State Planning Organization of the Republic of Turkey
and
World Bank
Welfare and Social Policy Analytical Work Program

Working Paper Number 6:

Growth, Employment, Skills and Female Labor Force

Erol Taymaz
Department of Economics,
Middle East Technical University

Ankara, March 2010

State Planning Organization of the Republic of Turkey
and
World Bank

Welfare and Social Policy Analytical Work Program

Working Paper Number 6:

Growth, Employment, Skills and Female Labor Force

Erol Taymaz
Department of Economics, Middle East Technical University

Ankara, March 2010

State Planning Organization

World Bank

The World Bank
1818 H Street, NW
Washington, DC 20433, USA

Growth, Employment, Skills and Female Labor Force

Table of Contents

Tables

1. Introduction

1. The Turkish economy has undergone trough a dramatic change since the 2001 Crisis. The economy achieved historically high growth rates in 6 years in a row after a period of turbulence and boom and bust cycles in the 1990s. In spite of unprecedented growth performance, the unemployment rate remained at a very high level against the background of declining labor participation rates. The weak employment performance of the Turkish economy after the 2001 Crisis calls for a comprehensive analysis of the dynamics of employment generation. The transformation of the economy and the reallocation of labor from rural activities towards urban activities have been rather fast in the last few years. This transformation process raises the issue of skill mismatch because the labor released from rural activities may not have skills necessary for productive employment in urban activities. Moreover, labor participation rate is extremely low for urban women. That is likely to be caused by the lack of employment opportunities for women in urban areas.

2. This study aims at providing information on i) growth-employment link, ii) the patterns of employment growth, the role of skills during the growth process, and the links between the pattern of growth and household welfare, and iii) the mechanisms that link economic growth to poverty reduction through changes in labor market participation decisions and wage determination. This report discusses recent changes in main data sources that will be used in the study, and summarizes a descriptive analysis of growth and employment at the sectoral level.

3. The report is organized as follows. After this introduction, the second section explains the main data sources used in the study. The third section discusses the relationship between sectoral output growth and employment generation, and presents basic estimates on growth elasticities. The fourth and fifth sections present detailed descriptive analyses on the patterns of employment growth. The sixth section summarizes the findings of an econometric analysis on labor market participation decisions, with a special emphasis on female labor, and the determinants of wages. We estimate a multinomial logit model for labor market participation decisions of men and women living in urban regions for each year since 2000, and estimate the wage equation for 2006 by taking into account the labor market participation decision (the sample selection effect). The last section presents the main findings of the study.

2. Data Sources

4. Any study that aims at studying the links between economic growth and employment needs two types of data: output[1] and employment. The output data at the sectoral level come from the national accounts. The Turkish Statistical Institute (Turkstat) revised the way it calculates the national accounts and announced a new GDP series for the 1998-2007 period in March 2008, The new GDP estimates have been compiled according to the European System of Accounts (ESA-95), whereas former series were based on the System of National Accounts (SNA 68). As a result of the revision process, the estimate for GDP (with 1998 as the base year) increased by 32 percent in current prices for the year 2006 compared to former estimates (with 1987 as the base year).

5. Turkstat announced that the revision is needed to "incorporate more comprehensive data sources, adoption of updated statistical standards and improved estimation techniques". The new series exploited the results of the 2002 Census of Industry and Business Establishments that extended the coverage of economic activity in a number of areas, notably in manufacturing, as well as in mining, and services. In manufacturing only, the number of establishments with 10 or more employees more than doubled to 28,059 from its number covered in the 2001 Survey. New series are based on improved estimates on "unrecorded" or the informal economy. The difference in employment levels estimated by the Labor Force Survey (LFS) and Structural Business Survey (SBS) is used to adjust the reported data for production by using average production per worker in the small manufacturing enterprises.[2] The increased sample size of the LFS and the increase in accuracy improved the method for measuring the nonobserved

1 Unless otherwise stated, "output" refers to real value added.

2 This is the so-called "labor input method" as described in *Measuring the Nonobserved Economy – A Handbook* jointly published by the OECD, IMF, ILO and the CIS in 2002.

economy (NOE). Turkstat also introduced new and better data sources such as the 2000 Building Census and a new commodity flow system, and new methods for measuring and imputing services according to ESA 95, and over-the-year chain-linking method for constant price estimation.

6. The second major source of data for our analysis is the Labor Force Surveys (LFS) conducted by Turkstat. Turkstat introduced two major changes in the way the survey was conducted, one in year 2000 (quarterly surveys), and the other one in 2005 (monthly surveys aggregated to quarterly series), and the survey questionnaire was modified to some extent over time. The LFS results are weighted to estimate national aggregates by using population projections. The last population census in Turkey was conducted in 2000. Turkstat estimated population projections (based on age, gender and location) on the basis of the 2000 Census. A new system of recording, the Address-based Population Registration System (APRS), was introduced by a law enacted in 2006 (Population Services Law, No 5490), and Turkstat announced that there were 71 million people living in Turkey at the end of 2007, whereas the population estimate for the same year was about 74 million. Turkstat now estimates the labor force statistics by using the population data from APRS. Although the revision from population projections to APRS is claimed to have no significant impact on distributions, the levels of all variables (such a population, number of employees, number of unemployed, etc) have been reduced by about 4 percent.[3]

3. Economic growth and employment

7. In order to understand the links between economic growth and employment since the 2001 Crisis, we need to contextualize the period after 2001 in a historical setting. Figure 1 presents the data on GDP growth rates for the Turkish economy since the establishment of the Republic.[4] As can bee seen in this figure, there are four clearly identifiable growth cycles in the Turkish economy. Each cycle takes about 20-years. The first one from the beginning until the Second World War is characterized by high and volatile growth rates. The second period after the Second World War ended in 1960 following a decline in growth rates. Import substituting industrialization policies were adopted in the third period that is also called the "planned economy" period. Although the average growth rate was quite high in this period, it ended in 1980 by a serious balance of payment crisis. Outward-oriented policies were adopted in the fourth period. Although the economy achieved high growth rates immediately after 1980, the growth rates tended to decline and became very unstable in the 1990s. The fourth period ended in 2001 when the economy experienced one of its worst crises since the establishment of the Turkish Republic.

