to education in the latter.

REFERENCES

Almeyda-Duran, Regina. 2005. "Proximate Literacy, Inter and Intrahousehold Externalities and Child Health Outcomes: Evidence from India." Mimeo. Columbia University: New York, NY.

Basu, Kaushik, Ambar Narayan, and Martin Ravallion. 2002. "Is Literacy Shared Between Households?" *Labour Economics* 8: 649-665.

Basu, Kaushik, and James Foster. 1998. "On Measuring Literacy." *Economic Journal* 108: 1733-1749.

Behrman, Jere. 1999. "Labor Markets in Developing Countries." In Ashenfelter, Orley, and David Card, eds., *Handbook of Labor Economics, Vol. 3*. Elsevier Science: London.

Bourguignon, Francois, M. Fournier, and M. Gurgand. 2007. "Selection Bias Corrections Based on the Multinomial Logit Model: Monte Carlo Comparisons." *Journal of Economic Surveys* 21(1): 174-205.

Dickens, William, and Kevin Lang. 1985. "A Test of the Dual Labor Market Theory." *American Economic Review* 75(4): 792-805.

Edmonds, Eric. 2007. "Child Labor." National Bureau of Economic Research (NBER) Working Paper No. 12926. NBER: Cambridge, MA.

Fafchamps, Marcel, and Christine Moser. 2003. "Crime, Isolation and Law Enforcement." *Journal of African Economies* 12(4): 625-671.

Fallon, Peter, and Zafiris Tzannatos. 1998. "Child Labor: Issues and Directions for the World Bank." World Bank: Washington, DC.

Funkhouser, Edward. 1998. "Tests of Labor Market Rigidities and the Roy Model." *Economic Letters* 61: 243-250.

Glick, Peter. 1999. "Patterns of Employment and Earnings in Madagascar." Cornell Food and Nutrition Policy Program (CFNPP) Working Paper No. XX. Cornell University: Ithaca, NY.

Heckman, James. 1979. "Sample Selection Bias as a Specification Error." *Econometrica* 47: 153-161.

Hoftijzer, Margo, and David Stifel. 2007. "Exploring the Role of Employment and Earnings in Poverty Reduction: The Case of Madagascar." A paper presented to the 2007 World Bank Economists' Forum, Washington, DC.

INSTAT. 2006. *Enquête Periodique auprès des Ménages: Rapport Principal.* INSTAT: Antananarivo, Madagascar.

Jørgensen, Steen Lau, and Julie Van Domelen. 1999. "Helping the Poor Manage Risk Better: The Role of Social Funds." A paper presented to the IADB Conference on Social Protection and Poverty, Washington, DC.

Kakwani, Nanak, Marcelo Côrtes Neri, and Hyun Son. 2006. "Linkages between Growth, Poverty and the Labour Market." Economics Working Papers No. 634, Getulio Vargas Foundation: Brazil.

Lachaud, Jean-Pierre. 2006. "Pauvreté, Marché du Travail et Croissance Pro-Pauvres à Madagascar." International Labor Organization. Geneva.

Lee, L. 1983. "Generalized Econometric Models with Selectivity." *Econometrica* 51: 507-512.

Lewis, Arthur. 1954. "Economic Development With Unlimited Supplies of Labor." *Manchester School of Economics and Social Studies* 22: 139-191.

Nelson, Richard, and Edmund Phelps. 1966. "Investment in Humans, Technological Diffusion, and Economic Growth." *American Economic Review, Papers and Proceedings* 56(1/2): 69-75.

Quisumbing, Agnes, and John Maluccio. 2000. "Intrahousehold Allocation and Gender Relations: New Empirical Evidence from Four Developing Countries."

Sahn, David, and David Stifel. 2002. "Parental Preferences for Nutrition of Boys and Girls: Evidence from Africa." *Journal of Development Studies* 39(1): 21-45.

Sen, Amartya. 1966. "Peasants and Dualism With and Without Surplus Labor." *Journal of Political Economy* 74: 425-450.

Ranis, Gustav, and John Fei. 1961. "A Theory of Economic Development." *American Economic Review* 11: 357-382.

Sarr, Leopold. 2004. "The Impact of Family Literacy on the Earnings of Illiterates: Evidence from Senegal." Cornell Food and Nutrition Policy Program (CFNPP) Working Paper No. 159. Cornell University: Ithaca, NY.

Schultz, Theodore W. 1975. "The Value of the Ability to Deal with Disequilibria." *Journal of Economic Literature* 13: 827-846.

Singh, Inderjit, Lyn Squire, and John Strauss, eds. 1986. *Agricultural Household Models: Extensions, Applications and Policy*. Johns Hopkins University Press: Baltimore, MD.

Scott, Christopher and Ben Amenuvegbe. 1990 "Effect of Recall Duration on Reporting of Household Expenditures: An Experimental Study in Ghana" Social Dimensions of Adjustment in Sub-Saharan Africa Working Paper 6, Washington DC: World Bank.

Stifel, David, Bart Minten, and Paul Dorosh. 2003. "Transactions Costs and Agricultural Productivity: Implications of Isolation for Rural Poverty in Madagascar." Markets and Structural Studies Division (MSSD) Discussion Paper No. 56. International Food Policy Research Institute (IFPRI): Washington, DC.

Udry, Christopher. 2004. "Child Labor." Mimeo. Yale University: New Haven, CT.

Valenti, Paola. 2001. "Should We Be Concerned About the Distribution of Literacy Across Households? An Axiomatic Investigation." Mimeo. Cornell University: Ithaca, NY.

World Bank. 1990. *World Development Report.* World Bank: Washington, DC.

APPENDIX 1: DATA COMPARABILITY ISSUES

This study is based primarily on an analysis of the 2001 and 2005 *Enquête Periodique auprès des Ménages* (EPM). The EPM are nationally representative integrated household surveys of 5,080 and 11,781 households in 2001 and 2005, respectively. The data were collected in single rounds during the months of September through December. The multi-purpose questionnaires include sections on education, health, housing, agriculture, household expenditure, assets, non-farm enterprises and employment. Employment and earnings information are available in the employment, non-farm enterprise and agriculture sections. For a measure of household well-being, in this analysis we use the estimated household-level consumption aggregate constructed by the Institut National de la Statistique (INSTAT).

The following are issues encountered in assuring comparability of the indicators used.

1. *Sampling*: 13 strata in 2001, 45 strata in 2005. Sampling weights should make the appropriate adjustments for comparability of summary statistics.

   Affected the number of sampling units in the large urban centers. The effect is that, while the sample is representative of large urban centers at the national level, it is not so at the province level. Because of this issue, for example, the data suggest that the population in the city of Antsiranana fell by half.

2. *Education*: 2001 has a filter question – "Have you gone to school?" – while the first question in 2005 is "Can you read?". Note: INSTAT uses literacy questions to classify individuals as having primary education in the 2005 data. Cannot do this with the 2001 data. Consequently, we see a large increase in primary education and a huge drop in "no education" in the INSTAT reports.

3. *Deflation*: Regional deflators for 2005 had to be adjusted to account for the differing number of strata. Instead of using the regional deflator supplied by INSTAT which had different values for the 45 strata, we took the weighted average of these deflators within the 13 strata used in 2001. Thus regional deflation was comparable across the surveys at 13 strata each.

   Note on temporal deflation: We use the ratio of the poverty lines (Ar 305,300 in 2005 and Ar 197,720 in 2001) to inflate the 2001 monetary values to 2005 Ariary.

4. *Employment*:

   a. Labor force definition – In 2005, "toujours" was added to the list of responses to the question "When did you look for a job?"

   b. Temporary/Seasonal employment – The number of months for such work was available in 2001, but not in 2005. This does not affect the estimates of monthly earnings for wage & salaried workers (earnings are provided in months). It does however affect…

      i. Low earnings estimates for wage & salaried workers, because an individual is determined to have low earnings if his/her annual labor earnings fall below the poverty line.

ii. Estimates of agricultural earnings, because agricultural earnings are calculated as the residual between household consumption and the sum of non-farm enterprise earnings, fishery earnings, net transfers and wage earnings, all divided by the number of household members who report agriculture as their primary or secondary form of employment. As these are all in annual terms, the annual wage earnings for temporary workers (months times monthly earnings) must be subtracted from household consumption.

This is addressed by taking the average number of months estimated using the 2001 data to determine annual earnings for temporary employees in both the 2001 and 2005 data.

6. *Non-farm enterprise earnings*: The 2005 survey asks for profits net of taxes (it also asks a separate question about the magnitude of these taxes), whereas the 2001 does not specifically state that profits should be net of taxes. We used the question on total taxes to subtract taxes from the NFE earnings in the 2001 data.

   Further, the recall period for non-farm enterprise earnings in the 2001 survey was one month, whereas it was one year in the 2005 survey. Although we scale down the 2005 earnings by the number of months of operation to make them comparable to those in the 2001 survey, there are still likely to be comparability issues. For example, the literature on household expenditure indicates that the longer the recall period, the more expenditures are under-reported (Scott and Amenuvegbe, 1990). Similar factors may explain some of the fall in NFE reported earnings between 2001 and 2005.

7. *Multiple job*: Both surveys only collect information on the primary and secondary income earning activities. Analysis of the 2004 EPM indicates that 97 percent of the employed have at most two jobs. Thus the 2001 and 2005 surveys do not capture full information on employment for three percent of the workforce who hold three or more jobs in one year.

8. *Revenues for non-wage workers from fishing activities*: Revenues from fishing activities are reported in Section 6 (non farm enterprise) of the 2001 EPM. These are calculated as the sum of wages paid to household members, profits and auto consumption, less taxes. For 2005, revenues from fishing are reported in Section 12e (Fisheries) and are calculated as revenues from fish sold plus autoconsumption. A question concerning the cost of inputs is included in the questionnaire but the answer is not included in the dataset. As such, revenues from fishing activities are not comparable between the two years. Nonetheless, those employed in this sector represent about 1% of non-wage workers in both 2001 and 2005.

9. *Formality status of secondary job using the 2001 data:* The questions on formality status (pension and social security) for the second job are missing in the 2001 EPM. We proceed by assuming that the second job is informal for 2001. We believe this to be a reasonable assumption given that 98.3% of second jobs in the 2005 data were informal. Only Table 8.24 (Sources of Household Income) is affected by this assumption. Indeed, the statistics on formality status are not affected because they are calculated based just on only the primary job.

APPENDIX 2: DEFINITIONS OF VARIABLES

	2005	2001
Employed	Worked at least 1 hour in the past week or have a permanent job	Worked at least 1 hour or having done an *income generating activity* in the past week or have a permanent job
Unemployed	In the labor force without a job	In the labor force without a job
Unemployment rate	Unemployed/labor force	Unemployed/labor force
Employment -to-population ratio	Employed/working age population	Employed/working age population
Child labor	Child labor: the child (aged 6-14) is considered employed (as defined above) Child labor2: the child is employed or he spend at least 28hours per week on domestic work	Child labor: the child (aged 6-14) is considered employed (as defined above) *No information on hours spent on domestic work*
Labor force	working age (15-64) individual employed or unemployed actively looking for a job (search for job in the past month)	working age (15-64) individual employed or unemployed actively looking for a job (search for job in the past month)
Broad labor force	Labor force + discouraged people (those who are no more looking for a job due to discouragement)	Labor force + discouraged people (those who are no more looking for a job due to discouragement)
Broad Unemployment	In the broad labor force without a job	In the broad labor force without a job
Employment categories- Wage vs. Non Wage	The worker declare being salaried or not in the question asking his situation	The worker declare being salaried or not in the question asking his situation
Employment categories- Wage - Self Employed - Household enterprise	wage workers: the worker declare being salaried in the question asking his situation self employed: the worker reside in a household without other self employed or unpaid family workers HE workers: working age unpaid family worker or self employed residing in a household with at least one (other) self employed or unpaid family worker	wage workers: the worker declare being salaried in the question asking his situation self employed: the worker reside in a household without other self employed or unpaid family workers HE workers: working age unpaid family worker or self employed residing in a household with at least one (other) self employed or unpaid family worker

	2005	2001
Monthly earnings	Monthly wage for primary activity (adult_monthly_wage) and for secondary activity (adult_monthly_wage2): >Salaried workers: hourly wage declared by the interviewed multiplied hours per month and deflated regionally (rural/urban faritany deflator) > Workers in non farm enterprise (self empl. & household workers): annual non farm enterprise income: wages, profit & autoconsumption net of taxes/number of adults working in the nfe/months of activity of the nfe - Deflated regionally > Workers in agriculture(self empl. & household workers): agric. Income residual (hh expenditure - wages perceived by hh members - nfe earnings(including fishery) - transfer net)/ number of adults working in the farm/ 12 - deflated regionally The revenues from fishery come from section 12 (agriculture, husbandry and fishery production)	Monthly wage for primary activity (adult_monthly_wage) and for secondary activity (adult_monthly_wage2): >Salaried workers: hourly wage declared by the interviewed multiplied hours per month and deflated regionally (rural/urban faritany deflator) >Workers in non farm enterprise (self empl. & household workers): annual non farm enterprise income-wages, profit & autoconsumption net of taxes/number of adults working in the nfe/months of activity of the nfe - Deflated regionally >Workers in agriculture(self empl. & household workers): agric. Income residual (hh expenditure - wages perceived by hh members - nfe earnings(including fishery) - transfer net)/ number of adults working in the farm/ 12 - deflated regionally The revenues from fishery come from section 6(non farm enterprise) *Earnings are divided by 5 to convert from Malagasy Francs to Ariary, and then by 0.6476 (19, 720/305,300) to adjust to 2005 prices*
Regional deflator	The regional deflator included in the dataset is computed at the rural/urban regional level (22 region). The deflator used for the earnings is the mean of the regional deflator at the level of province (rural/urban) to make it consistent with the deflator used for 2001.	Rural/urban deflator at province level
NFE earnings	For household that report having more than one nfe activity the earnings are computed as the sum of the different activities.	For household that report having more than one nfe activity the earnings are computed as the sum of the different activities.

	2005	2001
Low earners	Individual earnings below the official national poverty line 305,300 MGA. The yearly earnings for wage workers is computed according to the assumption on seasonal permanent workers (see below)	Individual earning below the official national poverty line *988,600FMG (197,720 MGA*).The yearly earnings for wage workers is computed according to the assumption on seasonal permanent workers (see below)
Adjusted low earners	Individual earnings below the official national poverty line 305 300 MGA multiplied by a scaling factor (median lab.mkt dependency ratio in the economy, that is 2.5)	Individual earning below the official national poverty line *988 600FMG (197 720 MGA)* multiplied by a scaling factor (median lab.mkt dependency ratio in the economy, that is 2.5)
Poverty status (National Poverty Line)	Poor: Per capita expenditure<305,300 MGA	Poor: Per capita expenditure<988,600 FMG (197,720 MGA)
Permanent/ Temporary status	The assumption is that the temporary/seasonal workers works 7 months per year and the permanent 12 months (the information concerning how many months per year the worker is working is lacking for 2005)	The assumption is that the temporary/seasonal workers works 7 months per year and the permanent 12 months (the information concerning how many months per year the worker is working is however present in the 2001 dataset)
Formal & Protected job	Formal : Pension or Social Security Protected: Pension & Social Security & Paid Holidays	Formal : Pension or Social Security Protected: Pension & Social Security & Paid Holidays
Level of education1	without education: last class attended <=T3 (CE2) primary: class T4 (CM1)-T7 (cinquieme) secondary: T8(quatrieme)-T12(terminale) or professional training - without BAC Post secondary:T12 or professional training with BAC - university	without education: last class attended <=T3 (CE2) primary: class T4 (CM1)-T7 (cinquieme) secondary: T8(quatrieme)-T12(terminale) - without BAC Post secondary:T12 with BAC - university
Level of education2	without education: last class attended <=T3 (CE2) primary: class T4 (CM1)-T7 (cinquieme) Low secondary: T8-T9 without CEPE Upper secondary: T10-T12 or professional training without BAC Post secondary:T12 or professional training with BAC - university	without education: last class attended <=T3 (CE2) primary: class T4 (CM1)-T7 (cinquieme) Low secondary: T8-T9 without CEPE Upper secondary: T10-T12 without BAC Post secondary:T12 with BAC - university

	2005	2001
Multiple jobs	Multiple job holders are those who answer to both sections on primary and secondary job. However those who report having a first and a second job in their own farm are not considered as multiple job workers since we consider the job in the farm as just one single job.	Multiple job holders are those who answer to both sections on primary and secondary job. However those who report having a first and a second job in their own farm are not considered as multiple job workers since we consider the job in the farm as just one single job.
Standard hours adjusted-hours earnings	Monthly earnings multiplied by the ratio of full time weekly hours (40 hours) to hours worked in the reference week. This variable is used to determine the share of low earners due to short hours.	Monthly earnings multiplied by the ratio of full time weekly hours (40 hours) to hours worked in the reference week. This variable is used to determine the share of low earners due to short hours.

Table 1: Basic labor market indicators for Madagascar, 2001-2005

Indicator	Level		Change	
	2005	2001	Absolute	Percent
Employment and unemployment				
Labor Force	88.1	83.5	4.6	6%
Employment-to-population ratio*	85.8	82.5	3.3	4%
Unemployment rate	2.6	1.2	1.4	113%
Child labor rate	18.8	24.3	-5.5	-23%
Women's Employment Rate	83.2	77.8	5.4	7%
Poverty rate among unemployed	42	44	-1.5	-3%
Wage and salaried workers				
Median monthly earnings**	71.5	88.1	-16.6	-19%
Earnings inequality (Gini)	0.45	0.49	0.0	-9%
Low earnings rate***	18.6	15.8	2.9	18%
Poverty rate	47	33	14.0	42%
Non Wage workers				
Median monthly earnings**	32.2	25.3	6.9	27%
Earnings inequality (Gini)	0.47	0.61	-0.1	-23%
Low earnings rate***	36.6	50.9	-14.3	-28%
Poverty rate	69	77	-8.3	-11%
All workers				
Median monthly earnings**	35.3	30.8	4.5	15%
Earnings inequality (Gini)	0.50	0.62	-0.1	-19%
Low earnings rate***	33.8	44.1	-10.3	-23%
Poverty rate	65	69	-4.0	-6%

* The individual is employed if he has a permenent job or he has worked at least one hour in the week prior to the survey

** Earnings levels for 2001 are expressed in thousands of MGA and divided by 0.6476 (= 197,720 / 305,300 = 2001 poverty line / 2005 poverty line) in order to make comparison between 2005 and 2001

*** Low earnings line: Official national poverty line 305,300 MGA per year for 2005

Table 2: Hierarchical decomposition of the labor market

Tier	Level (millions)		Change		Hierarchical rates		Change
	2005	2001	(millions)	(in percent)	2005	2001	(%points)
A. Total working population (6+)	**14.44**	**12.84**	**1.60**	**12.5%**	**100%**	**100%**	
B. Child population (6-14)	**4.78**	**3.85**	**0.94**	**24.3%**	**33.1%**	**30.0%**	**3.1%**
B1. Child laborers	0.90	0.93	-0.03	-3.6%	18.8%	24.2%	-5.4%
C. Elderly population (65+)	**0.49**	**0.42**	**0.07**	**16.4%**	**3.4%**	**3.3%**	**0.1%**
C1. Employed	0.31	0.26	0.05	20.8%	63.7%	61.3%	2.4%
D. Working age population (15-64)	**9.17**	**8.57**	**0.60**	**7.0%**	**63.5%**	**66.8%**	**-3.3%**
D1. Inactive	1.09	1.41	-0.32	-22.8%	11.9%	16.5%	-4.6%
a) Discouraged	*0.07*	*0.11*	*-0.05*	*-40.9%*	*6.1%*	*7.9%*	*-1.9%*
D2. Active	8.08	7.15	0.92	12.9%	88.1%	83.5%	4.6%
b) Unemployed	*0.21*	*0.09*	*0.12*	*140.8%*	*2.6%*	*1.2%*	*1.4%*
c)Employed	*7.87*	*7.07*	*0.80*	*11.3%*	*97.4%*	*98.8%*	*-1.4%*
c1) Wage and Salaried	1.17	1.29	-0.12	-9.2%	14.9%	18.3%	-3.4%
i) with low earnings	*0.22*	*0.20*	*0.02*	*7.5%*	*18.6%*	*15.7%*	*2.9%*
i) Management	*0.12*	*0.22*	*-0.10*	*-45.7%*	*10.1%*	*17.0%*	*-6.8%*
ii) Skilled worker	*0.41*	*0.41*	*0.00*	*-0.4%*	*34.8%*	*31.7%*	*3.1%*
iii) Unskilled worker	*0.65*	*0.66*	*-0.02*	*-2.6%*	*55.1%*	*51.4%*	*3.7%*
c2) Non Wage Employed	6.69	5.77	0.92	15.9%	85.1%	81.7%	3.4%
ii) with low earnings	*2.33*	*2.70*	*-0.37*	*-13.7%*	*34.4%*	*46.6%*	*-12.2%*
c1.1) Primary	6.30	5.19	1.11	21.3%	80.1%	73.8%	6.2%
c2.1) Industry	0.20	0.48	-0.28	-58.8%	2.5%	6.8%	-4.3%
c3.1) Services	1.37	1.36	0.01	0.8%	17.4%	19.3%	-1.9%

Table 3.1: Employment* - Working age population

Group	Employment-to-population ratio			Group share among employed		
	Level			Level		
	2005 (in%)	2001 (in%)	Change (in %points)	2005 (in%)	2001 (in%)	Change (in %points)
National	***85.8***	***82.5***	***3.3***	***100.0***	***100.0***	***100.0***
Gender						
Female	83.2	77.8	5.4	50.0	48.8	1.2
Male	88.6	87.5	1.1	50.0	51.2	-1.2
Province						
Antananarivo	84.0	75.3	8.7	30.3	27.9	2.4
Fianarantsoa	88.2	86.2	2.0	23.9	22.1	1.7
Toamasina	84.6	84.2	0.4	15.0	16.9	-1.9
Mahajanga	87.3	84.7	2.6	11.3	11.2	0.2
Toliara	87.4	87.5	-0.1	14.1	14.5	-0.4
Antsiranana	81.9	84.8	-3.0	5.3	7.4	-2.1
Urban	***72.3***	***65.9***	***6.4***	***20.1***	***19.8***	***0.3***
Gender						
Female	65.3	57.2	8.1	47.4	47.1	0.2
Male	80.0	76.3	3.7	52.7	52.9	-0.2
Province						
Antananarivo	70.5	63.9	6.6	41.9	38.6	3.3
Fianarantsoa	76.2	71.0	5.2	18.1	15.9	2.2
Toamasina	69.3	64.1	5.2	12.4	14.8	-2.4
Mahajanga	74.4	67.9	6.4	11.4	10.2	1.1
Toliara	77.0	71.8	5.2	12.7	14.9	-2.2
Antsiranana	64.0	55.4	8.6	3.4	5.5	-2.1
Rural	***90.0***	***87.9***	***2.1***	***80.0***	***80.3***	***-0.3***
Gender						
Female	88.9	85.0	3.8	50.7	49.2	1.5
Male	91.2	90.9	0.3	49.3	50.8	-1.5
Province						
Antananarivo	90.7	80.7	9.9	27.4	25.3	2.2
Fianarantsoa	90.7	89.4	1.3	25.3	23.7	1.6
Toamasina	88.5	90.1	-1.7	15.6	17.4	-1.7
Mahajanga	91.3	89.7	1.7	11.3	11.4	-0.1
Toliara	90.1	92.7	-2.6	14.5	14.4	0.1
Antsiranana	85.4	93.3	-7.9	5.8	7.9	-2.1

* The individual is employed if he has a permenent job or he has worked at least one hour in the week prior to the survey

Table 3.2: Distribution of Employed Workers by Sector of Activity

	Total			Female			Male		
	2005 (%)	2001 (%)	Change (%-points)	2005 (%)	2001 (%)	Change (%-points)	2005 (%)	2001 (%)	Change (%-points)
Total	100.0	100.0	~	100.0	100.0	~	100.0	100.0	~
National									
Primary	80.1	73.8	6.2	81.0	75.7	5.3	79.1	72.1	7.0
Industry	2.5	6.8	-4.3	1.7	5.8	-4.0	3.3	7.9	-4.6
Service	17.4	19.3	-1.9	17.2	18.5	-1.3	17.6	20.1	-2.5
Large Urban									
Primary	5.7	19.8	-14.1	7.2	19.6	-12.3	4.6	20.0	-15.4
Industry	14.9	23.9	-9.0	11.9	21.2	-9.3	17.2	26.0	-8.9
Service	79.4	56.3	23.1	80.9	59.2	21.7	78.3	54.0	24.3
Secondary Urban									
Primary	72.6	52.2	20.4	72.7	54.2	18.5	72.5	50.3	22.2
Industry	3.0	9.0	-6.0	1.6	6.3	-4.7	4.4	11.6	-7.2
Service	24.4	38.8	-14.3	25.7	39.5	-13.8	23.1	38.1	-14.9
Rural									
Primary	88.8	82.8	6.0	88.8	84.3	4.4	88.9	81.4	7.5
Industry	1.2	4.6	-3.4	0.9	4.1	-3.2	1.5	5.1	-3.6
Service	10.0	12.6	-2.6	10.4	11.6	-1.2	9.6	13.5	-3.9
Share of GDP									
Primary	34.3	34.0	0.3						
Industry	12.7	13.4	-0.7						
Service	53.0	52.6	0.4						

Table 3.3: Number* of Employed by Sector and Age Cohorts (2001 Age)

	2005				2001				Average Annual Increase			
	Primary	Industry	Service	*Total*	Primary	Industry	Service	*Total*	Primary	Industry	Service	*Total*
Working Age Adults	**6,298**	**198**	**1,369**	***7,865***	**5,195**	**480**	**1,359**	***7,035***	**275.7**	**-70.7**	**2.6**	***207.6***
Large Urban	37	96	512	*645*	127	154	363	*644*	-22.6	-14.5	37.3	*0.2*
Secondary Urban	676	28	228	*932*	385	67	286	*737*	72.9	-9.6	-14.5	*48.7*
Rural	5,585	74	629	*6,288*	4,683	260	710	*5,654*	225.4	-46.6	-20.2	*158.6*
Age 15-64 in 2001**	**5,566**	**193**	**1,301**	***7,059***	**5,191**	**480**	**1,359**	***7,030***	**93.7**	**-71.9**	**-14.4**	***7.3***
Female	2,799	67	635	3,501	2,589	197	634	3,420	52.6	-32.6	0.3	*20.2*
Male	2,766	126	666	3,558	2,602	283	725	3,610	41.2	-39.3	-14.8	*-12.9*
Age in 2001												
15-19	965	22	160	*1,147*	896	40	112	*1,048*	17.2	-4.5	12.1	*24.8*
20-24	908	46	200	*1,154*	871	70	179	*1,121*	9.3	-6.2	5.3	*8.4*
25-29	828	35	191	*1,053*	702	76	215	*994*	31.4	-10.4	-6.1	*14.9*
30-34	704	23	175	*902*	624	71	195	*889*	20.0	-11.9	-4.8	*3.3*
35-39	609	26	178	*813*	525	84	175	*784*	21.0	-14.4	0.7	*7.3*
40-44	525	21	152	*698*	482	58	175	*714*	10.8	-9.2	-5.6	*-4.0*
45-49	472	9	111	*593*	434	35	134	*603*	9.4	-6.3	-5.6	*-2.5*
50-54	258	6	76	*340*	346	25	95	*466*	-22.0	-4.6	-5.0	*-31.6*
55-59	170	3	34	*207*	163	11	52	*226*	1.7	-1.9	-4.6	*-4.8*
60-64	127	0	23	*150*	147	11	27	*185*	-5.1	-2.6	-0.8	*-8.5*
Female - Age in 2001												
15-19	490	10	85	*585*	443	17	71	*531*	11.8	-1.8	3.4	*13.4*
20-24	494	18	102	*614*	438	36	89	*563*	14.2	-4.7	3.4	*12.9*
25-29	425	10	94	*529*	359	32	103	*494*	16.3	-5.3	-2.1	*8.9*
30-34	360	10	85	*455*	319	32	92	*444*	10.2	-5.5	-1.7	*2.9*
35-39	303	8	83	*395*	265	30	79	*375*	9.5	-5.5	1.0	*5.0*
40-44	262	6	67	*336*	247	22	71	*340*	3.8	-4.0	-0.9	*-1.0*
45-49	226	2	49	*277*	215	13	57	*286*	2.8	-2.9	-2.1	*-2.2*
50-54	114	2	41	*157*	166	5	38	*208*	-12.8	-0.7	0.8	*-12.8*
55-59	84	1	15	*99*	67	4	19	*90*	4.2	-0.9	-1.0	*2.3*
60-64	40	0	12	*52*	70	5	14	*89*	-7.4	-1.3	-0.5	*-9.2*
Male - Age in 2001												
15-19	475	13	75	*562*	453	24	40	*517*	5.4	-2.7	8.7	*11.4*
20-24	414	28	98	*540*	433	34	91	*558*	-4.9	-1.5	1.9	*-4.5*
25-29	403	24	96	*524*	343	45	113	*500*	15.0	-5.0	-4.1	*6.0*
30-34	344	14	90	*447*	304	39	102	*446*	9.9	-6.4	-3.1	*0.4*
35-39	306	18	95	*419*	260	54	96	*410*	11.5	-8.9	-0.3	*2.3*
40-44	262	15	85	*362*	235	36	104	*374*	7.0	-5.2	-4.7	*-2.9*
45-49	246	8	62	*315*	219	21	76	*316*	6.7	-3.4	-3.5	*-0.3*
50-54	144	4	35	*183*	181	19	58	*258*	-9.2	-3.9	-5.8	*-18.9*
55-59	86	3	19	*108*	96	7	33	*136*	-2.5	-1.0	-3.6	*-7.0*
60-64	86	0	11	*98*	77	6	12	*95*	2.3	-1.3	-0.3	*0.7*

* Thousands of individuals

** Those who were 15-64 in 2001 (i.e. 19-68 in 2005)

Table 3.4: Employment by Disaggregated Sector of Economic Activity

				Poverty Status					
				2005		2001		*Change (%-point)*	
	2005	2001	*Change (%-point)*	Non-Poor	Poor	Non-Poor	Poor	*Non-Poor*	*Poor*
Primary	**80.1**	**73.8**	***6.2***	**66.3**	**87.5**	**41.7**	**88.0**	***24.6***	***-0.5***
Agriculture	77.7	69.7	*8.0*	62.5	85.8	38.2	83.5	*24.3*	*2.3*
Livestock & Fisheries	2.0	3.1	*-1.1*	3.3	1.4	2.5	3.4	*0.8*	*-2.0*
Forest products	0.2	0.3	*-0.1*	0.2	0.1	0.3	0.3	*-0.1*	*-0.1*
Industry	**2.5**	**6.8**	***-4.3***	**4.9**	**1.2**	**13.8**	**3.1**	***-8.9***	***-2.0***
Textiles & leather	0.9	2.5	*-1.6*	2.3	0.1	5.6	1.1	*-3.4*	*-1.0*
Construction Material	0.4	0.8	*-0.4*	0.5	0.3	1.9	0.3	*-1.3*	*0.0*
Wood products	0.3	0.9	*-0.6*	0.5	0.2	2.0	0.4	*-1.5*	*-0.2*
Extractives	0.2	0.3	*-0.1*	0.3	0.2	0.4	0.3	*-0.1*	*-0.1*
Food & Beverage	0.2	0.5	*-0.3*	0.3	0.1	1.1	0.3	*-0.8*	*-0.1*
Energy	0.2	1.1	*-1.0*	0.4	0.0	2.2	0.6	*-1.8*	*-0.6*
Agro-industries	0.1	0.5	*-0.4*	0.1	0.1	0.9	0.3	*-0.8*	*-0.2*
Services	**17.4**	**19.3**	***-1.9***	**28.8**	**11.3**	**43.6**	**8.6**	***-14.9***	***2.6***
Commerce	5.4	6.3	*-0.9*	9.2	3.4	13.4	3.2	*-4.2*	*0.3*
Public Administration	2.4	2.9	*-0.5*	5.1	1.0	7.1	1.1	*-2.0*	*-0.1*
Public Works (BTP)	1.3	0.6	*0.7*	1.8	1.1	1.1	0.4	*0.7*	*0.7*
Transportation	0.9	1.8	*-0.9*	1.9	0.4	4.3	0.7	*-2.4*	*-0.3*
Hotels & Restauraunts	0.8	1.2	*-0.5*	1.8	0.2	2.8	0.5	*-1.0*	*-0.3*
Private education	0.5	1.0	*-0.4*	0.9	0.4	2.3	0.4	*-1.4*	*0.0*
Private security	0.4	0.4	*-0.1*	0.4	0.3	0.9	0.2	*-0.5*	*0.1*
Private health	0.1	0.2	*-0.1*	0.3	0.0	0.5	0.1	*-0.2*	*0.0*
Telecommunications	0.1	0.2	*-0.1*	0.3	0.0	0.7	0.0	*-0.5*	*0.0*
Banking & insurance	0.1	0.1	*0.0*	0.1	0.0	0.2	0.0	*-0.1*	*0.0*

Note: Sorted by employment importance in 2005

Table 3.5: Crops Produced by (Non-Wage) Agricultural Labor*

		Rice	Grains	Tubers	Beans	Legumes	Fruit	Cash crops**
National								
	2005	85.9	36.0	75.3	44.1	26.5	18.4	21.1
	2001	83.5	28.6	63.8	22.9	7.6	10.8	24.4
	%-point Ch	*2.8*	*25.8*	*18.1*	*92.7*	*249.9*	*70.5*	*-13.3*
Non-Poor								
	2005	88.3	37.6	72.1	46.3	28.8	17.0	17.8
	2001	83.5	23.7	55.0	25.3	12.3	11.6	20.3
	% Change	*5.7*	*58.7*	*31.2*	*82.8*	*133.7*	*47.4*	*-12.5*
Poor								
	2005	84.9	35.3	76.6	43.2	25.5	19.0	22.5
	2001	83.5	29.6	65.7	22.4	6.6	10.7	25.2
	% Change	*1.7*	*19.3*	*16.7*	*93.1*	*288.4*	*78.3*	*-10.8*
Urban								
	2005	79.9	34.8	73.3	39.5	25.4	13.1	17.7
	2001	77.5	23.1	47.2	24.7	7.8	7.1	13.0
	% Change	*3.2*	*50.8*	*55.1*	*59.9*	*228.3*	*83.7*	*36.6*
Rural								
	2005	86.7	36.1	75.6	44.7	26.6	19.1	21.6
	2001	84.1	29.2	65.5	22.7	7.5	11.2	25.6
	% Change	*3.0*	*23.9*	*15.4*	*96.9*	*252.4*	*70.9*	*-15.6*

* Percent of working age adults (15-64) employed in agriculture whose household produces each crop

** "Cash crops" include vanilla, coffee, cloves, etc.

Table 3.6: Sector Shares of National Output

	1999	2000	2001	2002	2003	2004	2005	*Change 2005-2001*
Primary	**35.5**	**34.6**	**34.0**	**37.8**	**35.6**	**35.0**	**34.3**	***0.3***
Agriculture	16.0	15.1	15.1	17.1	16.4	16.1	16.1	*1.0*
Livestock & Fisheries	14.8	14.6	14.3	16.5	15.9	15.7	15.1	*0.9*
Forest products	4.8	4.8	4.7	4.2	3.3	3.2	3.0	*-1.6*
Industry	**12.7**	**13.1**	**13.4**	**11.9**	**12.7**	**12.9**	**12.7**	***-0.7***
Textiles & leather	0.4	0.4	0.4	0.2	0.2	0.2	0.2	*-0.1*
Construction Material	0.4	0.4	0.4	0.3	0.3	0.3	0.3	*-0.1*
Wood products	0.4	0.4	0.4	0.3	0.3	0.3	0.3	*0.0*
Extractives	0.1	0.3	0.3	0.2	0.2	0.2	0.2	*-0.1*
Food & Beverage	4.6	4.7	4.7	4.7	4.8	4.7	4.5	*-0.2*
Energy	2.2	2.2	2.0	1.5	1.6	1.6	1.5	*-0.4*
Agro-industries	0.5	0.4	0.4	0.4	0.3	0.3	0.3	*-0.1*
Services	**51.8**	**52.3**	**52.6**	**50.3**	**51.7**	**52.2**	**53.0**	***0.4***
Commerce	11.6	11.5	11.3	11.8	11.5	11.3	11.3	*-0.1*
Public Administration	5.2	5.0	4.8	5.6	5.5	5.3	5.2	*0.4*
Public Works (BTP)	1.8	1.9	2.1	2.0	2.4	2.9	3.3	*1.3*
Transportation	17.6	17.5	17.5	14.9	16.0	16.1	16.2	*-1.3*
Hotels & Restauraunts*								
Private education*								
Private security*								
Private health*								
Telecommunications	1.6	1.7	1.7	1.8	1.8	1.8	1.9	*0.1*
Banking & insurance	1.6	1.6	1.7	2.0	2.1	2.1	2.1	*0.4*

Source: National Accounts

Note: Sorted by employment importance in 2005

* Employment categories in the household surveys, but not available in the national accounts

Table 3.7: Employment Status - Wage vs. Non-wage

	Percent			Thousands		
	2005	2001	Change (% points)	2005	2001	Change
National						
Non-wage	85.1	81.7	3.4	6,691.6	5,778.3	913.3
Self-employment	*5.9*	*8.2*	*-2.3*	*459.9*	*576.3*	*-116.4*
Family	*79.2*	*73.6*	*5.7*	*6,231.7*	*5,202.0*	*1,029.7*
Wage	14.9	18.3	-3.4	1,173.6	1,292.6	-119.0
Agricultural	*3.1*	*2.3*	*0.8*	*242.7*	*159.4*	*83.3*
Non agricultural	*11.8*	*16.0*	*-4.2*	*931.0*	*1,133.2*	*-202.3*
Private	*12.1*	*14.3*	*-2.2*	*949.4*	*1,007.5*	*-58.1*
Public	*2.9*	*4.0*	*-1.2*	*224.2*	*285.1*	*-60.9*
Large Urban						
Non-wage	34.1	42.5	-8.4	220.1	277.5	-57.4
Self-employment	*12.3*	13.37	*-1.1*	*79.2*	*87.3*	*-8.1*
Family	*21.8*	29.13	*-7.3*	*140.9*	*190.2*	*-49.3*
Wage	65.9	57.5	8.4	425.1	375.2	49.8
Agricultural	*0.8*	*1.3*	*-0.5*	*5.3*	*8.7*	*-3.4*
Non agricultural	*65.1*	*56.2*	*8.9*	*419.8*	*366.5*	*53.2*
Private	*53.8*	*45.0*	*8.9*	*347.2*	*293.4*	*53.8*
Public	*12.1*	*12.5*	*-0.5*	*77.9*	*81.8*	*-4.0*
Secondary Urban						
Non-wage	83.0	69.8	13.2	773.3	518.5	254.8
Self-employment	*7.3*	*11.1*	*-3.8*	*67.8*	*82.3*	*-14.6*
Family	*75.7*	*58.7*	*17.0*	*705.5*	*436.2*	*269.3*
Wage	17.0	30.2	-13.2	158.5	224.6	-66.1
Agricultural	*2.5*	*2.2*	*0.3*	*23.0*	*16.5*	*6.5*
Non agricultural	*14.5*	*28.0*	*-13.5*	*135.5*	*208.1*	*-72.6*
Private	*12.4*	*20.9*	*-8.5*	*115.2*	*155.4*	*-40.2*
Public	*4.7*	*9.3*	*-4.7*	*43.3*	*69.2*	*-25.9*
Rural						
Non-wage	90.6	87.8	2.8	5,698.2	4,982.3	715.9
Self-employment	*5.0*	7.17	*-2.2*	*312.9*	*406.7*	*-93.8*
Family	*85.6*	80.63	*5.0*	*5,385.3*	*4,575.6*	*809.7*
Wage	9.4	12.2	-2.8	590.0	692.8	-102.8
Agricultural	*3.4*	*2.4*	*1.0*	*214.4*	*134.2*	*80.2*
Non agricultural	*6.0*	*9.9*	*-3.9*	*375.7*	*558.6*	*-182.9*
Private	*7.7*	*9.9*	*-2.1*	*487.0*	*558.7*	*-71.7*
Public	*1.6*	*2.4*	*-0.7*	*103.0*	*134.1*	*-31.1*
Female						
Non-wage	88.2	86.6	1.6	3,472.6	2,990.4	482.1
Self-employment	*6.8*	9.73	*-2.9*	*268.7*	*335.9*	*-67.2*
Family	*81.4*	76.91	*4.5*	*3,203.8*	*2,654.5*	*549.3*
Wage	11.8	13.4	-1.6	463.0	460.8	2.2
Agricultural	*3.1*	*2.1*	*0.9*	*120.2*	*72.7*	*47.5*
Non agricultural	*8.7*	*11.3*	*-2.6*	*342.8*	*388.1*	*-45.3*
Private	*9.9*	*11.0*	*-1.1*	*391.1*	*380.3*	*10.8*
Public	*1.8*	*2.3*	*-0.5*	*71.9*	*80.5*	*-8.6*
Male						
Non-wage	81.9	77.0	4.9	3,219.0	2,787.9	431.1
Self-employment	*4.9*	*6.6*	*-1.8*	*191.1*	*240.4*	*-49.3*
Family	*77.1*	*70.4*	*6.7*	*3,027.9*	*2,547.4*	*480.4*
Wage	18.1	23.0	-4.9	710.6	831.8	-121.2
Agricultural	*3.1*	*2.4*	*0.7*	*122.4*	*86.6*	*35.8*
Non agricultural	*15.0*	*20.6*	*-5.6*	*588.2*	*745.2*	*-157.0*
Private	*14.2*	*17.3*	*-3.1*	*558.3*	*627.2*	*-68.9*
Public	*3.9*	*5.7*	*-1.8*	*152.3*	*204.6*	*-52.3*