8. Apparently, the Turkish economy is now in its fifth cycle of growth. GDP growth rate after the 2001 Crisis remained quite high for 6 years in a row, although it declined somewhat in recent years (Figure 2). The annual growth rate of GDP reached almost 10 percent in 2004, but it declined gradually to 4.5 percent in 2007. Employment did not respond rapidly after the crisis, and remained almost at the same level (about 21.5 million in 2000-2003), but started to increase at about 2% per year after 2003. The rate of increase in the number of employed is certainly quite low given the high rate of population growth. Population increased almost by 1 million each year since 2000 (average annual growth rate was 1.6 percent). Since employment did not increase at the same rate, the employment ratio (the share of employed people in population) declined during and after the 2001 crisis, from 32.5 percent in 2000 to 30.6 percent in 2003 (see Table 1).

9. The aggregate data conceal substantial reallocation of labor from rural to urban areas and from agriculture to industry and services. There is almost a stable decline in employment in rural areas whereas the urban employment grew rapidly after the crisis. The net increase in the number of urban jobs from 2002 to 2006 amounted to 2 millions. Although it tends to increase gradually, the employment rate is very low for urban women. This is one of the most striking and problematic aspects of employment issues in Turkey.

10. Since the employment structure changed rapidly after the crisis, we need to look at sectoral changes as well (see Table 2).[5] GDP increased almost 40 percent from

3 See the notes on LFS on the Turkstat web page, *Hanehalkı İşgücü Anketleri Hakkında Genel Açıklama*, www.tuik.gov.tr.
4 5-year moving averages were used to reduce the effects of annual fluctuations.
5 Sectors were reclassified to have the same set of sectors for all LFS surveys and national accounts for the 2000-2007 period.

2002 to 2007. Construction, transportation and communication, manufacturing, utilities (electricity / gas / water, EGW), and wholesale and retail trade (including hotels and restaurants) achieved above-average growth during the same period. The performance of agriculture was poor.

11. Table 2 provides the data on output and employment growth at the sectoral level for the 2001-2007 period. Employment growth rates are given for urban and rural areas, and for men and women separately. The data shows that the Turkish economy created a little more than 1 million new jobs from 2001 to 2007. Agriculture and fishing experienced a huge loss (25%, more than 2 million jobs) which is partly compensated by new jobs in wholesale and retail trade, hotels and restaurants (1.1 million), other services (0.75 million), manufacturing (0.66 million), and other sectors. It is interesting to observe that in all three major employment creating sectors (wholesale and retail trade, hotels and restaurants, other services, and manufacturing), the growth rate of female employment is higher than the growth rate of male employment. On average, male employment increased by 6.2 percent whereas female employment increased only by 1.6 percent in six years (from 2001Q3 to 2007Q3).

12. In spite of the sharp decline in agricultural employment, agriculture is still the largest sector in Turkey in terms of the number of employees (6 million people at the end of 2007). Wholesale and retail trade, hotels and restaurants (4.8 million), manufacturing (4.2 million), and other services (3.8 million) are among the main employment generating sectors.

13. Sectoral data are presented in Figures 3 and 4 to provide visual evidence on the relationship between output growth and employment generation. In order to have a comparable data across all sectors, the output and employment for each sector is normalized to 1 for 2000Q4.[6] As shown in these figures, construction, and transport and communication services achieved highest growth rates after the crisis. These two sectors achieved more than 75 percent growth in 6 years. Wholesale and retail trade, hotels and restaurants, manufacturing and utilities (EGW) also grew rapidly after the crisis (about 60 percent from 2001 to 2007). Financial intermediation and real estate services were badly affected by the crisis and started to recover only after 2004. Agriculture had a volatile and stagnant output whereas mining, and other services had low growth rates (on average, about 3 percent per year).

14. On the employment side, finance and real estate services achieved an outstanding performance after 2004 (annual growth rate of employment was about 10 percent after 2004). Mining and utilities had erratic employment patterns with wild fluctuations. Wholesale and retail trade, hotels and restaurants, manufacturing, other services, and transport, storage and communication services provided stable and continuous employment growth. Construction experienced a decline in employment until the late 2003, and it recovered up to its 2001 level only in 2007. There is a striking decline in agricultural employment in 2005 and 2006.

15. The slopes of the curves depicted in Figures 3 and 4 reveal employment generation potential of the sectors. The sectors that have higher employment elasticities will have steeper employment-output curves. Moreover, if the employment-output relationship is stable, the curve will get closer to a straight line.

16. There seems to be a strong correlation between employment and output growth in other services (the slope is almost equal to one). Finance and real estate and wholesale and retail trade sectors have also steep employment-output curves. These sectors are likely to generate more employment if they grow rapidly. It seems that the relationship between employment and output growth is quite stable in manufacturing, and transportation and communications, but the employment generation potential of these sectors seem to be lower. Agriculture is an obvious outlier with a sharp decline in employment and mediocre output growth. Construction experienced a sharp decline in output and employment in 2001 and 2002, but achieved a smooth transition towards a stable output and employment growth path. Mining and utilities reveal erratic growth with almost no positive correlation between employment and output.[7]

---

6 In order to eliminate the effects of short term fluctuations and seasonal factors, we use 4-quarter moving averages. The first data point refers to the 2000Q1-2000Q4 average whereas the last point the 2006Q3-2007Q3 average.