Table 3.8: Employment Status - Skill Status Among Wage Labor

	Percent			Thousands		
	2005	2001	Change (% points)	2005	2001	Change
National	***14.9***	***18.3***	***-3.4***	***1,173.6***	***1,292.6***	***-119.0***
Manager	10.2	17.0	-6.8	119.1	219.3	-100.2
Skilled labor	34.8	31.7	3.1	407.9	409.5	-1.5
Unskilled Labor	55.1	51.4	3.7	646.6	663.9	-17.2
Large Urban	***65.9***	***57.5***	***8.4***	***425.1***	***375.2***	***49.8***
Manager	11.8	19.3	-7.6	49.9	72.4	-22.5
Skilled labor	45.4	36.7	8.7	193.0	137.6	55.4
Unskilled Labor	42.8	44.0	-1.2	182.1	165.2	16.9
Secondary Urban	***17.0***	***30.2***	***-13.2***	***158.5***	***224.6***	***-66.1***
Manager	16.4	20.7	-4.3	26.0	46.4	-20.4
Skilled labor	34.7	32.3	2.5	55.1	72.5	-17.4
Unskilled Labor	48.8	47.1	1.8	77.4	105.7	-28.3
Rural	***9.4***	***12.2***	***-2.8***	***590.0***	***692.8***	***-102.8***
Manager	7.3	14.5	-7.2	43.1	100.4	-57.3
Skilled labor	27.1	28.8	-1.7	159.8	199.3	-39.5
Unskilled Labor	65.6	56.7	8.9	387.1	393.0	-5.9
Female	***11.8***	***13.4***	***-1.6***	***463.0***	***460.8***	***2.2***
Manager	8.2	13.5	-5.3	37.8	62.0	-24.2
Skilled labor	28.6	30.5	-1.9	132.3	140.3	-8.0
Unskilled Labor	63.3	56.1	7.2	292.9	258.5	34.4
Male	***18.1***	***23.0***	***-4.9***	***710.6***	***831.8***	***-121.2***
Manager	11.4	18.9	-7.5	81.2	157.3	-76.1
Skilled labor	38.8	32.4	6.4	275.6	269.1	6.5
Unskilled Labor	49.8	48.7	1.0	353.8	405.4	-51.7

Table 3.9: Employment Status - Formality Status Among Wage Labor

	2005 (%)	2001 (%)	Change (% points)
National	***14.9***	***18.3***	***-3.4***
Informal	64.5	54.4	10.1
Percent total	*94.7*	*91.7*	*3.0*
Unprotected	74.2	77.7	-3.5
Percent total	*96.2*	*95.9*	*0.2*
Large Urban	***65.9***	***57.5***	***8.4***
Informal	56.9	44.6	12.3
Percent total	*71.6*	*66.7*	*4.9*
Unprotected	70.7	71.7	-1.0
Percent total	*80.7*	*83.7*	*-3.0*
Secondary Urban	***17.0***	***30.2***	***-13.2***
Informal	55.4	50.7	4.7
Percent total	*92.4*	*81.2*	*11.2*
Unprotected	65.6	81.4	-15.9
Percent total	*94.1*	*94.4*	*-0.2*
Rural	***9.4***	***12.2***	***-2.8***
Informal	72.4	60.9	11.5
Percent total	*97.4*	*95.2*	*2.2*
Unprotected	79.1	79.7	-0.7
Percent total	*98.0*	*97.5*	*0.5*
Female	***11.8***	***13.4***	***-1.6***
Informal	69.2	58.0	11.2
Percent total	*96.4*	*94.4*	*2.0*
Unprotected	78.7	82.0	-3.4
Percent total	*97.5*	*97.6*	*-0.1*
Male	***18.1***	***23.0***	***-4.9***
Informal	61.4	52.4	9.0
Percent total	*93.0*	*89.1*	*4.0*
Unprotected	71.3	75.3	-4.0
Percent total	*94.8*	*94.3*	*0.5*

Formal = If employee has social security and/or social protection

Protected = If employee simultaneously has social security, social protection and paid leav

Table 3.10: Employment Status - Non-wage

	Percent			Thousands		
	2005	2001	Change (% points)	2005	2001	Change
National	***85.1***	***81.7***	***3.4***	***6,691.6***	***5,773.4***	***918.2***
Agriculture	88.8	84.6	4.1	5,938.8	4,884.9	1,053.9
Non-Farm Enterprise	11.3	15.4	-4.1	752.8	888.5	-135.7
Without hired workers	*88.8*	*74.9*	*13.9*	*677.6*	*667.4*	*10.2*
With hired workers	*11.2*	*25.1*	*-13.9*	*75.2*	*221.1*	*-145.9*
Large Urban	***34.1***	***42.5***	***-8.4***	***220.1***	***277.3***	***-57.2***
Agriculture	11.4	34.4	-23.0	25.0	95.4	-70.4
Non-Farm Enterprise	88.6	65.6	23.0	195.1	181.9	13.2
Without hired workers	*89.4*	*68.5*	*20.9*	*174.4*	*124.8*	*49.7*
With hired workers	*10.6*	*31.5*	*-20.9*	*20.6*	*57.1*	*-36.5*
Secondary Urban	***83.0***	***69.8***	***13.2***	***773.3***	***518.5***	***254.8***
Agriculture	81.1	66.0	15.0	626.8	342.3	284.5
Non-Farm Enterprise	19.0	34.0	-15.0	146.5	176.2	-29.7
Without hired workers	*86.2*	*77.2*	*9.0*	*128.2*	*136.2*	*-8.0*
With hired workers	*13.8*	*22.8*	*-9.0*	*18.4*	*40.0*	*-21.7*
Rural	***90.6***	***87.8***	***2.8***	***5,698.2***	***4,977.5***	***720.6***
Agriculture	92.8	89.4	3.4	5,287.0	4,447.2	839.8
Non-Farm Enterprise	7.2	10.7	-3.4	411.2	530.4	-119.1
Without hired workers	*89.5*	*76.4*	*13.2*	*375.0*	*406.4*	*-31.4*
With hired workers	*10.5*	*23.6*	*-13.2*	*36.2*	*124.0*	*-87.8*
Female	***88.2***	***86.6***	***1.6***	***3,472.6***	***2,987.1***	***485.5***
Agriculture	87.4	82.3	5.1	3,033.8	2,458.2	575.5
Non-Farm Enterprise	12.6	17.7	-5.1	438.8	528.8	-90.0
Without hired workers	*91.3*	*75.8*	*15.5*	*403.3*	*401.9*	*1.5*
With hired workers	*8.7*	*24.2*	*-15.5*	*35.4*	*126.9*	*-91.5*
Male	***81.9***	***77.0***	***4.9***	***3,219.0***	***2,786.3***	***432.7***
Agriculture	90.2	87.1	3.1	2,905.0	2,426.7	478.3
Non-Farm Enterprise	9.8	12.9	-3.2	314.0	359.7	-45.6
Without hired workers	*85.0*	*73.6*	*11.4*	*274.3*	*265.5*	*8.8*
With hired workers	*15.0*	*26.4*	*-11.4*	*39.8*	*94.2*	*-54.4*

Table 3.11: Non-Farm Enterprises in Madagascar

	2005				2001				Difference			
	National	Large Cities	2nd Cities	Rural	National	Large Cities	2nd Cities	Rural	National	Large Cities	2nd Cities	Rural
Percent of…												
households with a NFE	26.6	35.7	31.5	24.5	23.0	33.1	26.3	20.8	3.6	2.6	5.3	3.7
individuals in a HH with a NFE	27.3	38.4	32.8	25.1	22.7	34.0	26.9	20.4	4.7	4.4	5.8	4.7
Months of Operation in a Year												
Average months	9.5	10.6	9.6	9.3	9.5	10.7	10.1	9.1	0.0	-0.1	-0.5	0.2
Percent…												
with 3 or fewer months	9.0	6.6	9.4	9.3	9.0	4.4	5.1	10.9	0.0	2.2	4.3	-1.5
year round	57.8	74.0	59.3	54.2	53.9	70.4	62.7	48.0	3.9	3.6	-3.4	6.2
Size												
Average number of workers	1.5	1.6	1.7	1.5	1.7	1.7	1.9	1.7	-0.2	-0.1	-0.2	-0.2
Percent with…												
2 or fewer workers	88.2	87.8	86.2	88.7	82.6	86.9	83.9	81.3	5.6	1.0	2.3	7.4
3 to 5 workers	11.2	10.9	12.2	11.1	15.3	11.6	13.6	16.6	-4.1	-0.7	-1.4	-5.5
6 or more workers	1.5	1.3	1.6	0.2	1.7	1.5	2.5	2.1	-0.2	-0.2	-0.9	-1.8
Percent with hired workers	9.2	10.4	10.8	8.6	26.1	33.6	29.8	23.6	-16.9	-23.2	-19.0	-14.9

Table 3.12: Employment - Working age population - Educational Attainment

Group	Employment-to-population ratio			Group share among employed		
	Level			Level		
	2005 (in%)	2001 (in%)	Change (in %points)	2005 (in%)	2001 (in%)	Change (in %points)
Total Employment	85.8	82.5	3.3	100.0	100.0	100.0
National						
None	93.2	90.0	3.2	51.7	51.4	0.4
Primary	86.3	82.7	3.6	30.3	30.0	0.3
Lower Secondary	69.7	67.6	2.2	11.5	9.3	2.1
Upper Secondary	64.6	60.6	4.0	3.9	5.2	-1.3
Post Secondary	74.3	74.1	0.2	2.7	4.1	-1.5
Large Urban						
None	74.2	70.3	3.9	23.3	19.7	3.6
Primary	62.6	62.2	0.4	21.5	30.0	-8.5
Lower Secondary	54.6	57.4	-2.8	24.3	19.3	5.0
Upper Secondary	56.9	48.8	8.1	15.8	13.6	2.2
Post Secondary	66.2	64.6	1.6	15.2	17.4	-2.2
Secondary Urban						
None	90.9	85.2	5.6	51.6	41.0	10.6
Primary	83.6	65.3	18.3	25.2	26.7	-1.5
Lower Secondary	63.9	57.6	6.3	14.2	14.8	-0.5
Upper Secondary	57.6	60.2	-2.6	5.3	10.3	-5.0
Post Secondary	82.8	84.0	-1.2	3.7	7.3	-3.6
Rural						
None	94.5	91.6	2.9	58.4	56.3	2.1
Primary	88.6	88.7	-0.1	28.7	30.4	-1.8
Lower Secondary	76.2	74.9	1.3	9.4	7.5	1.9
Upper Secondary	74.0	68.0	5.9	2.4	3.6	-1.1
Post Secondary	82.6	80.8	1.8	1.1	2.2	-1.1

Table 3.13: Employment* - Working age population - Household Expenditure

	Poorest	Q2	Q3	Q4	Richest	NonPoor	Poor	Total
2005								
National	87.9	89.0	89.0	86.4	79.0	80.8	88.7	85.8
Urban	81.2	79.8	76.5	71.8	66.4	67.0	78.7	72.3
Rural	89.1	91.0	91.8	90.5	87.5	88.3	90.8	90.0
2001								
National	91.3	89.2	87.8	80.2	69.2	71.7	88.4	82.5
Urban	85.9	80.8	74.1	62.1	60.3	60.5	74.5	65.9
Rural	91.8	90.4	90.7	87.4	77.3	80.0	90.8	87.9
Difference								
National	*-3.3*	*-0.3*	*1.2*	*6.2*	*9.8*	*9.2*	*0.3*	*3.3*
Urban	*-4.7*	*-1.0*	*2.3*	*9.7*	*6.2*	*6.5*	*4.2*	*6.4*
Rural	*-2.7*	*0.5*	*1.1*	*3.2*	*10.2*	*8.3*	*0.0*	*2.1*

* The individual is employed if he has a permenent job or he has worked at least one hour in the week prior to the survey

Table 3.14: Distribution of Employment by Sector, Education Level and Area of Residence

	2005				2001				Change		
	Primary	Industry	Services	*Total*	Primary	Industry	Services	*Total*	Primary	Industry	Services
Working Age Adults	**80.1**	**2.5**	**17.4**	***100***	**73.9**	**6.8**	**19.3**	***100***	**6.2**	**-4.3**	**-1.9**
Large Urban	5.7	14.9	79.4	*100*	19.8	23.9	56.3	*100*	-14.1	-9.0	23.1
Secondary Urban	72.6	3.0	24.4	*100*	52.2	9.0	38.8	*100*	20.4	-6.0	-14.3
Rural	88.8	1.2	10.0	*100*	82.8	4.6	12.6	*100*	6.0	-3.4	-2.6
National											
None	89.8	1.0	9.1	*100*	88.4	2.7	8.9	*100*	1.5	-1.6	0.2
Primary	82.0	1.9	16.1	*100*	75.6	7.2	17.3	*100*	6.5	-5.3	-1.2
Lower Secondary	59.8	6.1	34.0	*100*	45.1	16.2	38.7	*100*	14.7	-10.1	-4.6
Upper Secondary	34.0	9.9	56.0	*100*	23.8	21.1	55.1	*100*	10.2	-11.1	1.0
Post Secondary	14.6	12.8	72.6	*100*	7.1	17.2	75.7	*100*	7.5	-4.4	-3.1
Large Urban											
None	4.5	10.9	84.6	*100*	44.9	12.7	42.4	*100*	-40.4	-1.9	42.2
Primary	7.8	9.6	82.7	*100*	25.5	24.4	50.0	*100*	-17.8	-14.9	32.6
Lower Secondary	8.3	19.3	72.5	*100*	9.2	30.2	60.6	*100*	-0.9	-11.0	11.9
Upper Secondary	2.9	16.6	80.5	*100*	8.2	32.3	59.5	*100*	-5.3	-15.8	21.0
Post Secondary	3.4	19.5	77.1	*100*	2.5	21.7	75.8	*100*	0.9	-2.2	1.3
Secondary Urban											
None	85.8	1.6	12.6	*100*	75.6	5.3	19.1	*100*	10.2	-3.7	-6.5
Primary	73.5	3.3	23.2	*100*	50.1	11.5	38.5	*100*	23.5	-8.2	-15.3
Lower Secondary	54.0	4.7	41.3	*100*	31.5	10.5	58.0	*100*	22.5	-5.8	-16.7
Upper Secondary	30.5	7.6	61.9	*100*	21.9	10.8	67.3	*100*	8.6	-3.2	-5.4
Post Secondary	18.7	7.9	73.4	*100*	11.4	16.3	72.4	*100*	7.3	-8.4	1.1
Rural											
None	93.8	0.6	5.6	*100*	91.3	2.0	6.7	*100*	2.5	-1.5	-1.0
Primary	88.9	1.1	10.0	*100*	84.1	4.7	11.2	*100*	4.8	-3.6	-1.1
Lower Secondary	74.8	3.0	22.3	*100*	59.2	13.5	27.3	*100*	15.6	-10.5	-5.0
Upper Secondary	55.8	6.3	37.9	*100*	31.5	20.0	48.5	*100*	24.3	-13.7	-10.6
Post Secondary	27.5	6.1	66.4	*100*	9.5	13.3	77.2	*100*	18.0	-7.2	-10.8

Table 3.15: Number* of Employed by Sector, Education Level and Gender

	2005				2001				Average Annual Increa		
	Primary	Industry	Service	*Total*	Primary	Industry	Service	*Total*	Primary	Industry	Service
Working Age Adults	**6,298**	**198**	**1,369**	***7,865***	**5,195**	**480**	**1,359**	***7,035***	**275.7**	**-70.7**	**2.6**
Female	3,190	68	678	*3,936*	2,593	197	634	*3,424*	149.2	-32.3	11.1
Male	3,109	130	691	*3,930*	2,603	283	725	*3,611*	126.5	-38.4	-8.5
National											
None	3,814	44	388	*4,246*	3,200	97	324	*3,621*	153.7	-13.2	15.9
Primary	1,815	42	356	*2,213*	1,594	151	364	*2,110*	55.3	-27.4	-2.1
Lower Secondary	535	55	304	*893*	294	106	253	*653*	60.0	-12.8	12.9
Upper Secondary	104	30	171	*304*	87	77	200	*364*	4.2	-11.6	-7.4
Post Secondary	30	27	151	*208*	20	49	218	*288*	2.5	-5.7	-16.7
Female											
None	2,030	11	223	*2,263*	1,694	48	181	*1,923*	83.9	-9.2	10.4
Primary	846	18	182	*1,046*	743	61	187	*991*	25.8	-10.9	-1.1
Lower Secondary	267	23	150	*440*	132	46	117	*296*	33.8	-5.8	8.1
Upper Secondary	40	8	66	*114*	20	34	78	*132*	4.9	-6.4	-3.1
Post Secondary	7	8	57	*73*	4	8	70	*82*	0.8	0.1	-3.2
Male											
None	1,784	34	165	*1,983*	1,506	50	143	*1,698*	69.7	-4.0	5.5
Primary	970	24	173	*1,167*	852	90	177	*1,119*	29.5	-16.5	-1.0
Lower Secondary	267	32	154	*454*	162	59	135	*357*	26.3	-6.9	4.8
Upper Secondary	64	22	105	*191*	67	43	122	*232*	-0.7	-5.2	-4.4
Post Secondary	23	18	94	*136*	17	42	148	*206*	1.7	-5.8	-13.4

* Thousands of individuals whose primary activity is in the given sector

Table 3.16: Open Unemployment* by Area of Residence and Expenditure Quintile

Group	Unemployment rate by group**			Group share among unemployed workers		
	Level 2005 (in%)	Level 2001 (in%)	Change 2005-2001 (in %points)	Level 2005 (in%)	Level 2001 (in%)	Change 2005-2001 (in %points)
Total	2.6	1.2	1.4			
Urban/Rural						
Large cities	12.0	4.4	7.6	41.6	33.9	7.7
Secondary cities	3.5	1.6	1.9	16.0	13.6	2.4
Rural	1.4	0.8	0.6	42.5	52.4	-10.0
Expenditure Quintile						
Poorest	1.6	0.2	1.4	10.9	2.9	8.0
2nd	1.7	0.9	0.8	11.6	14.7	-3.1
3rd	1.9	1.1	0.8	14.4	18.9	-4.5
4th	2.3	0.9	1.4	18.1	14.6	3.5
Richest	5.1	2.9	2.2	45.0	48.9	-3.9

* Without work and in the labor force - In the labor force: either employed or looking for work in the past month

**Proportion of labor force (15-64) classified as unempl.

Table 3.17: Urban Open Unemployment* - By gender

Group	Unemployment rate by group**			Group share among unemployed workers		
	Level 2005 (in%)	Level 2001 (in%)	Change 2005-2001 (in %points)	Level 2005 (in%)	Level 2001 (in%)	Change 2005-2001 (in %points)
			Urban			
Total	7.2	2.9	4.3	100	100	
Gender						
Female	9.9	3.8	6.0	66.9	62.4	4.6
Male	4.6	2.1	2.5	33.1	37.6	-4.6
Age group						
15-20	8.3	7.0	1.4	16.7	31.9	-15.2
21-30	7.3	4.3	3.0	29.9	43.0	-13.1
31-50	3.3	1.4	1.9	19.4	22.6	-3.1
51-64	17.4	0.7	16.8	33.9	2.5	31.4
Education						
None	5.0	1.4	3.7	25.8	14.2	11.6
Primary	6.3	3.6	2.7	22.2	35.1	-12.9
LowSecondary	9.3	3.1	6.1	24.9	18.2	6.8
UpperSecondary	9.8	3.4	6.4	13.5	14.1	-0.6
PostSecondary	11.0	4.4	6.6	13.7	18.5	-4.8
			Urban Female			
Total	9.9	3.8	6.0	100	100	
Age group						
15-20	10.1	7.8	2.3	15.5	30.6	-15.2
21-30	9.6	5.7	3.9	28.3	43.7	-15.5
31-50	5.7	2.0	3.7	24.1	23.3	0.8
51-64	22.5	0.9	21.6	32.2	2.4	29.8
Education						
None	7.6	1.2	6.4	30.7	11.5	19.2
Primary	9.3	4.6	4.6	23.5	34.7	-11.2
LowSecondary	10.7	5.0	5.8	21.3	21.8	-0.5
UpperSecondary	15.4	4.7	10.7	13.4	12.7	0.7
PostSecondary	15.5	8.6	6.9	11.0	19.3	-8.3
			Urban Male			
Total	4.6	2.1	2.5	100	100	
Age group						
15-20	6.5	6.0	0.5	19.2	33.9	-14.7
21-30	5.2	3.1	2.2	33.4	41.9	-8.5
31-50	1.1	0.9	0.2	10.1	21.4	-11.4
51-64	12.5	0.5	12.1	37.3	2.7	34.6
Education						
None	2.2	1.5	0.7	15.7	18.7	-3.0
Primary	3.5	2.6	0.9	19.5	35.6	-16.2
LowSecondary	7.9	1.5	6.4	32.3	12.2	20.1
UpperSecondary	5.7	2.6	3.1	13.6	16.3	-2.7
PostSecondary	8.2	2.3	5.9	19.0	17.2	1.8

* Without work and in the labor force - In the labor force: either employed or looking for work in the past month

**Proportion of labor force (15-64) classified as unempl.

Table 3.18: Urban Open Unemployment* - By age groups

Group	Unemployment rate by group**			Group share among unemployed		
	Level 2005 (in%)	Level 2001 (in%)	Change 2005-2001 (in %points)	Level 2005 (in%)	Level 2001 (in%)	Change 2005-2001 (in %points)
			15-20			
Total	8.3	7.0	1.4	100	100	
Education						
None	4.5	1.5	3.0	26.5	11.9	14.7
Primary	7.5	8.7	-1.1	24.9	48.8	-23.9
LowSecondary	15.8	15.6	0.2	41.5	24.3	17.2
UpperSecondary	21.4	29.7	-8.2	7.1	15.0	-8.0
PostSecondary	..	..	..	..	..	..
			21-30			
Total	7.3	4.3	3.0			
Education						
None	2.7	2.1	0.6	13.0	14.8	-1.8
Primary	2.8	4.1	-1.3	9.2	27.8	-18.6
LowSecondary	10.8	3.6	7.2	32.6	17.0	15.6
UpperSecondary	12.8	3.9	8.8	18.3	10.8	7.5
PostSecondary	23.4	15.8	7.6	26.9	29.7	-2.8
			31-50			
Total	3.3	1.4	1.9			
Education						
None	3.2	0.9	2.3	30.9	14.8	16.0
Primary	3.8	1.9	1.8	27.8	35.6	-7.8
LowSecondary	3.2	1.3	1.9	18.9	15.3	3.5
UpperSecondary	4.1	2.1	2.0	15.4	22.6	-7.2
PostSecondary	2.0	0.9	1.1	7.0	11.7	-4.7
			51-64			
Total	17.4	0.7	16.8			
Education						
None	14.5	0.8	13.7	34.0	43.1	-9.1
Primary	17.1	1.0	16.1	29.4	40.1	-10.7
LowSecondary	22.8	0.8	22.0	14.0	16.8	-2.8
UpperSecondary	25.2	0.0	25.2	11.3	0.0	11.3
PostSecondary	18.6	0.0	18.6	11.4	0.0	11.4

* Without work and in the labor force - In the labor force: either employed or looking for work in the past month

**Proportion of labor force for that age cohort classified as unempl.

Table 4.1: Monthly Earnings and Low Earnings

	Earnings ('000 Ariary)			Low earners (%)			Poverty rate (%)			Gini coefficient		
	2005	2001	Change	2005	2001	Change	2005	2001	Change	2005	2001	Change
National												
Agriculture (non wage&wage)	31.5	23.9	32%	37.5	55.2	-17.6	72.3	83.1	-10.8	0.37	0.41	-10%
NFE	51.9	67.1	-23%	32.2	23.6	8.6	42.0	42.7	-0.7	0.65	0.72	-10%
Wage workers	87.1	98.8	-12%	11.8	10.5	1.3	38.7	28.1	10.6	0.43	0.47	-9%
Large Urban												
Agriculture (non wage&wage)	..	..	..	..	..	..	..	..	..	..	..	..
NFE	68.5	78.6	-13%	12.2	14.5	-2.3	32.6	24.2	8.5	0.53	0.70	-25%
Wage workers	100.0	107.3	-7%	8.8	5.5	3.3	32.9	16.3	16.6	0.45	0.47	-5%
Second Urban												
Agriculture (non wage&wage)	31.9	25.8	24%	37.6	49.8	-12.2	68.6	76.3	-7.7	0.42	0.46	-11%
NFE	58.4	79.9	-27%	27.7	15.4	12.3	41.1	42.7	-1.6	0.62	0.73	-15%
Wage workers	89.5	102.8	-13%	13.2	11.2	2.0	43.3	33.7	9.6	0.44	0.44	1%
Rural												
Agriculture (non wage&wage)	31.3	23.9	31%	37.6	55.4	-17.8	72.9	83.7	-10.8	0.37	0.40	-10%
NFE	37.6	60.3	-38%	43.6	29.4	14.2	46.7	49.0	-2.3	0.71	0.72	-2%
Wage workers	77.8	89.3	-13%	14.7	13.5	1.2	43.6	33.7	9.9	0.40	0.48	-18%
Male												
Agriculture (non wage&wage)	39.1	32.8	19%	37.1	55.1	-18.0	71.7	82.7	-11.0	0.37	0.42	-13%
NFE	66.0	79.0	-16%	24.2	14.4	9.8	37.0	37.4	-0.4	0.65	0.73	-12%
Wage workers	99.8	109.2	-9%	8.4	9.1	-0.7	38.9	28.8	10.1	0.42	0.47	-10%
Female												
Agriculture (non wage&wage)	38.3	31.7	21%	37.9	55.2	-17.3	72.9	83.5	-10.6	0.37	0.40	-7%
NFE	44.0	58.5	-25%	37.9	29.8	8.1	45.5	46.4	-0.9	0.64	0.70	-8%
Wage workers	67.5	82.3	-18%	17.8	13.3	4.5	38.4	26.7	11.7	0.42	0.44	-5%

Figure 4.1: Density Estimates of Monthly Earnings in Madagascar:
Agricultural Earnings

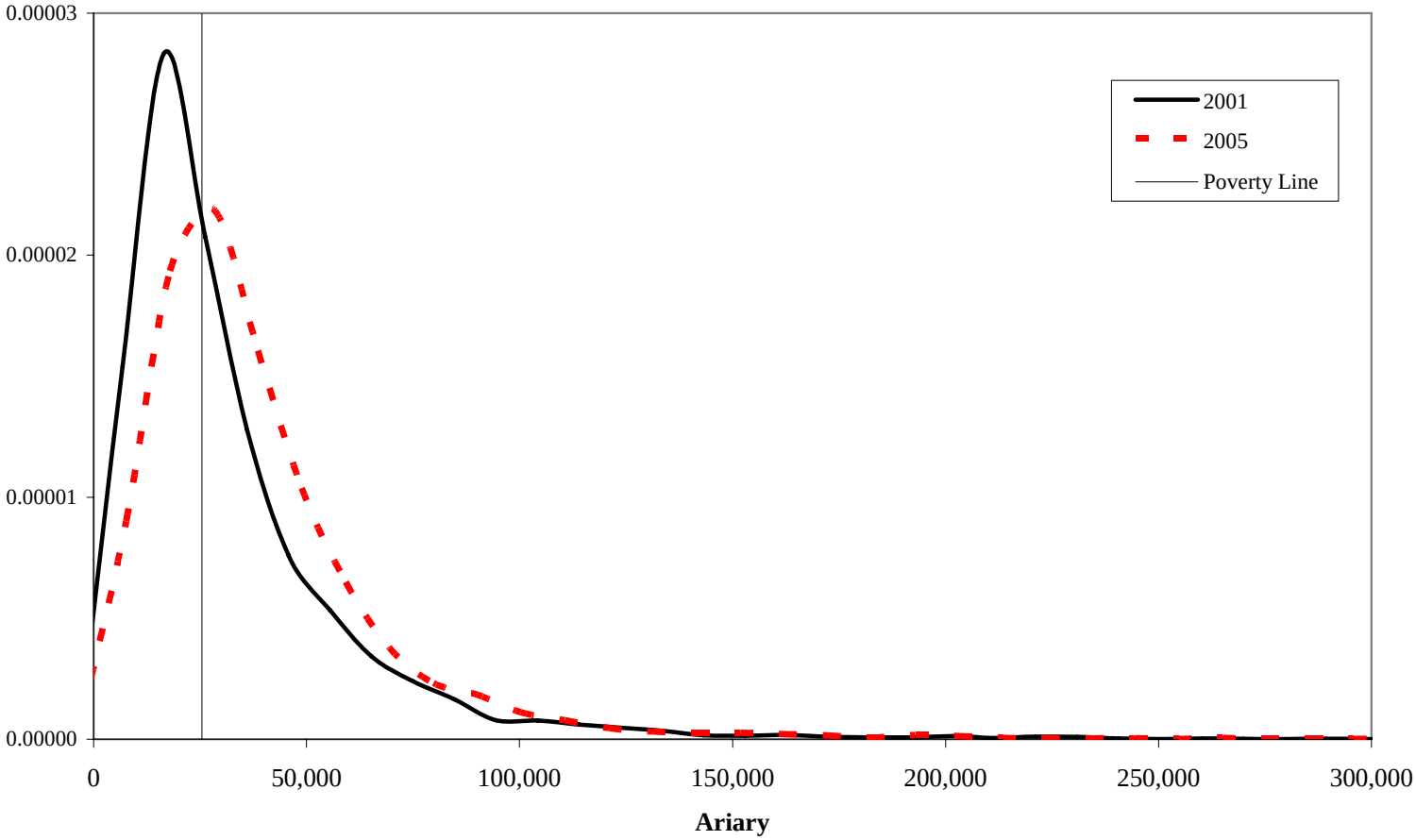


Figure 4.2: Density Estimates of Monthly Earnings in Madagascar:
Non-Farm Enterprise Earnings

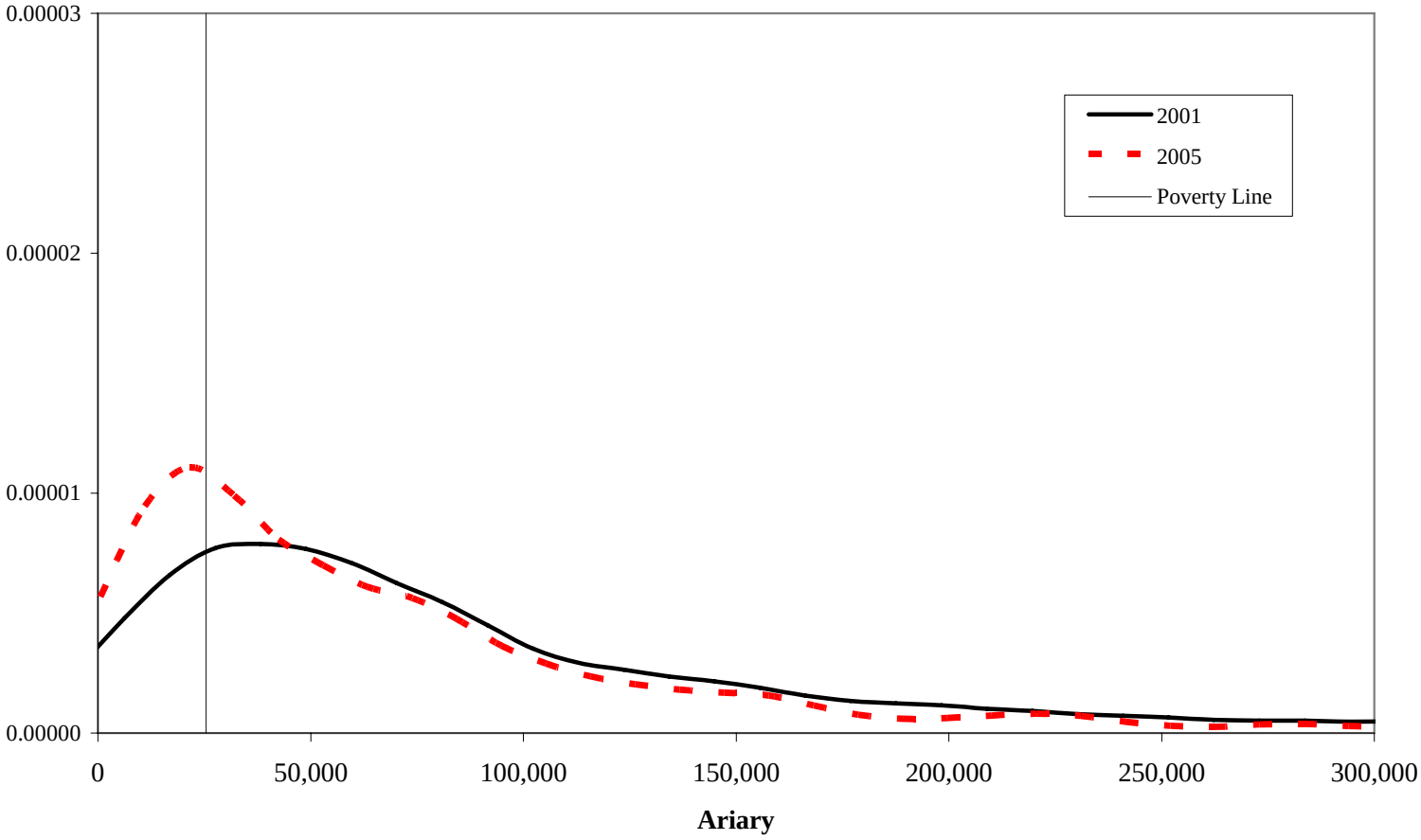


Figure 4.3: Density Estimates of Monthly Earnings in Madagascar:
Wage Earnings (non-agricultural)

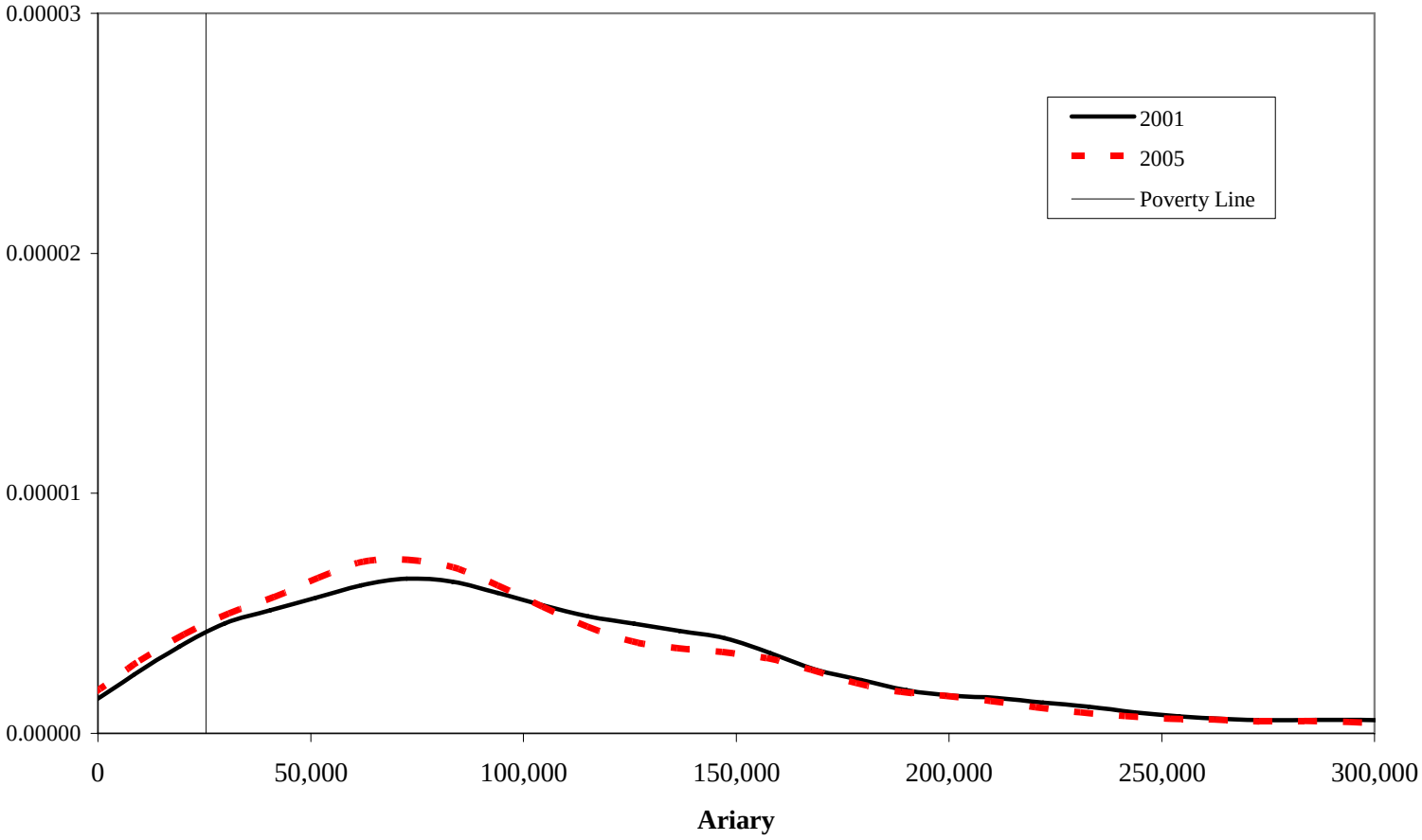


Table 4.2: Monthly Earnings and Low Earnings by Employment Status

	Earnings ('000 Ariary)			Low earners (%)		
	2005	2001	Change	2005	2001	Change
National						
Wage workers						
Agriculture	38.9	33.9	15%	44.6	52.9	-8.3
Non-agric informal (private)	67.4	70.6	-4%	18.2	18.5	-0.3
Non-agric formal (private)	108.1	115.2	-6%	2.8	3.4	-0.6
Public	146.1	147.1	-1%	4.6	3.8	0.8
Non Wage workers						
Agriculture	31.1	23.7	31%	37.2	55.2	-18.0
NFE informal	44.2	60.4	-27%	35.2	27.1	8.1
NFE formal	115.6	114.0	1%	18.1	12.0	6.0
Large Urban						
Wage workers						
Agriculture	..	..	..	..	..	..
Non-agric informal (private)	72.3	77.2	-6%	13.2	10.4	2.8
Non-agric formal (private)	117.1	118.0	-1%	2.1	2.5	-0.4
Public	150.0	159.6	-6%	4.7	1.0	3.7
Non Wage workers						
Agriculture	44.3	18.9	134%	33.2	62.5	-29.3
NFE informal	65.4	65.9	-1%	13.1	16.5	-3.4
NFE formal	149.0	169.9	-12%	8.8	7.7	1.0
Second Urban						
Wage workers						
Agriculture	47.2	66.2	-29%	28.4	42.3	-13.9
Non-agric informal (private)	56.2	73.4	-23%	22.2	19.7	2.4
Non-agric formal (private)	91.5	93.9	-3%	5.5	4.1	1.4
Public	156.7	156.9	0%	3.1	3.3	-0.2
Non Wage workers						
Agriculture	31.5	25.3	24%	38.0	50.2	-12.3
NFE informal	54.4	75.1	-28%	30.0	19.5	10.5
NFE formal	88.0	102.2	-14%	18.0	3.2	14.8
Rural						
Wage workers						
Agriculture	38.1	32.9	16%	47.5	56.4	-8.9
Non-agric informal (private)	66.0	65.9	0%	22.4	22.7	-0.3
Non-agric formal (private)	100.0	115.3	-13%	2.9	4.0	-1.1
Public	121.0	131.8	-8%	5.2	5.8	-0.6
Non Wage workers						
Agriculture	31.1	23.7	31%	37.2	55.4	-18.2
NFE informal	32.3	49.6	-35%	46.6	33.1	13.5
NFE formal	105.6	79.5	33%	25.2	16.6	8.5
Male						
Wage workers						
Agriculture	41.9	43.5	-4%	39.8	43.6	-3.9
Non-agric informal (private)	77.8	82.4	-6%	13.1	15.0	-1.9
Non-agric formal (private)	112.4	126.7	-11%	2.2	4.3	-2.0
Public	150.0	150.2	0%	3.3	4.0	-0.7
Non Wage workers						
Agriculture	31.1	23.6	32%	37.0	55.5	-18.5
NFE informal	60.8	69.5	-12%	26.0	16.3	9.7
NFE formal	121.9	135.7	-10%	16.4	8.4	8.0
Females						
Wage workers						
Agriculture	35.9	32.3	11%	49.6	64.0	-14.5
Non agriculture informal (privat	50.0	52.9	-6%	26.1	24.8	1.3
Non agriculture formal (private)	90.6	93.9	-4%	3.8	2.0	1.8
Public	132.8	134.8	-1%	7.3	3.4	3.9
Non Wage workers						
Agriculture	31.1	23.9	30%	37.4	54.9	-17.5
NFE informal	36.5	50.2	-27%	41.5	34.2	7.3
NFE formal	111.2	89.5	24%	19.4	14.7	4.7

Note: Empty cells indicate that there were too few observations (less than 20) to accurately estimate.