7 Since these two sector employ about 100-150 thousands people, they are likely to exhibit wide fluctuations in employment due to random sampling.

17. The quality of employment is as important as the quantity of employment. As may be expected, those sectors that had the worst employment performance are among the sectors that achieved the highest growth in labor productivity. These are construction, agriculture, and utilities. It seems that either labor hoarding was prevalent in these sectors (which could be the case for agriculture), or these sectors relied heavily on outsourcing their activities to informal firms (which could be the case for construction).

18. Transportation and communication services sector was able to increase both productivity (by 45 percent) and employment (by 15 percent) from 2001 to 2007. Manufacturing and wholesale and retail trade, hotels and restaurants had moderate increases in labor productivity (3.8 percent and 1.9 percent per year, respectively), whereas other services, finance and real estate services, and mining were not able to increase labor productivity at all in spite of rapid growth in the economy.

19. What is the employment elasticity of output growth? We calculated annual changes in output and employment (from one quarter to the same quarter in the next year) for all sectors, and looked at the correlations between employment growth rates and output growth rates. If the share of female employment in that sector is sizable, we looked at the growth rates of male and female employment separately. "Employment elasticity" is defined as the estimated coefficient of output growth rate variable in the model where employment growth rate is regressed on output growth rate.

20. The employment elasticities for the 2001Q1-2007Q3 period are presented in . Other services has a very high employment elasticity (0.979). A one-percent increase in the output of other services sector leads to almost one percent increase in employment. Construction, and finance and real estate have also high employment elasticities (0.609 and 0.462, respectively). Employment elasticities of manufacturing (0.268) and wholesale and retail trade (0.231) are also positive and statistically significant. Agriculture, mining, utilities (EGW), and transportation and communications do not have statistically significant employment elasticities.[8]

21. Male employment growth is positively correlated with output growth in other services (0.861), finance and real estate services (0.350), manufacturing (0.343), and wholesale and retail trade (0.212). In the construction sector where almost all employees are male, the output elasticity is also quite high (0.609). Female employment growth is positively correlated with output growth only in wholesale and retail trade at the 10 percent level. The female employment elasticity of output in this sector is 0.376. The lack of correlation between female employment growth and output growth in other sectors may indicate the problems in providing jobs for female workers in urban areas. We estimated output elasticities for skilled (vocational school and university graduates) and unskilled (others) female workers but with the exception of unskilled female employees in wholesale and retail trade, non of the estimated elastcities were found to be significant.

22. Employment elasticities provide valuable information about employment generation potential of the main sectors of the economy. The findings, however, need to be interpreted cautiously because of the way the output data are "estimated" for services. For other services sector that includes education, health, and public services, the output data are difficult to collect at thigh frequency. Therefore, Turkstat uses the growth rate of private employment data from LFS to calculate the real private output growth for other services sector. Similarly, employment data from LFS are used in the calculation of the output of the "domestic restaurants" sector which accounts more than half of the "hotels and restaurants" sector. It is thus no surprise that the "other services" sector has the highest employment elasticity, and lowest productivity growth.

4. Patterns of employment generation

23. In this section, the patterns of employment generation in Turkey since 2000 are analyzed in detail to understand the dynamics of employment.

24. The data on the distribution of employment by region (urban vs rural) are presented in (Table 4). As mentioned before, there is a substantial reallocation of labor from rural areas (mainly from agricultural

[8] There is no correlation between agricultural output and employment but the intercept (constant) term is negative: agricultural employment tends to decline by 3.5 percent per year irrespective of the growth rate achieved in agriculture and fishing.

activities) to urban areas (mainly towards industrial activities and services). Total employment increased only 3.7 percent from 2000 to 2006. The share of rural areas in total employment declined rapidly, from 48.1 percent (31.2 percent male, 16.9 percent female) to 41.4 percent (27.5 percent male, 13.9 percent female). Although there are some minor fluctuations, the share of men remained around 75 percent throughout the period.

25. The sectoral distribution of employment is shown in (Table 5). Agriculture is the only sector with a decline in employment shares for both men and women. There is more than 8 percentage points decline in the share of agricultural employment. Wholesale and retail trade, hotels and restaurants increased its share in total employment by 3.3 percentage points, followed by other services (2.1 percentage points), and manufacturing (1.9 percentage points).

26. The share of female employees in mining, and construction is almost nill. Women employees are heavily underrepresented in utilities (EGW), and transportation and communication, whereas they have a relatively higher share in agriculture, other services, and finance and real estate. Although other services, and finance and real estate generated a large number of new jobs, they failed to compensate for the decline in agricultural employment, and the share of female employees in total employment declined 3 percentage points from 2002 to 2006.

27. The composition of employment by educational level has also changed significantly since 2000 (Table 6). The share of illiterate employees declined gradually, from 3.1 to 1.7 percent for men and from 5.5 to 3.7 percent for women, from 2000 to 2006. The most significant change is observed in the shares of primary and secondary education categories. As a result of the law extending the duration of compulsory education to 8 years in 1997, we observe a rapid decline in the share of primary school level, and an increase in the share of secondary school level. However, in spite of these changes, primary school graduates still constitute the largest group of employees. The fastest increase for both male and female employees is observed in the case of vocational school and college (2- and 4-year higher education and higher degrees) categories such that the vocational school and college graduates accounted for 9.9 percent and 12.4 percent of all employees in 2006. Female employees have a more polarized education level than male employees. The shares of illiterate, literate without any diploma, and college graduates are higher among female than male employees.

28. There seems to be a gradual shift towards working in larger establishments (Table 7). The distribution of employment by establishment size shows that the share of micro- and small establishments (those that employ less than 25 people) declined from 78.7 percent in 2000 to 70.7 percent in 2006. It is interesting to observe that the increase in the share of medium-sized and large establishments cannot be explained only by urbanization, because it is observed in both rural and urban areas for male employees, and in rural areas for female employees. The most rapid decline in the share of small establishments is observed in 2002 that could be due to the effects of economic crisis.[9]

29. The changes in the occupational distribution of employment are dominated by the decline in agricultural employment (Table 8). There is a sharp decline in the share of skilled agricultural workers (13.3 percentage points from 2001 to 2006). There is an increase in the shares of all other occupations but craft workers that experienced 1 percent point decline. Machine operators and elementary occupations had the highest growth rates for both men and women. The share of female service workers had a relatively high growth as well.

30. There is a rapid increase in the share of regular employment since the 2001 crisis due mainly to the decline in the share of unpaid family workers (Table 9). The share of casual workers declined among men while it increased among women. These changes are partly due to the decline in rural population, because female unpaid family workers and male self-employed are the dominant categories of employment status in rural areas. However, similar trends (the increase in regular employment, and the decrease in male casual employment are also observed in urban employment. Although the share of regular employment increased

[8] There is no correlation between agricultural output and employment but the intercept (constant) term is negative: agricultural employment tends to decline by 3.5 percent per year irrespective of the growth rate achieved in agriculture and fishing.

[9] This could also be due to a change in survey design because there seems to be a significant shift from small (10-24 people) to medium-sized (25-49 people) establishments.

substantially, there is not a significant increase in the share of formal labor (Table 10).[10] On the contrary, there was an increase in the share of informal employment from 2000 to 2004, especially in urban areas. The share of informal employment declined about 5 percentage points between 2004 and 2006 mostly due to the decline in rural employment where informal employment relationship is dominant. It is interesting to observe that although informal employment among urban men declined slightly after 2004, there is no similar decline among urban women in the same period.

5. Urban employment and "good jobs"

31. The analysis in the preceding section shows that Turkey experienced a rapid reallocation of labor from rural to urban areas, and from agriculture to industry and services, since 2000. The huge decline in agricultural employment was not compensated for by the new jobs generated in urban regions. Although most of the employees in agriculture are self-employed and unpaid family workers (65 percent of rural employment in 2006), these two categories account for a relatively small part of employment in urban areas (only 19 percent). Therefore, in order to understand the relationship between growth, employment and poverty reduction, we need to analyze the dynamics of urban employment.

32. There is an influential literature on skill traps caused by skill-investment or skill-R&D complementarities (see, for example, Snower, 1994; Redding, 1996; Acemoglu, 2001; Burdett and Smith, 2002). These studies indicate the importance of high skill-good jobs that pay high wages for economic performance. Following this literature, we defined "good jobs" in this context as those formal (registered with a social security institution) jobs for vocational school and college graduates.

33. Average monthly wage rates for various groups of workers in 2006 are presented in (Table 11) . The data on wages reveal four facts on wage differences.

i) There are sizable inter-industry wage differentials. Utilities (EGW), transportation and communications, mining, and other services pay relatively higher average wages whereas construction, trade, manufacturing and agriculture tend to pay lower wages.

ii) Informal workers get much lower wages than their counterparts working in the formal sectors. It is apparent that informality pays lower wages for both men and women.

iii) There are substantial wage differences between men and women working in the informal sector, whereas, there is almost no gender wage differential in the formal sector. This finding supports our earlier observations about the polarization of skills among female employees.

iv) Finally, "good jobs" pay higher wages: those workers employed in "good jobs" get about 20 percent more than formal workers do.

34. Given the information about wages, we will now analyze the composition of employment and its quality in urban areas. The data on sectoral distribution in urban areas are presented in Table 12. There are about 2.6 million new jobs created in 5 years following the 2001 crisis. The share of female employees in urban employment increased slightly during the economic crisis (2001 and 2002) due to the decline in the number of male employees (mainly in manufacturing and construction) in 2001 and 2002, and an increase in the number of female employees (in manufacturing, trade, and other services) in 2002. In other words, the crisis had, on average, a weaker effect on female than on male employment. The gender distribution remained almost constant after 2002. Although there are some minor fluctuations, the share of female employment has a tendency to increase only in wholesale and retail trade, hotels and restaurants sector. Male employment experienced a slight increase in the finance and real estate sector after 2001.

35. The share of formal employment (as a percentage of total employment in the sector) exhibits significant differences across sectors and gender (Table 13). Formal employment is dominant for men and women in utilities, mining, other services, and finance and real estate. The dominance of formal employment in all these sectors

[10] We define "formal" and "informal" employment by the registration in a social security organization which is obligatory by law for all employees (for workers, civil servants, and employers/self-employed).

(except finance and real estate) can be explained by the large share of public companies and institutions. The share of formal female employees is much higher than the share of male employees in construction and transportation. These two sectors are characterized by very low female employment. It seems that female employees in these sectors work more in highly skilled positions so that they benefit more from formality. In the case of manufacturing where a large number of female workers are employed, the formality rate is much higher for men (73.8 percent on average) than for women (57.2 percent). This finding reflects the precautious position of female workers in manufacturing. As may be expected, formality is extremely low in agriculture.

36. There is a very sharp decline in the extent of formality from 2000 to 2004, especially in the case of female employees. The shares of formal female and male employment declined 9 and 5 percentage points in that period. It seems that the increasing share of female employment during the economic crisis is achieved at the expense of formal employment. Informality increased at a faster rate in services (trade and other services for female employees, and trade, transportation and communication, and finance and real estate for male employees). There has been a minor increase in the share of formal employment in 2006 but the data are not sufficient to suggest if this is the beginning of a new upward trend in formality.