Figure 4.4: Density Estimates of Monthly Earnings in Madagascar:
Wage Earnings

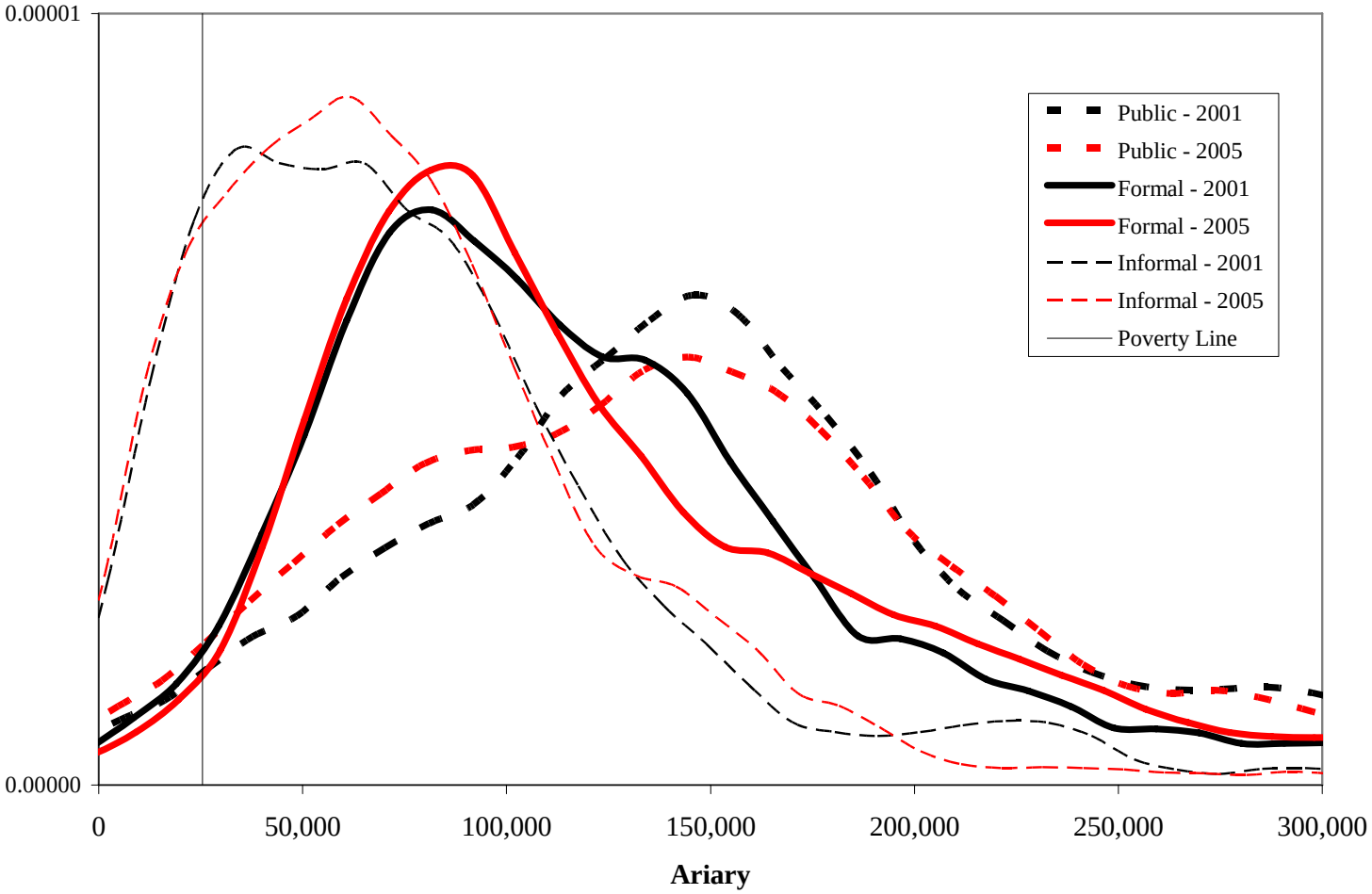


Table 4.3: Poverty & Low Earnings

	Poor low earners (%)			Poverty rate(%)		
	2005	2001	Change	2005	2001	Change
National						
Wage workers						
Agriculture	85.5	89.9	-4.5	78.9	68.6	10.3
Non agriculture informal	67.8	55.5	12.2	50.4	37.9	12.5
Non agriculture formal	40.1	24.9	15.2	23.2	18.5	4.7
Non Wage workers						
Agriculture	92.0	97.8	-5.8	72.0	83.6	-11.6
NFE informal	59.2	67.7	-8.5	46.8	49.2	-2.5
NFE formal	35.4	24.7	10.8	17.9	15.7	2.1
Large Urban						
Wage workers						
Agriculture	..	..		..	..	..
Non agriculture informal	58.9	48.3	10.6	49.2	25.4	23.8
Non agriculture formal	..	.. ..		11.3	9.1	2.2
Non Wage workers						
Agriculture	43.0	95.0	-52.0	49.5	84.1	-34.6
NFE informal	31.0	56.6	-25.6	39.4	28.2	11.2
NFE formal	..	.. ..		8.2	7.9	0.4
Second Urban						
Wage workers						
Agriculture	84.0	87.6	-3.6	76.0	59.1	16.9
Non agriculture informal	73.2	58.3	14.9	54.0	41.5	12.5
Non agriculture formal	33.0	.. ..		31.8	26.2	5.6
Non Wage workers						
Agriculture	91.2	95.6	-4.4	68.4	77.1	-8.7
NFE informal	64.7	68.2	-3.5	44.7	49.0	-4.4
NFE formal	42.4	36.8	5.6	25.8	17.8	8.0
Rural						
Wage workers						
Agriculture	85.6	90.5	-5.0	79.9	70.9	9.0
Non agriculture informal	71.6	56.5	15.1	50.5	43.4	7.1
Non agriculture formal	..	.. ..		33.6	22.8	10.8
Non Wage workers						
Agriculture	92.3	98.0	-5.7	72.6	84.1	-11.6
NFE informal	61.5	69.6	-8.1	50.7	56.4	-5.7
NFE formal	27.7	27.9	-0.2	21.2	17.8	3.4
Male						
Wage workers						
Agriculture	88.2	92.7	-4.5	79.0	64.6	14.3
Non agriculture informal	73.9	45.3	28.6	49.4	35.8	13.7
Non agriculture formal	..	.. ..		25.9	22.2	3.7
Non Wage workers						
Agriculture	92.1	97.6	-5.5	71.4	83.3	-11.9
NFE informal	29.3	61.0	-31.7	42.0	43.4	-1.4
NFE formal	52.4	.. ..		14.6	13.6	0.9
Females						
Wage workers						
Agriculture	83.2	87.7	-4.4	78.8	73.4	5.4
Non agriculture informal	62.9	67.6	-4.7	51.9	41.8	10.1
Non agriculture formal	35.8 ..	..		18.2	11.2	7.0
Non Wage workers						
Agriculture	92.0	98.0	-6.0	72.7	84.0	-11.3
NFE informal	62.2	69.8	-7.6	50.1	53.3	-3.1
NFE formal	39.7	35.0	4.7	20.6	17.3	3.3

Table 4.4: Low Wage Earners - Short Hours or Low Productivity

Low earnings due to…	Short hours only*			Low productivity only*		
	2005	2001	Change	2005	2001	Change
National						
Wage workers	27.2	12.1	15.1	42.8	55.9	-13.2
Agriculture	23.4	10.2	13.2	42.9	47.2	-4.3
Non agriculture informal	32.2	13.7	18.5	42.7	60.5	-17.8
Non agriculture formal	21.9	12.0	9.9	42.1	71.7	-29.6
Large Urban						
Wage workers	41.0	25.2	15.8	33.5	51.6	-18.0
Agriculture	..	..	..	..	..	..
Non agriculture informal	45.1	25.7	19.4	29.8	51.4	-21.6
Non agriculture formal	..	..	..	..	..	..
Second Urban						
Wage workers	25.2	17.7	7.5	45.9	52.9	-7.1
Agriculture	24.5	20.0	4.5	28.7	43.1	-14.5
Non agriculture informal	25.9	20.5	5.4	50.5	57.6	-7.1
Non agriculture formal	22.1	..	..	63.9	..	..
Rural						
Wage workers	24.2	9.1	15.2	44.5	57.2	-12.7
Agriculture	23.3	8.7	14.6	43.8	47.8	-4.0
Non agriculture informal	..	..	..	..	..	..
Non agriculture formal	26.1	8.7	17.4	48.3	63.6	-15.3
Male						
Wage workers	25.5	9.2	16.2	50.8	64.2	-13.4
Agriculture	21.0	9.2	11.8	48.7	39.9	8.8
Non agriculture informal	32.2	11.4	20.8	53.5	75.9	-22.3
Non agriculture formal	15.5	..	..	48.7	..	..
Females						
Wage workers	28.6	15.1	13.4	36.2	47.1	-10.9
Agriculture	25.4	11.0	14.4	38.2	53.1	-14.9
Non agriculture informal	32.2	16.4	15.8	34.0	42.4	-8.4
Non agriculture formal	27.7	..	..	36.3	..	..

* Given current wage, if worked 40 hours a week, earnings would no longer fall below poverty line.

** Work 40+ hours a week, but since wage is low, earnings fall below poverty line.

Table 4.5: Median Monthly Earnings by Sector

	Earnings ('000 Ariary)			Low earners (%)			Gini coefficient		
	2005	2001	Change	2005	2001	Change	2005	2001	Change (%)
National									
Wage workers									
Primary	39.2	49.4	-21%	42.4	43.7	-1.4	0.36	0.57	-37%
Industry	84.8	91.9	-8%	8.4	5.5	2.9	0.33	0.50	-34%
Services	88.9	103.5	-14%	12.3	12.6	-0.3	0.45	0.46	-2%
Non Wage workers									
Primary	31.2	23.9	31%	37.2	54.9	-17.7	0.39	0.41	-6%
Industry	51.9	65.6	-21%	23.0	23.9	-0.9	0.56	0.63	-11%
Services	51.6	75.7	-32%	32.2	20.9	11.3	0.66	0.74	-11%
Large Urban									
Wage workers									
Primary	85.5	75.1	14%	8.8	12.8	-3.9	0.45	0.60	-24%
Industry	83.9	94.7	-11%	7.9	4.2	3.7	0.33	0.46	-28%
Services	100.0	109.2	-8%	8.9	6.1	2.8	0.46	0.46	0%
Non Wage workers									
Primary	44.6	19.9	124%	32.0	59.9	-27.9	0.60	0.52	15%
Industry	73.3	86.2	-15%	2.8	13.3	-10.6	0.54	0.62	-13%
Services	68.5	84.1	-19%	12.6	11.4	1.2	0.52	0.72	-27%
Second Urban									
Wage workers									
Primary	47.2	72.5	-35%	28.7	32.9	-4.2	0.47	0.53	-11%
Industry	81.6	91.8	-11%	7.8	8.0	-0.3	0.37	0.35	7%
Services	90.6	107.9	-16%	13.2	11.8	1.5	0.44	0.45	-3%
Non Wage workers									
Primary	31.7	25.8	23%	37.8	49.2	-11.4	0.42	0.45	-6%
Industry	79.3	65.6	21%	17.5	26.3	-8.8	0.52	0.72	-28%
Services	58.1	84.2	-31%	27.9	12.0	15.9	0.64	0.74	-14%
Rural									
Wage workers									
Primary	38.1	35.9	6%	45.3	48.9	-3.6	0.31	0.53	-42%
Industry	85.8	82.4	4%	9.3	5.8	3.5	0.30	0.55	-46%
Services	77.8	98.7	-21%	15.6	16.9	-1.3	0.41	0.44	-8%
Non Wage workers									
Primary	31.1	23.9	30%	37.2	55.1	-17.9	0.38	0.40	-6%
Industry	41.6	56.4	-26%	39.2	27.2	12.0	0.50	0.58	-15%
Services	37.1	72.1	-49%	44.8	27.9	16.9	0.73	0.74	-1%
Male									
Wage workers									
Primary	41.9	55.1	-24%	36.4	33.9	2.5	0.38	0.58	-34%
Industry	90.0	98.8	-9%	7.5	2.7	4.8	0.32	0.49	-35%
Services	100.0	116.8	-14%	8.3	11.8	-3.5	0.44	0.46	-5%
Non Wage workers									
Primary	31.3	23.9	31%	36.9	54.6	-17.7	0.39	0.42	-6%
Industry	67.1	76.7	-12%	22.7	12.63	10.1	0.57	0.62	-8%
Services	66.0	91.1	-28%	22.1	15.08	7.0	0.67	0.76	-13%
Females									
Wage workers									
Primary	35.9	33.1	8%	49.1	56.8	-7.7	0.31	0.45	-31%
Industry	77.8	77.2	1%	10.0	11.3	-1.3	0.33	0.51	-35%
Services	64.3	82.4	-22%	18.9	14.0	4.9	0.43	0.42	4%
Non Wage workers									
Primary	31.1	23.7	31%	37.5	55.1	-17.6	0.38	0.40	-5%
Industry	45.0	47.1	-4%	23.6	33.4	-9.8	0.42	0.62	-31%
Services	44.4	67.1	-34%	37.7	24.1	13.6	0.65	0.70	-8%

Table 4.6: Earnings according to level of education

	Wage Earnings ('000 Ariary)			Non-Wage Earnings ('000 Ariary)		
	Agric	Informal	Formal	Agric	Informal	Formal
2005						
None	37.4	55.6	83.4	29.3	39.3	..
Primary	41.9	68.2	98.3	32.6	37.1	81.6
LowSecondary	39.3	70.0	116.3	40.0	63.3	110.9
UpperSecondary	44.6	75.0	121.9	45.0	80.0	119.0
PostSecondary	160.0	105.0	166.3	39.6	99.8	261.2
2001						
None	24.1	46.3	85.1	21.2	42.0	60.2
Primary	52.8	70.6	108.1	27.1	58.2	75.7
LowSecondary	54.4	78.2	105.7	32.0	79.0	156.2
UpperSecondary	115.1	103.7	131.5	40.3	123.2	259.3
PostSecondary	257.4	141.2	173.2	33.1	118.5	217.5
Difference						
None	13.3	9.3	-1.7	8.1	-2.7	
Primary	-11.0	-2.4	-9.8	5.5	-21.2	5.9
LowSecondary	-15.0	-8.2	10.6	8.0	-15.8	-45.3
UpperSecondary	-70.5	-28.7	-9.6	4.7	-43.2	-140.3
PostSecondary	-97.4	-36.2	-6.9	6.6	-18.7	43.7

Table 4.7: Distribution of workers by level of education

Perent of all workers	Wage Workers			Non-Wage Workers		
	Agric	Informal	Formal	Agric	Informal	Formal
2005						
None	1.8	2.2	0.5	43.8	3.1	0.3
Primary	0.8	2.0	0.6	23.8	2.5	0.5
LowSecondary	0.3	1.4	1.2	6.4	1.7	0.4
UpperSecondary	0.1	0.7	1.1	1.2	0.5	0.3
PostSecondary	0.1	0.4	1.6	0.3	0.1	0.2
2001						
None	1.3	2.5	0.6	43.0	3.7	0.3
Primary	0.7	2.6	1.3	21.4	3.2	0.8
LowSecondary	0.1	1.4	1.7	3.8	1.6	0.6
UpperSecondary	0.1	0.9	1.9	1.1	1.0	0.3
PostSecondary	0.1	0.6	2.6	0.2	0.4	0.3
Difference						
None	0.5	-0.3	-0.1	0.8	-0.6	0.0
Primary	0.1	-0.6	-0.7	2.4	-0.7	-0.3
LowSecondary	0.2	0.0	-0.5	2.6	0.1	-0.2
UpperSecondary	0.0	-0.2	-0.8	0.2	-0.5	-0.1
PostSecondary	0.0	-0.2	-1.0	0.1	-0.2	-0.2

Table 4.8: Non-Agricultural Earnings by Gender and Education

	Informal Earnings ('000 Ariary)			Formal Earnings ('000 Ariary)		
	Male	Female	% Diff	Male	Female	% Diff
2005						
None	58.2	50.0	16.5	96.8	66.7	45.1
Primary	81.6	42.9	90.3	104.7	88.9	17.7
LowSecondary	80.0	49.8	60.6	136.3	97.0	40.6
UpperSecondary	87.1	60.0	45.2	130.0	120.0	8.3
PostSecondary	111.2	80.2	38.6	174.8	160.0	9.2
2001						
None	49.4	36.2	36.4	77.2	..	..
Primary	82.4	50.7	62.3	109.4	99.8	9.7
LowSecondary	95.2	61.2	55.6	125.7	92.6	35.7
UpperSecondary	108.1	86.5	25.0	141.0	115.2	22.4
PostSecondary	154.1	85.6	80.0	196.7	154.4	27.4
Change						
None	8.8	13.8		19.6	..	
Primary	-0.8	-7.9		-4.7	-10.8	
LowSecondary	-15.2	-11.4		10.6	4.3	
UpperSecondary	-20.9	-26.5		-11.0	4.8	
PostSecondary	-43.0	-5.4		-21.9	5.6	

Table 4.9: Child Labor

Group	Employment to population* ratio by			Group share among employed		
	Level 2005 (in%)	Level 2001 (in%)	Change 2005-2001 (in %points)	Level 2005 (in%)	Level 2001 (in%)	Change 2005-2001 (in %points)
Total	18.8	24.3	-5.5			
Gender						
Female	18.4	23.7	-5.4	48.3	48.5	-0.2
Male	19.2	24.8	-5.6	51.7	51.5	0.2
Age group						
6-11	14.6	20.3	-5.7	54.3	59.1	-4.8
12-14	28.6	33.7	-5.1	45.7	40.9	4.8
Urban/Rural						
Urban	12.1	11.1	0.9	12.8	9.6	3.2
Rural	20.5	27.7	-7.3	87.2	90.4	-3.2
Province						
Antananarivo	20.4	12.9	7.5	31.7	14.2	17.5
Fianarantsoa	15.3	16.1	-0.7	20.0	14.8	5.2
Toamasina	11.3	22.5	-11.3	8.5	14.9	-6.4
Mahajanga	17.7	37.9	-20.2	10.9	18.5	-7.6
Toliara	32.9	48.4	-15.5	26.2	30.8	-4.5
Antsiranana	9.1	21.5	-12.3	2.7	6.9	-4.2
Per capita expenditure quintile						
Poorest	24.3	36.6	-12.4	30.7	38.4	-7.7
Q2	18.2	26.3	-8.1	21.6	23.1	-1.5
Q3	18.6	24.3	-5.7	20.2	19.6	0.6
Q4	17.3	18.2	-0.9	17.6	14.9	2.7
Richest	12.9	7.1	5.9	10.0	4.0	6.0
Poverty Status						
Poor	20.3	28.4	-8.1	80.8	89.5	-8.6
NonPoor	14.3	10.8	3.5	19.2	10.5	8.7

* Population of children between the ages of 6 and 14

Table 4.10: Median Per Capita Household Expenditures

	Ariary per capita		Percent
	2005	2001	Change
Poorest	113,966	78,348	**45.5**
Q2	175,002	130,056	**34.6**
Q3	231,850	194,615	**19.1**
Q4	313,087	307,656	**1.8**
Richest	523,019	637,389	**-17.9**
All	231,062	194,464	**18.8**