37. Although the extent of formality declined during and after the economic crisis in 2001, the share of "good jobs" (those formal jobs that employ vocational school and college graduates) exhibits almost a continuous increase over time, including the crisis years.[11] It seems that less-skilled workers are more vulnerable during the economic crisis, and they tend either to lose their jobs, or to shift to informal employment, probably under poor working conditions. As may be expected, the share of "good jobs" in almost all sectors[12] is higher for female employees than male employees. The high share of "good jobs" among women is an outcome of the labor market selection process: since the differential between labor market participation propensity between women and men is reduced by education, we expect a higher share for educated women than for educated men among those who are employed. Other services, finance and real estate, and utilities are the sectors that offer proportionally more "good jobs" for men and women.

38. The changes in the distribution of employment by establishment size have important policy implications. As we have seen before, small firms provide the bulk of employment in Turkey. It is the case in urban employment as well (Table 15). About half of all employees work in micro-establishments (those that employ less than 10 people), whereas large establishments (those that employ 50 or more people) account for less than 30 percent of urban employment. The size distribution of employment did not change much from 2000 to 2006. There is a slight increase in the share of female employment in micro-establishments, and male employment in medium-sized and large establishments, and a decline in the share of male employment in micro- and small establishments.

39. There is a sharp difference between micro- and other establishments in terms of formality of the employment relationship (Table 16). The share of formal employees is very small in micro establishments (48 percent for men, and only 28 percent for women on average). The extent of formality increases monotonically by establishment size and exceeds 90 percent for both men and women in large establishments. There is a significant decline in the share of formal employees in micro-, small and medium-sized establishments from 2000 to 2004. The decline in formality in large establishments remained at low levels, but it is worrying to observe that although the average level of formality increased in 2006, it continued to decline in large establishments for male and female employees.

40. There is a strong positive correlation between establishment size and the share of "good jobs": large firms tend to offer proportionately more "good jobs" than small establishments do (Table 17). Interestingly, the share of "good jobs" for female employees is higher that that for male employees in all but micro-establishment categories. There is not much difference between the shares of "good jobs" for men and women (9.5 and 11.7 percent, respectively) in micro-

[11] There is an abrupt decline in 2004 that may be caused by changes in sampling methods in LFS in that year.
[12] The only exception is agriculture.

establishments. It seems that educated urban women could find more jobs in relatively large establishments. The share of "good jobs" increased slightly in small and medium-sized establishments, and significantly in large establishments especially during the time of economic crisis in 2001. The share of "good jobs" offered by micro-establishments is not only very low, but also stable without any long term improvement.

41. The distribution of urban working age population (people 15 years of age or older) by gender and educational level is shown in Table 18. Because of declining birth rates and rising life expectancy, the share of working age population in total population tends to increase (the last row in Table 18). In terms of the educational level of the working age population, we observe a sharp decline in the share of primary school graduates, and a lesser degree increase in the share of secondary school graduates. This is the expected outcome of the new law extending the duration of compulsory education to 8, as mentioned above. Moreover, the share of college graduates grows continuously (2 percentage points in 6 years). It is interesting that, in spite of the popular rhetoric about the ineffectiveness of vocational schools, the share of vocational school graduates rises rapidly for both men and women (3 percentage points from 2000 to 2006), and the share of high school graduates declines (1.6 percentage points in the same period). Finally, the share of educated women is much lower than the share of educated men. There is a sharp reduction in the probability for women to continue after compulsory education so that the share of educated women (those with at least high school diploma) was only 19.4 percent in 2006 whereas the same ratio was 28.7 percent for men.

42. The employment ratio (the employment/working age population ratio) is extremely low for urban women, and it is increasing gradually (from 15.2 percent in 2000 to 16.7 percent in 2006, see Table 19). The share of employed men declined sharply from 2000-2003, and it increased somewhat until 2006. The employment ratio increases rapidly by education for men, but the effect of education on employment rate is much lower for women with the exception of college education that boosts the employment prospects for women.

43. Among those employed in urban areas, the share of formal employees for women is slightly lower than the share for men (Table 20). The share of formality and gender differentials depend monotonically on educational level. There seems to be no gender difference for high school (77 percent), vocational school (79-81 percent) and college graduates (more than 90 percent), whereas there is a substantial formality differential between less educated women and men. Moreover, the share of formality is extremely low among less educated men and women. The economic crisis in 2001 had a large unfavorable impact on formality. The share of formal employees declined sharply irrespective of educational level and gender, but the decline was deeper among less educated and women. There was a slight improvement in the extent of formality in urban areas in 2006. It seems that the changes in formality are pro-cyclical.

44. In order to check the position of new entrants in the labor market, tables 18-20 are reproduced for the young people aged between 15 and 24 (see Table 21-Table 23). There is a slight decrease in the share of young in total population, from 19.5 percent in 2000 to 17.3 percent in 2006 (the last row of Table 21). The composition of young by educational level shows that, for both men and women, the share of more educated is higher among young than the older population thanks to improved access to schooling in recent decades. The share of college graduates is lower among young than the older population simply because of the fact that most of the young people are at the college education age, i.e., there are many young people currently enrolled in higher education.

45. The share of employed among young people by educational level and gender is much lower than the share of employed adults because of continuing schooling. However, the crisis in 2001 seems to have a strong negative impact on the employment prospects of the young people who experienced a deep decline in the employment ratio from 2000 to 2003. The decline is especially noticeable for male college graduates. This finding shows that even the educated young people face with serious problems in finding jobs during an economic downturn.