Note: 2001 expenditures have been regionally and temporally deflated

Table 4.11: Child Labor

Group	Employment to population* ratio by			Group share among employed		
	Level 2005 (in%)	Level 2001 (in%)	Change 2005-2001 (in %points)	Level 2005 (in%)	Level 2001 (in%)	Change 2005-2001 (in %points)
Total	18.8	24.3	-5.5			
Sector of Activity						
Agriculture				96.0	94.5	1.5
Industry				0.3	0.9	-0.6
Services				3.7	4.6	-0.9
Employment Status						
Wage workers				4.4	4.1	0.3
Non Wage workers				95.6	95.9	-0.3
Employment Type						
Permanent				71.5	74.2	-2.7
Seasonal				28.5	25.8	2.7
Head of household employment status						
Not employed	7.4	9.7	-2.3	1.1	1.3	-0.2
Wage workers	10.8	5.7	5.1	9.7	4.7	5.1
Non Wage workers	20.9	29.7	-8.8	89.2	94.0	-4.9
Head of household sector of activity						
Not employed	7.4	9.7	-2.3	1.1	1.3	-0.2
Agriculture	21.9	31.3	-9.4	90.0	92.0	-2.0
Industry	11.8	6.3	5.5	1.7	1.8	-0.1
Services	7.9	6.4	1.4	7.2	5.0	2.2

* Population of children between the ages of 6 and 14

Table 4.12: Child Labor & School Attendance

	Boys			Girls			National		
	2005	2001	Change	2005	2001	2005-2001	2005	2001	2005-2001
				Attendance rates					
All Children	**73.5**	**64.6**	**8.9**	**73.6**	**65.9**	**7.7**	**73.5**	**65.3**	**8.3**
Not Employed	80.0	81.4	-1.4	79.8	81.7	-1.9	79.9	81.5	-1.7
Employed	46.3	13.7	32.7	45.9	14.9	31.0	46.1	14.3	31.9
Age 6-11	**70.4**	**66.5**	**3.9**	**70.9**	**66.4**	**4.6**	**70.7**	**66.4**	**4.2**
Not Employed	74.8	79.5	-4.7	75.1	79.2	-4.1	75.0	79.4	-4.4
Employed	45.9	15.3	30.6	45.2	16.2	29.0	45.6	15.7	29.8
Age 12-14	**80.6**	**60.3**	**20.3**	**79.9**	**64.6**	**15.2**	**80.2**	**62.4**	**17.9**
Not Employed	94.0	86.6	7.4	93.2	89.1	4.1	93.6	87.8	5.8
Employed	46.9	11.6	35.3	46.7	12.8	33.9	46.8	12.2	34.7
				Percent who never attended school					
Age 12-14	**10.2**	**23.9**	**-13.7**	**9.3**	**18.6**	**-9.3**	**9.7**	**21.3**	**-11.6**
Not Employed	3.4	6.2	-2.8	3.0	5.7	-2.7	3.2	6.0	-2.8
Employed	27.3	56.7	-29.4	25.0	45.9	-20.9	26.2	51.8	-25.6

Table 4.13: Child Labor - Average Hours Worked per Week

	Boys			Girls			National		
	2005	2001	Change	2005	2001	2005-2001	2005	2001	2005-2001
All Children	**29.0**	**38.9**	**-9.9**	**26.1**	**36.2**	**-10.2**	**27.6**	**37.6**	**-10.0**
Not Enrolled	33.3	40.7	-7.4	31.4	37.5	-6.0	32.4	39.1	-6.7
Enrolled	24.0	25.0	-1.0	19.7	27.7	-8.0	22.0	26.4	-4.5
Age 6-11	**26.0**	**38.9**	**-12.9**	**21.8**	**34.9**	**-13.1**	**24.0**	**35.8**	**-11.8**
Not Enrolled	28.6	40.7	-12.1	25.8	36.0	-10.2	27.3	37.4	-10.1
Enrolled	23.0	25.0	-2.1	16.9	26.6	-9.7	20.1	24.2	-4.1
Age 12-14	**32.7**	**41.6**	**-8.9**	**31.0**	**38.2**	**-7.2**	**31.8**	**40.0**	**-8.2**
Not Enrolled	39.1	43.2	-4.0	38.1	39.6	-1.5	38.6	41.5	-2.9
Enrolled	25.3	29.2	-3.9	22.8	29.3	-6.5	24.1	29.3	-5.2
Adults	**48.8**	**49.5**	**-0.6**	**41.9**	**44.2**	**-2.3**	**45.4**	**46.9**	**-1.5**

Table 4.14: Multiple Jobs and Temporary Employment - Percent of Employed

	Multiple Jobs (%)			Seasonal Jobs (%)		
	2005	2001	Change	2005	2001	Change
National	***28.9***	***13.3***	***15.6***	***14.8***	***17.3***	***-2.5***
Wage workers						
Agriculture	66.1	30.6	35.4	57.9	68.8	-10.9
Non-agric informal (private)	21.0	12.0	9.1	20.4	29.9	-9.6
Non-agric formal (private)	12.2	13.6	-1.4	5.6	11.5	-5.9
Public	29.4	18.9	10.5	7.5	8.1	-0.7
Non Wage workers						
Agriculture	28.2	11.9	16.3	13.5	14.4	-0.8
NFE informal	35.1	18.4	16.6	13.0	24.2	-11.3
NFE formal	18.4	14.5	3.9	5.5	13.0	-7.5

Note: Empty cells indicate that there were too few observations (less than 20) to accurately estimate.

Table 4.15: Low Earnings Rates for those with Permanent and Temporary Employment

	2005		2001		Change	
	Perm	Seasonal	Perm	Seasonal	Perm	Seasonal
Wage workers	***10.4***	***45.6***	***7.6***	***39.8***	***2.8***	***5.8***
Agriculture	26.7	57.6	26.4	64.9	*0.4*	*-7.3*
Non agriculture informal	13.1	36.0	12.7	30.8	*0.4*	*5.2*
Non agriculture formal	3.1	12.6	2.0	14.1	*1.1*	*-1.6*
Non Wage workers	***35.8***	***42.3***	***50.9***	***50.2***	***-15.2***	***-7.9***
Agriculture	36.4	42.4	55.1	55.0	*-18.7*	*-12.6*
NFE informal	34.3	40.8	25.1	33.6	*9.2*	*7.2*
NFE formal*	15.7	58.0	12.8	7.2	*2.9*	*50.8*

* Sample sizes are small (70 in 2005, and 40 in 2001)

Figure 4.5: Months Worked by Temporary Workers
EPM 2004

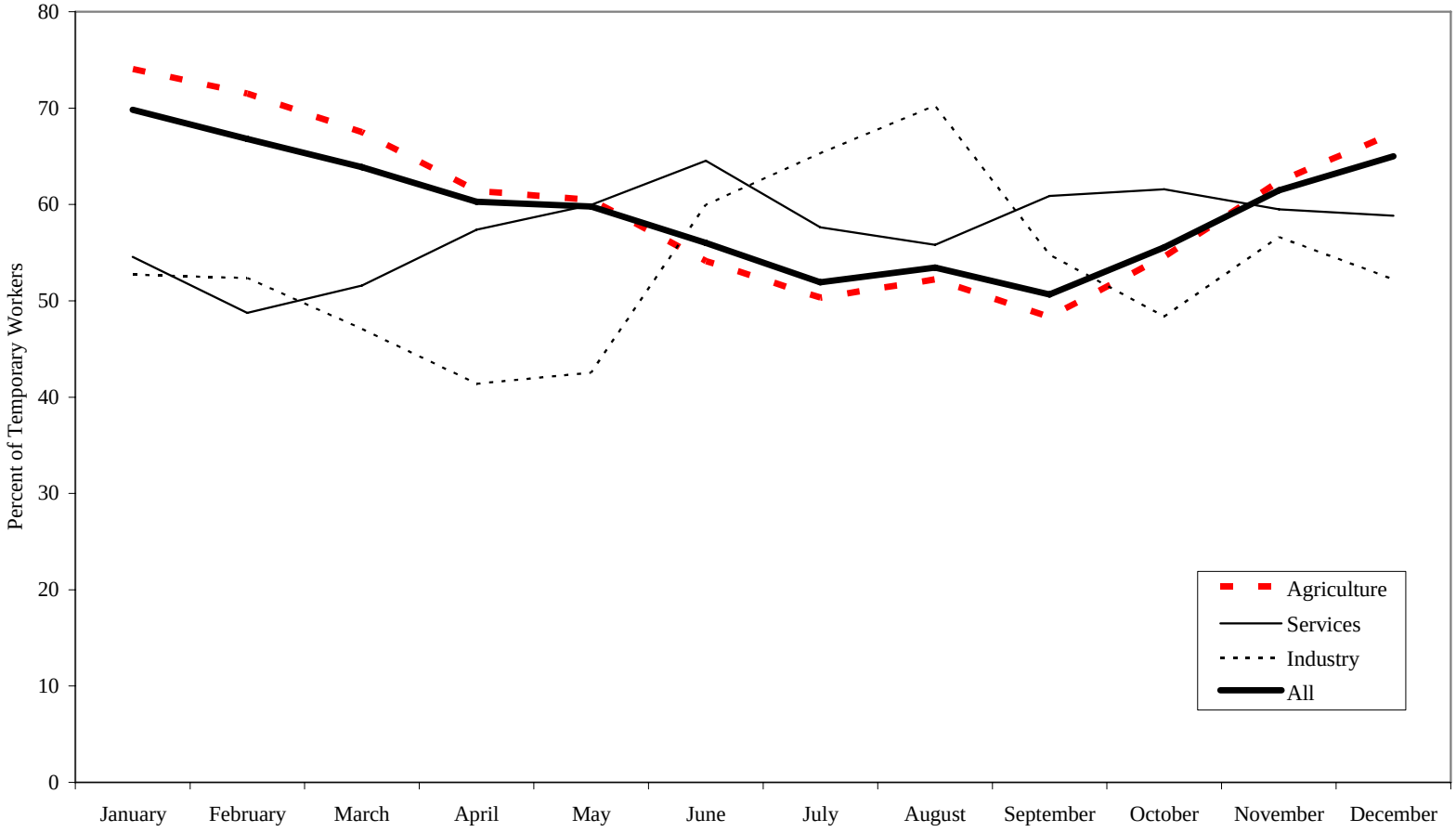


Table 4.16: Rural Labor Market Outcomes by Remoteness & Security

	Remoteness					Security	
	Most Remote	Q2	Q3	Q4	Least Remote	Bad	Good
Distribution of Employment							
Agriculture	87.2	90.2	91.2	90.4	80.7	87.2	87.6
NFE	8.6	5.9	5.0	5.9	7.1	8.4	5.9
Wage workers	4.2	3.9	3.8	3.8	12.2	4.4	6.5
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Median Monthly Earnings (Ariary '000)							
Agriculture	31.6	29.2	29.4	33.0	33.3	31.8	31.1
NFE	40.7	28.2	35.3	36.3	46.8	36.3	39.3
Wage workers	66.7	57.8	72.1	85.8	85.8	65.7	79.7
Low Earnings Rates (%)							
Agriculture	34.1	42.1	40.6	36.4	35.0	36.6	38.1
NFE	42.7	44.7	44.3	52.2	37.6	39.5	41.1
Wage workers	20.0	32.3	14.6	12.1	9.7	17.6	13.3

Tab 4.17: Structure of Household Earnings - Employment Type

Percent of labor income from…

	Agriculture*	Formal wage employment	Informal wage employment	Formal non farm enterprise	Informal non farm enterprise	Net transfers (remittances or public transfers)	*Total*
2005	***68.6***	***6.8***	***7.8***	***1.9***	***11.2***	***3.7***	***100***
Poorest	80.1	1.6	5.4	0.1	8.6	4.1	*100*
Q2	75.3	3.2	8.6	0.5	10.0	2.5	*100*
Q3	74.6	4.0	6.6	1.4	10.4	3.0	*100*
Q4	67.1	7.1	8.6	1.4	12.1	3.6	*100*
Richest	45.7	18.1	9.7	6.2	14.8	5.4	*100*
2001	***62.1***	***10.6***	***9.5***	***2.7***	***10.6***	***4.6***	***100***
Poorest	84.5	1.1	3.8	0.0	6.3	4.3	*100*
Q2	80.1	2.3	5.2	0.3	8.4	3.7	*100*
Q3	70.3	5.1	9.4	1.0	10.3	3.9	*100*
Q4	53.4	12.5	13.4	2.7	13.6	4.3	*100*
Richest	21.7	32.3	15.6	9.3	14.5	6.6	*100*
Difference (% points)	***6.5***	***-3.8***	***-1.7***	***-0.7***	***0.6***	***-0.8***	
Poorest	-4.4	0.6	1.6	0.1	2.2	-0.2	
Q2	-4.8	1.0	3.3	0.2	1.6	-1.2	
Q3	4.3	-1.1	-2.8	0.4	0.1	-1.0	
Q4	13.7	-5.4	-4.8	-1.3	-1.5	-0.7	
Richest	24.0	-14.2	-5.9	-3.1	0.3	-1.1	

* Agricultural earnings = residual + agricultural wages

Tab 4.18: Structure of Household Earnings - Sector of Employment

Percent of labor income from…

	Primary	Secondary	Tertiaty	Non-Labor Earnings	Net transfers (remittances or public transfers)	*Total*
2005	***70.7***	***3.5***	***21.4***	***0.7***	***3.7***	***100***
Poorest	81.0	1.9	12.6	0.5	4.0	*100*
Q2	77.1	2.1	17.8	0.5	2.5	*100*
Q3	76.2	3.0	16.9	1.0	2.9	*100*
Q4	68.8	3.6	23.0	1.0	3.7	*100*
Richest	50.6	6.8	36.6	0.4	5.5	*100*
2001	***64.8***	***7.9***	***21.9***	***1.0***	***4.5***	***100***
Poorest	87.2	3.0	5.4	0.2	4.3	*100*
Q2	82.4	4.3	8.4	1.1	3.7	*100*
Q3	73.3	5.0	16.0	1.9	3.8	*100*
Q4	56.7	10.7	27.0	1.2	4.3	*100*
Richest	23.7	16.5	52.9	0.4	6.5	*100*
Difference (% points)	***6.0***	***-4.4***	***-0.5***	***-0.3***	***-0.8***	
Poorest	-6.2	-1.1	7.2	0.3	-0.3	
Q2	-5.3	-2.2	9.4	-0.7	-1.2	
Q3	2.9	-2.0	0.9	-0.8	-1.0	
Q4	12.1	-7.1	-4.1	-0.3	-0.7	
Richest	26.9	-9.7	-16.2	0.0	-1.0	

* Agricultural earnings = residual + agricultural wages

Table 4.19: Household labor income profile

	Expenditure Quintile							
Geometric mean across households	Poorest	Q2	Q3	Q4	Richest	Poor	NonPoor	Total
2005								
Average hourly earnings	152.5	224.3	258.1	312.6	506.2	216.0	432.6	267.2
Average hours worked per week by the employed	37.6	40.6	42.3	42.8	44.1	40.4	43.8	41.4
Household unemployment rate	1.5	1.4	1.9	2.3	4.7	1.6	4.1	2.4
Household participation rate*	36.7	38.6	41.9	45.0	48.5	39.6	47.5	41.9
Total household per capita weekly labor income	**2,090.5**	**3,550.6**	**4,577.9**	**6,039.4**	**10,344.9**	**3,465.4**	**8,727.2**	**4,598.7**
2001								
Average hourly earnings	86.6	146.6	203.3	331.2	680.0	152.2	546.3	222.3
Average hours worked per week by the employed	41.2	43.4	43.8	45.5	45.5	43.1	45.6	43.8
Household unemployment rate	0.3	0.8	0.7	1.2	2.7	0.7	2.2	1.1
Household participation rate*	38.1	40.4	43.3	41.5	42.8	40.9	41.9	41.2
Total household per capita weekly labor income	**1,366.2**	**2,580.8**	**3,876.4**	**6,196.4**	**12,923.8**	**2,680.7**	**10,297.1**	**3,994.7**
Percent Change								
Average hourly earnings	76.0	53.0	26.9	-5.6	-25.6	41.9	-20.8	20.2
Average hours worked per week by the employed	-8.9	-6.5	-3.4	-5.8	-3.1	-6.3	-3.9	-5.5
Household unemployment rate	484.5	63.1	177.3	90.3	71.5	122.6	89.2	105.7
Household participation rate*	-3.6	-4.4	-3.1	8.5	13.3	-3.0	13.6	1.8
Total household per capita weekly labor income	**53.0**	**37.6**	**18.1**	**-2.5**	**-20.0**	**29.3**	**-15.2**	**15.1**
Sources of Change in Labor Income (percent)								
Average hourly earnings	133.7	138.4	149.3	124.9	133.3	142.8	140.6	138.3
Average hours worked per week by the employed	-21.9	-21.9	-21.6	128.4	14.1	-26.7	24.1	-42.8
Household employment rate	-3.0	-1.8	-7.8	23.8	9.1	-3.6	11.9	-9.3
Household participation rate*	-8.8	-14.8	-19.9	-177.1	-56.5	-12.5	-76.6	13.8
Total household per capita weekly labor income**	**+**	**+**	**+**	**-**	**-**	**+**	**-**	**+**

* Share of household member who are working (all age groups) or looking for work

** A "+" indicates that average labor income rose, while a "-" indicates that it fell between 2001 and 2005.

Table 5.1: Labor related obstacle to operation and growth of formal sector firms in Madagascar

Percent of firms

	Labor Skills	Labor Regulations
No obstacle	21.2	27.9
Minor obstacle	18.2	24.1
Moderate obstacle	30.1	33.1
Major obstacle	20.6	11.0
Very severe obstacle	9.9	3.8

Source: Investment Climate Assessment (ICA), 2005

Table 5.2: Obstacle to operation and growth of formal sector firms in Madagascar

		Avg Degree of Obstacle*	Most Important
1	Price controls & inflation	2.8	9.7
2	Cost of finance (e.g. interest rates)	2.8	12.5
3	Macroeconomic instability (inflation, exchange rates)	2.7	10.1
4	Access to finance (e.g. collateral)	2.5	14.2
5	Corruption	2.2	3.5
6	Regulatory policy uncertainty	2.2	6.6
7	Foreign exchange regulations	2.2	3.8
8	Tax rates	2.2	3.8
9	Electricity	2.2	10.1
10	Tax administration	2.1	2.1
11	Anti-competitive or informal practices	2.1	5.6
12	Crime, theft, disorder	1.9	2.4
13	Legal framework/conflict resolution	1.8	1.7
14	**Skills/education of workers**	**1.8**	**4.2**
15	Customs and trade regulations	1.8	1.7
16	**Labor regulations**	**1.4**	**0.4**
17	Transportation	1.4	0.4
18	Procedures to start a new business	1.3	0.4
19	Telecommunications	1.2	1.4
20	Access to land and commercial buildings	1.2	1.0
21	Environmental regulations	1.2	3.1
22	Business licensing and operating permits	1.1	0.0
23	Sanitary, hygiene, security, fire regulations	1.0	0.4
24	Certifications (e.g. ISO) & International Standards	0.9	0.7
25	Other	0.5	0.4

* 0 = no obstacle; 1 = minor obstacle; 2 = moderate obstacle; 3 = major obstacle; 4 = very severe obstacle

Source: Investment Climate Assessment (ICA) survey, 2005

Table 5.3. Determinants of Female Employment (Formal/Informal) Categories - Urban

Multinomial Logit

Sample: ***Women (15-64) in urban areas***

	Formal		Informal		Agric		Not Employed	
	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value
Age	0.003	13.15 **	0.003	7.17 **	0.001	3.72 **	-0.007	-18.73 **
Migrant	0.025	3.22 **	0.035	2.62 **	-0.101	-7.76 **	0.041	3.01 **
Education dummies								
Primary	0.029	2.21 *	0.036	2.59 **	-0.088	-8.04 **	0.023	1.59
Lower secondary	0.117	5.57 **	0.022	1.29	-0.230	-18.43 **	0.092	4.89 **
Upper secondary	0.218	6.98 **	-0.019	-0.92	-0.326	-24.14 **	0.126	4.83 **
Post secondary	0.451	11.12 **	-0.068	-2.94 **	-0.381	-25.53 **	-0.002	-0.05
Non-labor income (log)	0.0000	0.00	-0.0003	-0.30	0.0000	0.02	0.0002	0.28
Value of agricultural assets (log)	-0.004	-1.63	-0.015	-4.37 **	0.039	13.62 **	-0.020	-5.82 **
Obtained credit	0.049	2.48 *	0.020	0.58	-0.130	-3.79 **	0.060	1.81 +
Household Structure								
No. children < 5	-0.004	-0.93	0.003	0.54	0.031	5.53 **	-0.031	-5.07 **
No. children 5-14	0.000	-0.23	-0.004	-1.28	0.007	2.07 *	-0.002	-0.54
No. men 15-64	0.001	0.27	-0.045	-8.48 **	0.013	2.56 *	0.032	6.45 **
No. women 15-64	0.001	0.24	-0.007	-1.40	-0.034	-6.59 **	0.041	8.54 **
No. men 65+	-0.038	-2.31 *	-0.107	-4.40 **	0.050	2.42 *	0.096	4.68 **
No. women 65+	-0.008	-0.59	-0.003	-0.15	0.015	0.67	-0.004	-0.17
Antananarivo city dummy	0.883	278.43 **	-0.187	-25.30 **	-0.450	-86.65 **	-0.246	-38.03 **
Percent in each category	10.0		24.0		31.4		34.6	
Number of observations							7,522	
Pseudo R-squared							0.25	

Data: EPM 2005

Note: Region dummies included by not shown.