46. The extent of formality among young employees is shown in Table 23. The composition of and the trend in formality among the young is similar to the ones observed among the working age population. Informal

employment is dominant among less educated young, and it increased sharply across all education categories from 2000 to 2004, followed by a minor decline in 2005 and 2006. There is a discernible difference between the patterns of formality among young men and women. Although the shares of formality among young and adult women are almost the same for all education categories, the share of formality among young men is much lower than the share among adult men to the extent that and educated young man is less likely to have a formal employment than an educated young woman.

47. These finding show that, i) less educated young women start their job careers with informal jobs, and they are not likely to move to formal jobs over time, ii) less educated men also start with informal jobs, but a large number of them (about one quarter of men without any diploma and more than half with at least primary school diploma) are eventually employed formally, iii) educated young women are more likely to start their job careers with formal, secure jobs (almost 90 percent), iv) while educated young men have initially lower formality ratio than educated young women (on average, 78.4 percent for young men vs 88.7 percent for young women), but they tend to have more formal employment over time. In other words, a young man is more likely to start with informal employment and to move to formal employment, whereas a young woman is more likely to start with and to stay in informal employment if she is less educated, and in formal employment if she is more educated.

48. We have analyzed so far changes in employment patterns at the individual level. However, what is important for welfare and poverty analysis is the changes in employment at the household level, because the household is the economic unit in which the decisions on employment and consumption are made. The calculations on poverty measurement are also made by at the household level by using the data on household income and expenditures.

49. We classify households by household size (the number of people living in the household). Table 24 presents the data on the distribution of urban population by household size and gender. The bulk of the urban population lives in households with 4-6 people (58.5 percent on average), whereas the remaining 29.3 percent live in small (1-3 people), and 12.1 percent in large (7 and more people) households. There is a very modest shift in the size distribution: the share of middle-size households (4-6 people) declined slightly (2.5 percentage points), and the shares of small (1.5 percentage points) and large (1 percentage point) households increased from 2000 to 2006.

50. The data on the shares of people living in a household with at least one employed person reveal information about the most vulnerable groups (Table 25). The share of employed among women living alone (women living in one-person households) is extremely low, only 12.4 percent on average. Half of men living alone are also unemployed. The share increases by household size, but there seems quite a large number of people living in large households without any employed household member. About 13-14 of all women and 11-13 percent of all men live in large households (with 7 or more people) without any employed member, i.e., about one million people live in large households without any employment.

51. The crisis in 2001 led to an increase in the share of people living in households with no employment (about 5 percentage points from 2000 to 2003). Interestingly, large households were affected more by the crisis, and the share of people living in large households with no employment increased by 9 percentage points in the same period (Table 25).

52. The extent of formal employment changes by household size. There is an inverted-U type relationship between formality and household size. The share of people living in households with at least one formal employment is very low in small and large households, and it reaches its maximum value in households with 4 people (Table 26). About 70 percent of people living in households with 4 people have at least one formal employee in the household (so that all household member are likely to benefit from social security coverage), but the same rate is less than 50 percent in very small (1-2 people), and large (7 or more people) households. As expected, the share of people living in households with at least one formal (registered) employee declined sharply from 2000 to 2004 (about 7.3 percentage points), and the decline is larger among large households.

53. The share of people living in households with at

least one "good job" (a formal job for vocational school and college graduates) has a distribution similar to the one observed for formal employment. It is very low in very small and large households, whereas it is higher in households with 3-4 people (about 23-26 percent). However, the share of people living in households with at least one "good job" did not experience any decline during the economic crisis. On the contrary, it increased almost continuously during and after the crisis across all households and gender categories (almost 5 percentage points from 2000 to 2006). The increase in the share of people living in households with at least one "good job" is likely to contribute to reduce the extent of poverty in urban Turkey.

6. Labor market participation and wages

54. The analysis in the preceding section describes the changes in employment patterns at the aggregate level. In order to shed light on the determinants of these changes, it would be helpful to look at labor market participation decisions and the determination of wages at the individual level. We assume that a person at the working age has two options. First, she may prefer to stay home and to participate in non-market home production such as caring children and elderly, cooking, home renovations, etc. Leisure can also be interpreted as home production. Second, she can participate in the labor market and accepts a job in the formal or informal sector.

55. The utility the person will derive from these options could be defined as follows:

$Uih = Uih(qih)$ [1]

$Uij = Uij(sij, qim, qih) = U(sij, (wij - pihqih)/pim, qih)$ [2]

where qh is the quantity of home production (for example, number of hours worked to provide home services), qm the quantity of products and services consumed, w the wage rate, ph the price of services provided by home production, pm the price of other (market-based) products and services, and sj the non-wage benefits such as unemployment benefit, health insurance, etc., the person will receive for being employed at job j. Subscripts i and j refer to the person and the type of job. In this specification, we assume that the person will produce qh units of services by home production if she opts to stay at home. If she works at job j, she will receive a certain wage (wij) and a benefits package (sj). She will pay for the services that would otherwise be provided by home production (for example, child care, dining, etc.), and the rest of her wage (wij – pihqih) will be spent for market-based products.

56. We assume that there are six types of jobs available for an individual: formal jobs in manufacturing (fm) and services (fs), informal jobs in manufacturing (im) and services (is), entrepreneur (employer, e)[13] and self-employed (se), i.e., $j \in \{fm, fs, im, is, e, se\}$. If the person stays at home, she is considered to be at the "non-employment" status (h).[14] The person will chose the state that maximizes her utility.

57. There are a number of critical variables that determine an individual's labor market participation decision. First, the most important variable that determines an individual's decision is the level of education (or the level of human capital) the individual has acquired, because the level of education determines the wage rate. If the level of education has the same impact on the wage rate in all types of jobs, the probability of employment will increase by education. If there is a difference in the impact of education in different types of jobs (for example, in formal vs informal jobs, or in manufacturing vs services), then the probability of getting employed in a certain type of job will change by education.

58. Second, the quantity of services provided by home production is important. If an individual is required to provide more services by staying at home, she is more likely not to participate in the labor market because if she works in a workplace she will spend a larger part of her wage to buy these services on the market.

59. Third, the value of non-wage benefits obtained through a (formal) employment will have a significant impact on labor market decisions. If, for example, a person enjoys health benefits thanks to a formally employed person in the household, she will not receive

[13] For an employer, w includes the profits as well.

[14] "Manufacturing" includes manufacturing proper, mining, and utilities. "Services" include construction, trade, transportation and communications, finance and real estate, and other services.

any additional health benefit by participating in the labor market. In such a case, she will be inclined to stay at home (non-employment), or, to accept informal jobs. However, if there is no formally employed person in the household, the incentives to get a formal job would be much higher because that job would bring forth additional benefits (to all household members).

60. Fourth, relative prices of market-based products and services provided by home production are important in determining the labor market participation decision. If it gets cheaper to buy services provided by home production (for example, if the child care gets cheaper), then the incentives for participating in the labor market will get stronger.

61. We estimate a multinomial logit model to understand the determinants of labor market decision for men and women aged 15 or more living in urban areas. In order to observe changes over time, the model is estimated for each year separately. There are seven labor market outcomes: the base outcome is non-employment.[15] The next four outcomes are about wage employment in formal/informal manufacturing and services. The last two outcomes, the "employer" and "self-employed" categories are not classified into sectors because of the lack of sufficient number of observations. The following variables are used as explanatory variables in the multinomial logit model.[16]

62. The age of a person has a significant impact on labor market decisions. We added (log) age and its square as explanatory variable to allow for non-monotonic effects of the age variable. We expect that there would be a U-shaped relationship between age and the probability of non-employment outcomes.

63. The status in the household is captured by the Child dummy that takes the value 1 if the person is "daughter/son", "daughter-/son-in-law", "grand daughter/son", or "other relative/non relative" aged less than 30, and 0 otherwise. The omitted variable is the "Parent" category that includes all other people not included in the Child category.

64. The effects of educational level are captured by five dummy variables: Primary for literates and primary school graduates[17], Secondary for secondary school graduates, High school for high school graduates, Vocational for vocational high school graduates, and College for 2- and 4- year higher education graduates. The omitted variable is the Illiterate category, i.e., the educational level dummy variables measure the effects of relevant levels of education relative to illiteracy.

65. There are two dummy variables for marital status: Single for never-married singles, and Divorced for the divorced and widowed. The omitted variable is the Married category.

66. In order to test the effects of household size, we include to the model the Parent*household size and Child*household size interactions. The household size is measured by the (log) number of people in the household. It is interacted with the Parent and Child dummy variables because the effects of household size on parents and children are likely to differ. We expect that the Parent*household size variable may have a negative effect on the probability of non-employment for men, but it may have a positive effect on the probability of non-employment for women, because women are more likely to be involved in home production, and the need for home production will increase by the household size. In other words, the value of household production will increase for women by household size, whereas the need for workplace employment will increase for men.

67. We use a dummy variable, any formal, to test if the availability of social security benefits provided by another formally employed person in the household increases the non-employment probability and decreases the formal employment probability of other persons in the household (the effect of the s term in Equation 2). We expect that if there is a formally employed person in the household, other members of the household are likely to benefit from social security coverage (health insurance, etc.) so that if they get a formal job, the value of additional non-wage benefits will be low. This may discourage other household members to get a (formal) job.[18]

[15] This outcome includes non-participation in the labor market, and unemployment. We experimented with separate "agriculture" and "unpaid family worker" outcomes as well, but the estimation results for these outcomes were not significantly different from non-employment in most of the cases. Therefore, we added "agricultural employment" and "unpaid family workers" to the "non-employment" category.

[16] The descriptive statistics on the variables used in estimating the labor market participation model are presented in Table 28.

[17] The "literate without any diploma" and "primary school diploma" categories are merged together because the number of people in the former category was too low.

[18] Although the employment decision, as discussed here, is likely to be made at the household level, we model it at the individual level because of the lack of panel dimension in our data.

68. Finally, we use a dummy variable for persons in a household whose "head" is unemployed, Unemployed HH. This variable takes the value 1 for a person whose household head is not employed, and 0 otherwise.[19] The household head is expected to earn the bread and butter for the household. If the household head is unemployed, the incentives for other household members may change.

69. The estimated coefficients from the multinomial logit model are difficult to interpret quantitatively. Thus, we calculated the marginal effects of each variable on labor market outcomes. For continuous explanatory variables, the marginal effect is the change in the probability of the relevant outcome's realization in response to a slight change in the dependent variable i.e., the marginal effect is defined as $\partial Pr(j)/\partial xk$ where Pr(j) is the probability that the labor market outcome j will be chosen, and xk is the kth explanatory variable. For dummy variables, the marginal effect shows the change in the probability Pr(j) induced when the dummy variable changes from 0 to 1.

70. Estimated labor market probabilities for all outcomes for an average[20] illiterate married parent without any formal employee in the household are presented in Table 29 . The probability of non-employment was extremely high for women, and it declined slightly (less than 1 percentage point) since 2004. It was 36.0 percent for men in 2000, and increased significantly in 2001 and 2002, and reached 49.5 percent in 2004. The probability of non-employment for men declined only after 2004 following 4-years of rapid growth in the economy.