Note: Marginal effects show the average change in the probability of "sector" of employment resulting from a unit change in the independent variable. Consequently the marginal effects sum to zero across the categories.

Table 5.4. Determinants of Female Employment (Formal/Informal) Categories - Rural

Multinomial Logit

Sample: ***Women (15-64) in rural areas***

	Formal		Informal		Agric		Not Employed	
	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value
Age	0.001	6.10 **	0.001	3.07 **	0.002	5.24 **	-0.004	-11.83 **
Migrant	0.012	2.04 *	0.000	0.01	-0.034	-1.87 +	0.021	1.43
Education dummies								
Primary	0.017	2.35 *	0.028	2.90 **	-0.061	-4.99 **	0.015	1.64
Lower secondary	0.096	4.47 **	0.054	3.10 **	-0.260	-11.47 **	0.110	5.94 **
Upper secondary	0.244	5.45 **	0.001	0.05	-0.388	-9.65 **	0.143	3.89 **
Post secondary	0.332	5.47 **	0.056	1.21	-0.534	-9.66 **	0.146	2.60 **
Non-labor income (log)	0.0000	-0.01	0.0000	-0.01	0.0000	-0.04	0.0001	0.07
Value of agricultural assets (log)	-0.001	-0.98	-0.009	-3.52 **	0.010	3.33 **	0.000	-0.01
Obtained credit	0.028	1.74 +	-0.016	-0.56	-0.047	-1.17	0.035	1.09
Household Structure								
No. children < 5	-0.007	-2.49 *	0.005	1.20	0.019	3.14 **	-0.017	-3.82 **
No. children 5-14	0.000	-0.14	0.000	-0.12	0.002	0.68	-0.002	-0.70
No. men 15-64	-0.005	-2.44 *	-0.021	-4.81 **	0.017	3.08 **	0.010	2.73 **
No. women 15-64	-0.002	-1.00	-0.002	-0.46	-0.023	-4.20 **	0.027	7.03 **
No. men 65+	-0.074	-1.52	-0.058	-2.40 *	0.092	2.46 *	0.040	2.60 **
No. women 65+	-0.009	-1.07	0.018	0.82	0.027	1.03	-0.036	-2.11 *
Antananarivo city dummy (NA)								
Percent in each category	2.2		7.7		79.0		11.1	
Number of observations							7,258	
Pseudo R-squared							0.15	

Data: EPM 2005

Note: Region dummies included by not shown.

Note: Marginal effects show the average change in the probability of "sector" of employment resulting from a unit change in the independent variable. Consequently the marginal effects sum to zero across the categories.

Table 5.5. Determinants of Male Employment (Formal/Informal) Categories - Urban

Multinomial Logit

Sample: ***Men (15-64) in urban areas***

	Formal		Informal		Agric		Not Employed	
	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value
Age	0.005	19.18 **	0.002	6.72 **	0.003	8.43 **	-0.010	-26.98 **
Migrant	0.048	4.84 **	0.077	5.18 **	-0.125	-9.03 **	0.000	0.03
Education dummies								
Primary	0.039	2.57 **	-0.029	-2.09 *	-0.074	-6.05 **	0.065	4.24 **
Lower secondary	0.132	5.97 **	-0.043	-2.60 **	-0.260	-18.27 **	0.171	8.42 **
Upper secondary	0.198	7.54 **	-0.099	-6.09 **	-0.349	-26.10 **	0.250	10.38 **
Post secondary	0.329	10.59 **	-0.131	-8.14 **	-0.365	-24.70 **	0.168	6.09 **
Non-labor income (log)	-0.0005	-0.62	0.0000	-0.01	0.0000	0.02	0.0004	0.65
Value of agricultural assets (log)	-0.005	-1.90 +	-0.007	-2.00 *	0.021	7.23 **	-0.009	-3.65 **
Obtained credit	0.103	3.94 **	-0.023	-0.71	-0.103	-2.95 **	0.023	1.03
Household Structure								
No. children < 5	0.003	0.71	0.017	2.72 **	0.019	3.08 **	-0.039	-7.21 **
No. children 5-14	-0.003	-1.24	-0.009	-2.46 *	0.001	0.43	0.011	3.99 **
No. men 15-64	-0.011	-2.72 **	-0.005	-1.01	-0.012	-2.33 *	0.027	7.99 **
No. women 15-64	0.006	1.38	-0.022	-3.38 **	-0.006	-1.00	0.022	5.29 **
No. men 65+	-0.015	-0.70	-0.006	-0.21	0.019	0.71	0.002	0.10
No. women 65+	-0.027	-1.31	0.015	0.60	-0.020	-0.80	0.032	2.01 *
Antananarivo city dummy	0.840	180.37 **	-0.200	-26.93 **	-0.474	-84.55 **	-0.167	-37.59 **
Percent in each category	17.8		28.2		34.0		20.0	
Number of observations							6,810	
Pseudo R-squared							0.33	

Data: EPM 2005

Note: Region dummies included by not shown.

Note: Marginal effects show the average change in the probability of "sector" of employment resulting from a unit change in the independent variable. Consequently the marginal effects sum to zero across the categories.

Table 5.6. Determinants of Male Employment (Formal/Informal) Categories - Rural

Multinomial Logit

Sample: ***Men (15-64) in rural areas***

	Formal		Informal		Agric		Not Employed	
	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value
Age	0.001	8.73 **	0.000	0.86	0.005	11.65 **	-0.007	-16.74 **
Migrant	0.028	3.62 **	0.043	2.85 **	-0.064	-3.35 **	-0.007	-0.50
Education dummies								
Primary	0.023	2.42 *	0.010	1.03	-0.081	-6.15 **	0.048	4.77 **
Lower secondary	0.128	4.68 **	0.034	2.05 *	-0.335	-13.46 **	0.173	8.88 **
Upper secondary	0.263	6.29 **	0.005	0.25	-0.472	-14.93 **	0.204	6.66 **
Post secondary	0.407	7.55 **	-0.008	-0.31	-0.593	-15.91 **	0.194	3.85 **
Non-labor income (log)	0.0000	0.00	0.0000	-0.01	0.0000	-0.03	0.0000	0.06
Value of agricultural assets (log)	-0.001	-1.06	-0.009	-3.71 **	0.011	3.86 **	-0.001	-0.37
Obtained credit	0.017	1.13	-0.041	-1.55	0.049	1.47	-0.025	-1.38
Household Structure								
No. children < 5	-0.001	-0.24	0.008	1.81 +	0.009	1.58	-0.017	-4.12 **
No. children 5-14	0.001	0.68	-0.006	-2.15 *	-0.003	-1.00	0.008	4.06 **
No. men 15-64	-0.005	-2.19 *	0.000	-0.10	-0.012	-2.41 *	0.017	6.20 **
No. women 15-64	0.003	1.12	-0.006	-1.18	-0.007	-1.06	0.010	2.79 **
No. men 65+	0.018	1.45	-0.083	-2.73 **	0.027	0.88	0.038	3.20 **
No. women 65+	-0.004	-0.29	0.004	0.15	-0.004	-0.15	0.005	0.27
Antananarivo city dummy (NA)								
Percent in each category	3.5		6.6		81.1		8.8	
Number of observations							6,930	
Pseudo R-squared							0.23	

Data: EPM 2005

Note: Region dummies included by not shown.

Note: Marginal effects show the average change in the probability of "sector" of employment resulting from a unit change in the independent variable. Consequently the marginal effects sum to zero across the categories.

Table 5.7. Determinants of Female Employment (Wage/Non-Wage) Categories - Urban

Multinomial Logit

Sample: ***Women (15-64) in urban areas***

	Wage Non-Agric		Self/Family Non-Agric		Agric		Not Employed	
	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value
Age	0.003	10.24 **	0.003	9.04 **	0.001	3.78 **	-0.007	-18.78 **
Migrant	0.018	1.92 +	0.045	3.78 **	-0.103	-7.95 **	0.040	2.97 **
Education dummies								
Primary	0.030	2.39 *	0.048	3.68 **	-0.101	-9.08 **	0.023	1.59
Lower secondary	0.075	4.36 **	0.078	4.51 **	-0.253	-20.06 **	0.100	5.42 **
Upper secondary	0.137	5.63 **	0.064	2.94 **	-0.349	-25.50 **	0.148	5.91 **
Post secondary	0.366	10.41 **	-0.026	-1.17	-0.375	-20.82 **	0.034	1.11
Non-labor income (log)	0.00008	0.12	-0.00061	-0.78	0.00020	0.22	0.00034	0.39
Value of agricultural assets (log)	-0.00722	-2.44 *	-0.01146	-3.67 **	0.03988	13.60 **	-0.02120	-6.06 **
Obtained credit	0.010	0.48	0.107	3.10 **	-0.161	-4.74 **	0.044	1.36
Household Structure								
No. children < 5	-0.008	-1.61	0.001	0.28	0.036	6.45 **	-0.030	-4.98 **
No. children 5-14	-0.006	-2.29 *	0.004	1.19	0.005	1.38	-0.002	-0.55
No. men 15-64	-0.017	-4.44 **	-0.026	-5.55 **	0.012	2.36 *	0.031	6.41 **
No. women 15-64	0.006	1.69 +	-0.013	-2.81 **	-0.035	-6.64 **	0.042	8.69 **
No. men 65+	-0.054	-2.81 **	-0.074	-3.23 **	0.033	1.57	0.095	4.65 **
No. women 65+	-0.018	-1.08	0.000	-0.02	0.023	1.07	-0.005	-0.22
Antananarivo city dummy	0.860	217.91 **	-0.138	-23.57 **	-0.477	-94.76 **	-0.245	-45.34 **
Percent in each category	18.5		15.4		31.4		34.6	
Number of observations							7,522	
Pseudo R-squared							0.24	

Data: EPM 2005

Note: Region dummies included by not shown.

Note: Marginal effects show the average change in the probability of "sector" of employment resulting from a unit change in the independent variable. Consequently the marginal effects sum to zero across the categories.

Table 5.8. Determinants of Female Employment (Wage/Non-Wage) Categories - Rural

Multinomial Logit

Sample: ***Women (15-64) in rural areas***

	Wage Non-Agric		Self/Family Non-Agric		Agric		Not Employed	
	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value
Age	0.001	4.84 **	0.001	4.74 **	0.002	5.27 **	-0.004	-11.87 **
Migrant	0.018	2.38 *	0.002	0.16	-0.040	-2.28 *	0.020	1.35
Education dummies								
Primary	0.019	2.45 *	0.050	5.19 **	-0.082	-6.78 **	0.013	1.43
Lower secondary	0.083	4.24 **	0.104	5.04 **	-0.290	-12.76 **	0.104	5.62 **
Upper secondary	0.191	4.63 **	0.091	2.47 *	-0.422	-10.61 **	0.140	3.81 **
Post secondary	0.363	5.72 **	0.056	1.14	-0.581	-10.63 **	0.163	2.72 **
Non-labor income (log)	-0.00001	-0.02	0.00001	0.01	-0.00004	-0.04	0.00004	0.05
Value of agricultural assets (log)	-0.00189	-1.33	-0.00005	-0.02	0.00370	1.31	-0.00177	-0.81
Obtained credit	0.019	1.09	0.018	0.70	-0.069	-1.77 +	0.032	1.02
Household Structure								
No. children < 5	0.000	-0.11	-0.001	-0.25	0.019	3.35 **	-0.017	-3.86 **
No. children 5-14	-0.001	-1.01	-0.003	-1.30	0.006	1.90 +	-0.002	-0.72
No. men 15-64	-0.010	-3.71 **	-0.014	-3.77 **	0.013	2.57 **	0.010	2.82 **
No. women 15-64	0.001	0.21	-0.005	-1.33	-0.024	-4.59 **	0.028	7.14 **
No. men 65+	-0.052	-1.99 *	-0.062	-2.66 **	0.074	2.59 **	0.040	2.62 **
No. women 65+	-0.001	-0.04	0.006	0.35	0.032	1.31	-0.037	-2.20 *
Antananarivo city dummy (NA)								
Percent in each category	3.5		6.5		79.0		11.1	
Number of observations							7,258	
Pseudo R-squared							0.16	

Data: EPM 2005

Note: Region dummies included by not shown.

Note: Marginal effects show the average change in the probability of "sector" of employment resulting from a unit change in the independent variable. Consequently the marginal effects sum to zero across the categories.

Table 5.9. Determinants of Male Employment (Wage/Non-Wage) Categories - Urban

Multinomial Logit

Sample: ***Men (15-64) in urban areas***

	Wage Non-Agric		Self/Family Non-Agric		Agric		Not Employed	
	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value
Age	0.006	18.48 **	0.001	5.03 **	0.004	9.09 **	-0.011	-27.28 **
Migrant	0.058	4.64 **	0.065	5.46 **	-0.123	-8.96 **	0.000	-0.02
Education dummies								
Primary	0.033	2.15 *	0.005	0.41	-0.103	-8.08 **	0.065	4.26 **
Lower secondary	0.093	4.59 **	0.036	2.34 *	-0.308	-21.00 **	0.179	8.70 **
Upper secondary	0.128	5.53 **	0.001	0.09	-0.395	-28.98 **	0.266	11.02 **
Post secondary	0.231	8.63 **	-0.051	-4.72 **	-0.365	-21.62 **	0.185	6.82 **
Non-labor income (log)	-0.00031	-0.34	-0.00069	-0.90	0.00032	0.32	0.00068	0.99
Value of agricultural assets (log)	-0.00690	-2.07 *	-0.00452	-1.60	0.02201	7.37 **	-0.01059	-4.30 **
Obtained credit	0.063	2.12 *	0.047	1.67 +	-0.128	-3.78 **	0.018	0.82
Household Structure								
No. children < 5	0.006	0.98	0.002	0.46	0.030	5.00 **	-0.038	-6.99 **
No. children 5-14	-0.011	-3.31 **	-0.002	-0.82	0.002	0.66	0.011	4.09 **
No. men 15-64	-0.018	-3.79 **	-0.006	-1.42	-0.004	-0.75	0.028	8.06 **
No. women 15-64	0.004	0.80	-0.018	-3.62 **	-0.008	-1.26	0.021	5.17 **
No. men 65+	-0.001	-0.05	0.003	0.14	-0.005	-0.19	0.003	0.18
No. women 65+	-0.035	-1.47	0.030	1.71 +	-0.027	-1.09	0.032	1.99 *
Antananarivo city dummy	0.543	4.60 **	0.004	0.06	-0.497	-34.78 **	-0.049	-0.90
Percent in each category	32.3		13.7		34.0		20.0	
Number of observations							6,810	
Pseudo R-squared							0.33	

Data: EPM 2005

Note: Region dummies included by not shown.

Note: Marginal effects show the average change in the probability of "sector" of employment resulting from a unit change in the independent variable. Consequently the marginal effects sum to zero across the categories.

Table 5.10. Determinants of Male Employment (Wage/Non-Wage) Categories - Rural

Multinomial Logit

Sample: ***Men (15-64) in rural areas***

	Wage Non-Agric		Self/Family Non-Agric		Agric		Not Employed	
	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value
Age	0.001	6.84 **	0.000	2.57 **	0.005	11.73 **	-0.007	-16.82 **
Migrant	0.043	3.93 **	0.032	3.06 **	-0.069	-3.78 **	-0.007	-0.50
Education dummies								
Primary	0.020	2.11 *	0.011	1.59	-0.078	-6.31 **	0.048	4.79 **
Lower secondary	0.127	5.70 **	0.038	2.78 **	-0.340	-14.27 **	0.175	8.95 **
Upper secondary	0.239	6.97 **	0.034	1.98 *	-0.488	-15.66 **	0.215	6.98 **
Post secondary	0.351	7.23 **	0.029	1.34	-0.600	-14.88 **	0.220	4.27 **
Non-labor income (log)	0.00000	0.01	0.00000	-0.01	-0.00002	-0.02	0.00002	0.03
Value of agricultural assets (log)	-0.00406	-2.33 *	-0.00055	-0.38	0.00606	2.35 *	-0.00145	-0.80
Obtained credit	-0.022	-1.38	0.033	1.36	0.016	0.51	-0.027	-1.54
Household Structure								
No. children < 5	0.007	2.32 *	-0.002	-0.92	0.012	2.25 *	-0.017	-4.14 **
No. children 5-14	0.000	0.09	-0.004	-2.77 **	-0.004	-1.26	0.008	4.03 **
No. men 15-64	-0.004	-1.18	0.000	-0.16	-0.013	-3.10 **	0.017	6.17 **
No. women 15-64	-0.002	-0.57	0.003	1.01	-0.010	-1.96 *	0.010	2.78 **
No. men 65+	-0.026	-1.06	-0.013	-0.79	0.001	0.03	0.038	3.16 **
No. women 65+	0.006	0.30	0.018	1.06	-0.028	-1.07	0.004	0.24
Antananarivo city dummy (NA)								
Percent in each category	6.9		3.3		81.1		8.8	
Number of observations							6,930	
Pseudo R-squared							0.25	

Data: EPM 2005

Note: Region dummies included by not shown.

Note: Marginal effects show the average change in the probability of "sector" of employment resulting from a unit change in the independent variable. Consequently the marginal effects sum to zero across the categories.

Table 5.11. Determinants of Adolescent (10-14) Employment Status - Urban Areas

Multinomial Logit
Sample: ***Youth of age 10-14 in urban areas***

	School Only		Work Only		Work and School		Nothing	
	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value
Female dummy	0.004	0.32	0.003	0.40	-0.008	-0.93	0.001	0.10
Age dummy								
11	-0.005	-0.24	0.011	0.67	0.016	1.01	-0.022	-2.54 *
12	-0.057	-2.71 **	0.034	1.93 +	0.029	1.78 +	-0.005	-0.51
13	-0.109	-4.86 **	0.093	4.46 **	0.029	1.68 +	-0.012	-1.27
14	-0.177	-7.62 **	0.159	6.74 **	0.032	1.91 +	-0.013	-1.36
Migrant	0.044	1.57	-0.002	-0.10	-0.005	-0.22	-0.037	-3.55 **
Education of most educated HH member								
Primary	0.184	13.93 **	-0.101	-15.13 **	-0.029	-2.92 **	-0.054	-8.95 **
Lower Secondary	0.235	19.35 **	-0.122	-21.98 **	-0.056	-5.65 **	-0.057	-10.38 **
Upper Secondary	0.224	17.84 **	-0.111	-22.63 **	-0.053	-4.90 **	-0.059	-12.48 **
Post Secondary	0.271	32.89 **	-0.111	-19.63 **	-0.094	-15.48 **	-0.066	-14.06 **
Non-labor income (log)	0.00003	0.02	-0.00001	-0.01	-0.00002	-0.02	0.00000	0.01
Value of agricultural assets (log)	-0.0052	-1.41	0.0022	0.87	0.0039	1.51	-0.0008	-0.33
Obtained credit	-0.063	-1.21	-0.021	-0.53	0.055	1.26	0.029	0.80
HH has a NFE	-0.014	-0.97	0.008	0.83	0.013	1.20	-0.007	-0.95
Parent is HH head	0.067	3.98 **	-0.037	-3.37 **	-0.005	-0.39	-0.025	-2.74 **
HH head is under 21 years of age	0.187	6.52 **	-0.066	-3.65 **	-0.081	-4.24 **	-0.040	-2.88 **
Household Structure								
No. children < 5	-0.011	-1.41	0.006	1.06	-0.003	-0.51	0.009	1.79 +
No. children 5-14	-0.007	-1.56	-0.002	-0.63	0.007	2.17 *	0.002	0.75
No. men 15-64	0.002	0.31	-0.001	-0.16	-0.010	-2.18 *	0.009	2.12 *
No. women 15-64	0.018	2.27 *	-0.012	-1.99 *	0.000	0.01	-0.006	-1.22
No. men 65+	0.020	0.75	-0.012	-0.65	-0.034	-1.76 +	0.025	1.55
No. women 65+	0.030	0.93	-0.035	-1.44	0.038	2.01 *	-0.033	-1.46
Large urban area	0.079	3.06 **	-0.032	-1.93 +	-0.096	-17.20 **	0.049	2.03 *
Percent in each category	78.5		8.1		7.7		5.7	
Number of observations	3,647							
Pseudo R-squared	0.26							

Data: EPM 2005
Note: Region dummies included by not shown.
Note: Marginal effects show the average change in the probability of employment choice resulting from a unit change in the independent variable. Consequently the marginal effects sum to zero across the categories.

Table 5.12. Determinants of Adolescent (10-14) Employment Status - Rural Areas

Multinomial Logit

Sample: ***Youth of age 10-14 in rural areas***

	School Only		Work Only		Work and School		Nothing	
	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value
Female dummy	-0.002	-0.16	-0.001	-0.12	-0.014	-1.41	0.017	2.16
Age dummy								
11	0.017	0.79	0.005	0.26	-0.007	-0.40	-0.016	-1.87
12	-0.052	-2.47 *	0.062	3.28 **	0.011	0.72	-0.021	-2.88
13	-0.108	-4.81 **	0.098	4.71 **	0.038	2.15 *	-0.028	-4.00
14	-0.194	-8.18 **	0.183	7.65 **	0.035	1.99 *	-0.025	-3.29
Migrant	-0.034	-0.75	0.111	2.73 **	-0.034	-1.20	-0.044	-3.53
Education of most educated HH member								
Primary	0.210	14.76 **	-0.148	-18.86 **	-0.015	-1.36	-0.047	-8.45
Lower Secondary	0.254	15.82 **	-0.142	-24.41 **	-0.067	-4.75 **	-0.045	-8.80
Upper Secondary	0.253	12.15 **	-0.148	-28.63 **	-0.065	-3.46 **	-0.039	-5.10
Post Secondary	0.275	11.39 **	-0.126	-13.31 **	-0.110	-5.57 **	-0.039	-3.71
Non-labor income (log)	0.00008	0.05	-0.00013	-0.11	0.00003	0.03	0.00001	0.02
Value of agricultural assets (log)	-0.0003	-0.08	0.0000	-0.01	0.0005	0.15	-0.0001	-0.05
Obtained credit	-0.116	-1.89 +	-0.010	-0.22	0.069	1.41	0.056	1.31
HH has a NFE	0.010	0.61	-0.009	-0.69	-0.010	-0.81	0.008	0.85
Parent is HH head	0.035	1.64	-0.047	-3.32 **	0.022	1.29	-0.010	-0.99
HH head is under 21 years of age	0.253	0.00	-0.085	0.00	-0.145	0.00	-0.023	0.00
Household Structure								
No. children < 5	-0.002	-0.24	0.004	0.69	-0.003	-0.41	0.000	0.05
No. children 5-14	-0.007	-1.31	0.003	0.91	0.006	1.55	-0.003	-0.90
No. men 15-64	0.001	0.11	0.007	1.34	-0.008	-1.48	0.000	0.04
No. women 15-64	0.006	0.64	-0.013	-1.86 +	0.008	1.30	-0.001	-0.20
No. men 65+	-0.051	-1.79 +	0.020	1.02	-0.002	-0.10	0.032	2.32
No. women 65+	-0.038	-1.14	-0.009	-0.35	0.045	1.82 +	0.001	0.08
Percent in each category	68.4		12.4		14.3		4.9	
Number of observations	3,904							
Pseudo R-squared	0.22							

Data: EPM 2005

Note: Region dummies included by not shown.

Note: Marginal effects show the average change in the probability of employment choice resulting from a unit change in the independent variable. Consequently the marginal effects sum to zero across the categories.

Table 5.13. Determinants of Adolescent (15-20) Employment Status - Urban Areas

Multinomial Logit

Sample: ***Youth of age 15-20 in urban areas***

	School Only		Work Only		Work and School		Nothing	
	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value
Female dummy	-0.048	-3.13 **	-0.001	-0.04	-0.011	-1.44	0.060	3.84 **
Age dummy								
16	-0.080	-4.33 **	0.079	3.52 **	-0.009	-1.19	0.011	0.53
17	-0.172	-10.12 **	0.162	7.01 **	-0.018	-2.59 **	0.028	1.33
18	-0.197	-11.76 **	0.181	7.75 **	-0.026	-4.23 **	0.042	1.88 +
19	-0.247	-15.41 **	0.210	8.34 **	-0.028	-4.69 **	0.066	2.69 **
20	-0.318	-23.97 **	0.280	11.46 **	-0.034	-6.62 **	0.071	3.00 **
Migrant	0.031	1.49	0.000	-0.01	-0.014	-1.31	-0.017	-1.09
Education of most educated HH member								
Primary	0.204	8.10 **	-0.172	-10.20 **	0.013	0.91	-0.045	-3.78 **
Lower Secondary	0.432	14.72 **	-0.395	-23.77 **	0.010	0.66	-0.047	-3.65 **
Upper Secondary	0.558	22.02 **	-0.487	-41.59 **	0.014	0.81	-0.085	-8.74 **
Post Secondary	0.583	32.89 **	-0.468	-45.02 **	-0.026	-2.94 **	-0.089	-9.86 **
Non-labor income (log)	0.00118	1.03	-0.00110	-0.89	-0.00009	-0.14	0.00001	0.01
Value of agricultural assets (log)	-0.0037	-0.97	0.0074	1.95 +	0.0012	0.59	-0.0048	-1.33
Obtained credit	-0.021	-0.62	-0.026	-0.60	0.022	0.87	0.026	0.73
HH has a NFE	-0.036	-2.77 **	0.045	3.26 **	0.004	0.60	-0.013	-1.21
Parent is HH head	0.124	7.56 **	-0.112	-7.07 **	0.017	1.62	-0.029	-2.44 *
HH head is under 21 years of age	0.104	3.51 **	0.012	0.42	-0.041	-7.42 **	-0.075	-6.21 **
Household Structure								
No. children < 5	-0.057	-6.41 **	0.046	5.58 **	-0.002	-0.46	0.013	1.93 +
No. children 5-14	0.008	1.64	-0.003	-0.67	0.002	1.04	-0.007	-1.71 +
No. men 15-64	-0.006	-1.01	0.010	1.53	-0.008	-2.19 *	0.004	0.80
No. women 15-64	0.007	0.90	-0.001	-0.11	-0.002	-0.47	-0.004	-0.62
No. men 65+	0.077	2.81 **	0.016	0.55	-0.034	-1.63	-0.058	-2.02 *
No. women 65+	0.040	1.57	-0.060	-2.13 *	0.021	1.51	-0.002	-0.09
Large urban area	0.023	1.01	-0.097	-3.70 **	-0.039	-7.71 **	0.113	4.08 **
Percent in each category	42.5		40.5		3.3		13.7	
Number of observations	3,573							
Pseudo R-squared	0.34							

Data: EPM 2005

Note: Region dummies included by not shown.

Note: Marginal effects show the average change in the probability of employment choice resulting from a unit change in the independent variable. Consequently the marginal effects sum to zero across the categories.

Table 5.14. Determinants of Adolescent (15-20) Employment Status - Rural Areas

Multinomial Logit
Sample: ***Youth of age 15-20 in rural areas***

	School Only		Work Only		Work and School		Nothing	
	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value	Marg Eff	t-value
Female dummy	-0.055	-4.26 **	0.014	0.81	0.002	0.23	0.039	2.85 **
Age dummy								
16	-0.066	-5.42 **	0.089	5.03 **	-0.018	-3.44 **	-0.005	-0.34
17	-0.114	-10.50 **	0.137	8.07 **	-0.020	-3.77 **	-0.004	-0.28
18	-0.164	-18.98 **	0.213	14.75 **	-0.032	-8.89 **	-0.017	-1.45
19	-0.173	-20.66 **	0.211	13.27 **	-0.028	-6.83 **	-0.010	-0.78
20	-0.202	-29.75 **	0.259	20.21 **	-0.034	-10.21 **	-0.023	-2.12 *
Migrant	-0.011	-0.42	0.032	0.97	-0.017	-1.72 +	-0.004	-0.19
Education of most educated HH member								
Primary	0.134	6.54 **	-0.140	-7.23 **	0.018	1.65 +	-0.013	-1.44
Lower Secondary	0.393	12.40 **	-0.417	-16.51 **	0.035	1.83 +	-0.011	-0.85
Upper Secondary	0.533	15.78 **	-0.545	-22.04 **	0.027	1.23	-0.016	-1.01
Post Secondary	0.504	10.61 **	-0.521	-14.34 **	0.011	0.40	0.005	0.19
Non-labor income (log)	0.00011	0.09	-0.00009	-0.06	-0.00001	-0.01	-0.00001	-0.01
Value of agricultural assets (log)	-0.0014	-0.43	0.0013	0.33	0.0002	0.09	-0.0001	-0.02
Obtained credit	-0.024	-0.70	-0.002	-0.03	-0.002	-0.11	0.027	0.59
HH has a NFE	-0.014	-1.10	0.024	1.50	0.004	0.49	-0.013	-1.31
Parent is HH head	0.093	4.83 **	-0.104	-4.94 **	0.008	0.80	0.003	0.26
HH head is under 21 years of age	0.099	0.00	-0.054	0.00	-0.036	0.00	-0.009	0.00
Household Structure								
No. children < 5	-0.013	-1.87 +	0.014	1.67 +	-0.003	-0.80	0.003	0.48
No. children 5-14	0.004	1.02	-0.003	-0.69	0.003	1.24	-0.003	-1.03
No. men 15-64	-0.007	-1.28	0.011	1.61	-0.007	-2.01 *	0.003	0.73
No. women 15-64	0.020	2.97 **	-0.011	-1.38	-0.008	-2.00 *	0.000	-0.01
No. men 65+	0.014	0.53	-0.040	-1.30	0.014	0.94	0.012	0.57
No. women 65+	0.042	1.43	-0.002	-0.05	-0.018	-0.89	-0.022	-0.79
Percent in each category	21.4		68.6		3.9		6.1	
Number of observations	3,418							
Pseudo R-squared	0.26							

Data: EPM 2005
Note: Region dummies included by not shown.
Note: Marginal effects show the average change in the probability of employment choice resulting from a unit change in the independent variable.
Consequently the marginal effects sum to zero across the categories.

Table 5.15. Determinants of Daily Earnings

Dependent variable = log(daily earnings) *Sample:* ***All adults (15-64)***	2005		2001		Difference	
	Coef.	t-value	Coef.	t-value	Coef.	t-value
Wage Employed (non-agriculture)						
Hours worked per day	0.027	5.32 **	0.017	3.53 **	0.011	1.51
Experience	0.035	5.70 **	0.017	2.60 **	0.019	2.08 *
Experience-squared	0.000	-4.05 **	0.000	-0.95	0.000	-2.02 *
Education						
Primary education dummy	0.232	5.65 **	0.280	5.94 **	-0.049	-0.78
Lower secondary education dummy	0.480	11.03 **	0.591	11.59 **	-0.111	-1.66 +
Upper secondary education dummy	0.693	14.23 **	0.720	13.20 **	-0.026	-0.36
Post secondary education dummy	1.054	21.18 **	1.170	21.44 **	-0.115	-1.56
Female Dummy	-0.320	-10.89 **	-0.285	-9.77 **	-0.035	-0.84
Constant	7.572	22.31 **	7.799	24.41 **	-0.227	-0.49
Number of observations	2,993		2,558			
R-squared	0.29		0.32			
Non-Farm Enterprise (non-wage)						
Hours worked per day	0.025	2.73 **	0.034	3.71 **	-0.009	-0.70
Experience	0.012	1.26	-0.001	-0.08	0.013	0.78
Experience-squared	-0.0003	-1.86 +	0.0000	-0.12	0.000	-0.92
Education						
Primary education dummy	0.116	2.02 *	0.200	2.55 *	-0.084	-0.87
Lower secondary education dummy	0.260	3.83 **	0.255	2.78 **	0.005	0.04
Upper secondary education dummy	0.428	4.71 **	0.579	5.33 **	-0.151	-1.07
Post secondary education dummy	0.715	5.29 **	0.758	5.75 **	-0.043	-0.23
Female Dummy	-0.323	-6.77 **	-0.313	-5.35 **	-0.009	-0.12
Constant	7.370	18.50 **	8.142	13.19 **	-0.771	-1.05
Number of observations	2,432		1,229			
R-squared	0.09		0.17			
Agriculture						
Hours worked per day	0.002	0.54	0.053	9.18 **	-0.051	-7.61 **
Experience	-0.009	-2.69 **	-0.017	-3.11 **	0.008	1.19
Experience-squared	0.000	3.39 **	0.000	2.79 **	0.000	-0.59
Education						
Primary education dummy	0.084	5.60 **	0.251	9.39 **	-0.167	-5.45 **
Lower secondary education dummy	0.218	8.70 **	0.371	7.23 **	-0.153	-2.69 **
Upper secondary education dummy	0.438	8.75 **	0.674	8.24 **	-0.236	-2.46 *
Post secondary education dummy	0.877	10.64 **	1.114	8.24 **	-0.237	-1.50
Female Dummy	-0.023	-1.78 +	0.002	0.08	-0.025	-0.99
Constant	7.932	101.57 **	6.942	57.64 **	0.990	6.90 **
Number of observations	17,266		5,077			
R-squared	0.09		0.18			

Data: EPM 2001 and 2005
Note: Region dummies included by not shown.
Note: Estimates corrected for selection (Bourguignon, Fournier and Gurgand, 2007)

Table 5.16. Determinants of Daily Wage Earnings by Gender - 2005

Dependent variable = log(daily wage earnings) *Sample:* ***All adults (15-64)***	Male		Female		Difference	
	Coef.	t-value	Coef.	t-value	Coef.	t-value
Hours worked per day	0.026	4.63 **	0.039	4.69 **	0.013	1.32
Experience	0.025	3.63 **	0.055	6.56 **	0.030	2.78 **
Experience-squared	-0.0002	-1.96 *	-0.0008	-5.52 **	-0.0006	-3.03 **
Education						
Primary education dummy	0.306	7.33 **	0.167	3.21 **	-0.139	-2.08 *
Lower secondary education dummy	0.514	11.32 **	0.485	8.52 **	-0.029	-0.40
Upper secondary education dummy	0.713	14.04 **	0.833	11.86 **	0.120	1.38
Post secondary education dummy	1.072	20.81 **	1.264	18.20 **	0.192	2.22 *
Constant	7.857	27.21 **	6.257	19.49 **	-1.600	-3.70 **
Number of observations	2,325		1,453			
R-squared	0.31		0.30			

Data: EPM 2005
Note: Province-milieu dummies included but not shown
Note: Estimates corrected for selection (Bourguignon, Fournier and Gurgand, 2007)

Table 5.17. Simulated Effect of Education on Wage Earnings by Gender

	Mean wage earnings		Percent
	Male	Female	Difference
Mean wage earnings among those with no education	50.0	41.9	-16.2
Simulated earnings from education alone			
Primary education dummy	65.3	48.9	-25.1
Lower secondary education dummy	75.7	62.2	-17.8
Upper secondary education dummy	85.7	76.8	-10.3
Post secondary education dummy	103.6	94.9	-8.4

Data: EPM 2005
Note: Simulations based on applying coefficients from Table 5.16 to the mean no-education wage earnings

Table 5.18. Determinants of Daily Wage Earnings - 2005

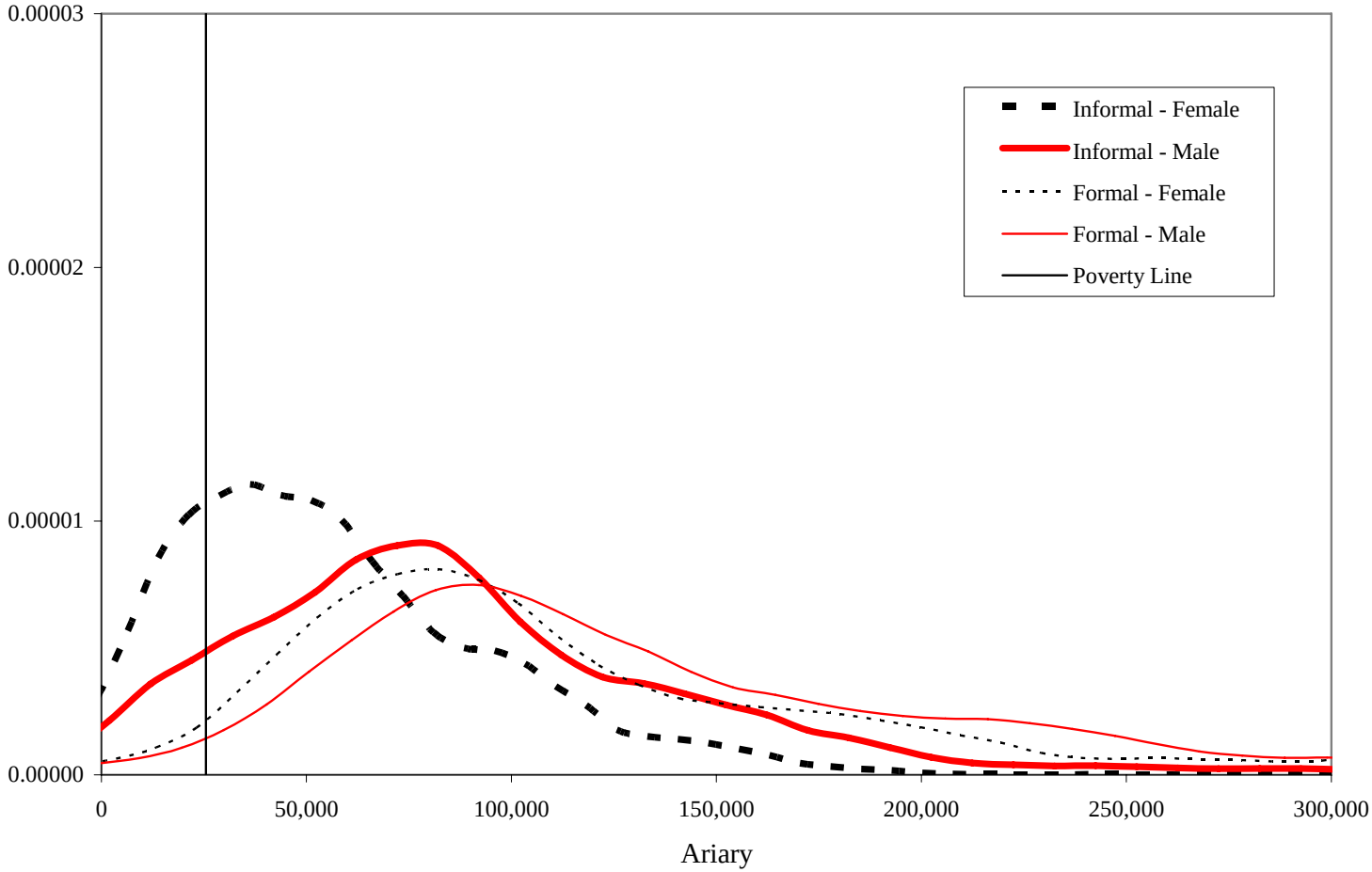
Dependent variable = log(daily wage earnings)	(1)		(2)		(3)		Difference (1-2)		Difference (2-3)	
Sample: ***All adults (15-64)***	Public Sector		Private Formal		Informal		*Pub - Formal*		*Formal - Informal*	
	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value
Hours worked per day	0.024	2.86	0.010	1.00	0.028	4.28 **	0.013	1.00	-0.018	-1.46
Experience	0.011	1.09	0.018	1.61	0.025	4.26 **	-0.007	-0.50	-0.007	-0.55
Experience-squared	0.0000	0.24	0.000	-1.45	0.000	-4.29 **	0.000	1.25	0.000	0.59
Education										
Primary education dummy	0.208	1.87	0.134	1.37	0.146	3.64 **	0.074	0.50	-0.012	-0.12
Lower secondary education dummy	0.459	4.27 *	0.205	2.05 *	0.283	6.01 **	0.254	1.73 +	-0.078	-0.71
Upper secondary education dummy	0.532	5.00 *	0.271	2.40 *	0.454	7.05 **	0.261	1.68 +	-0.183	-1.40
Post secondary education dummy	0.814	7.35 **	0.735	6.62 **	0.669	7.56 **	0.079	0.51	0.066	0.47
Female Dummy	-0.165	-3.24 **	-0.259	-4.29 **	-0.402	-12.37 **	0.094	1.19	0.143	2.08 *
Constant	8.145	14.84 **	7.990	13.26 **	7.289	42.11 **	0.155	0.19	0.701	1.12
Number of observations	860		937		3,652					
R-squared	0.20		0.14		0.13					

Data: EPM 2005

Note: Province-milieu dummies included but not shown

Note: Estimates corrected for selection (Bourguignon, Fournier and Gurgand, 2001)

Figure 5.1. Density Estimates of Daily Non-Agricultural Wage Earnings: Men and Women by Formality Status



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