71. It is interesting to observe that the probability of informal wage employment (both in the industry and services) increased for women during the economic crisis while the probability of formal wage employment decreased. The probability of formal wage employment for men experienced even a larger decline, from 33.6 percent in 2000 to 22.9 percent in 2004. Moreover, the probability of self-employment for men also declined significantly from 2000 to 2002 (almost by 3 percentage points). This finding is contrary to the popular understanding that considers self-employment as a means of survival in the last resort during severe economic crisis.[21]

72. The effects of education on labor market outcomes are summarized in - Table 30-Table 36.[22] There are major differences between men and women in terms of the marginal effects of education on labor market outcomes. First, primary and secondary schooling has insignificant effect on the employment probability[23] for women although its effect for men is quite important (on average, 13.6 percent for primary school and 35.2 percent for secondary school). Second, higher education (College) has a much higher impact on women's employability than on men's employability (73.4 percent vs 47.1 percent) partly because of the fact that an illiterate woman has almost no chance to be employed whereas the employment probability of an illiterate man is more than 50 percent. Third, the impact of education on women's employment probability declined to a small extent during the crisis but the marginal effect of education for men increased rapidly in the same period.

73. The differences on the effects of education on men's and women's employment prospects become even more informative when the effects on various labor market outcomes are analyzed. Education (with the exception of higher education) improves women's employability in informal jobs in the industry and services, but education beyond secondary school has a significant negative impact on men's employment probability in informal jobs, i.e., more educated women (but not the most educated ones) tend to work in the informal sector, but more educated men afford not to accept informal jobs (Table 31 and Table 32).

74. The effect of education is stronger in the case of formal employment in manufacturing, and, especially, in services (Table 33 and Table 34). Educated men and women are more likely to have a formal job. The marginal effect of education on the employment probability in formal manufacturing declined in 2005

[19] By definition, the value of this variable is zero for household heads because we test the effect for other household members.

[20] Sample means are used for all continuous variables.

[21] Cárdenas and Villarreal (2007) suggest that "self-employment has been an escape to inflation and staggered wages bringing as a consequence reduced inequality" in Mexico. The experience in Turkey seems to be different.

[22] The marginal effects for women are not reliably calculated for 2000 and 2004 because of the lack of observations for certain categories. Thus, they are not presented in these tables.

[23] The employment probability is equal to (1– non-employment probability), which is also equal to $\Sigma Pr(j), j \in \{fm, fs, im, is, e, se\}$.

for men, but that decline was compensated by the increase in employment probability in the formal service sector.

75. Education beyond secondary school for women has a positive impact on the probability of being an employer (Table 35). The impact is similar for men but the magnitude of marginal effects are relatively higher for men than for women. It is interesting that the marginal effect of vocational education on the probability of being an employer is slightly lower than the marginal effect of high school education. It seems that vocational education is better suited to enhance the probability for wage labor.

76. Finally, the effect of education on the probability of self-employment is in opposite directions for men and women (Table 26). There is a monotonic relationship between the level of education and the probability of self-employment for women, but there is a monotonic negative relationship between these two variables for men.

77. Our findings show that education improves the participation of women in all types of employment, but the strongest effect is observed in the case of formal services. However, more educated men are more likely to be employed as wage workers in formal manufacturing and services, and as employers, and they are less likely to be employed as wage workers in informal manufacturing and services, and as self-employed.

78. The effects of household characteristics on labor market decisions are summarized in Table 37. As may be expected, the effect of household size on the employment probability of female parents is negative possibly because of the bigger need for home production in larger households. The household size has a very small positive impact on the employment probability of female children. Men, both parents and children, in larger households have a stronger tendency to participate in the labor market. These findings indicate that parent women are either more productive in home production than men, or there are cultural factors that consider home production as a feminine activity, so that parent women tend to be involved in home production (tend to stay at home) in large households.

79. The presence of a formal employee in the household has a very large and significant negative impact on the employment probability for men and women. It seems that a formally employed person in the household generates substantial (social security) benefits to other members of the household so that it reduces the utility of getting a job in the labor market. The presence of a formally employed person in the household has the biggest negative impact on the probability of informal service employment for females (more than 20 percent), and no impact on the probability of being a female employer. In the case of men, its biggest negative impact is observed in the case of self-employment (close to 20 percent).

80. Contrary to our a priori expectations, the probability of employment declines for women and especially for men if the household head is not employed. This could be due to the role of social networks in finding a job in Turkey.

81. The age-employment probability profiles are depicted in (for women) and (for men). Age profiles are usually steeper for men than for women, i.e., the employment probabilities change faster by age for men than they do for women. In spite of this difference, the age profile becomes negative at almost the same age for men and women employed as wage worker in formal manufacturing (around 45-47 years) and formal services (around 52-53 years). In other words, there is no difference in the age of "retirement" between women and men working in the formal sector, and those who work in formal services are likely to work longer than those working in formal manufacturing. The marginal effect of age on self-employment and entrepreneurship (employer) probabilities remain positive even for older people. The probability of employment in informal sectors for men is decreasing by age for men, i.e., older men are less likely to work in the informal sector at all age levels.

82. Finally, we estimated Mincerian wage equations to shed light on the poverty implications of labor market participation decisions. Since the wage rate is observed for only those who work as wage workers, we used multinomial logit sample selection model in estimating the wage equations to eliminate the selection bias.[24]

[24] In estimating the wage equation, the sample for labor market participation is used, i.e., the data for all individuals living in urban areas with a positive wage. We did not estimate seperate wage equations for full time and part time workers because it would require modelling full time and part time jobs separately and the estimation results would suffer from the lack of sufficient number of observations for a number of labor market outcomes. Note that full time workers (individuals working at least 35 hours per week) account more than 90 percent of all workers in our sample.

The wage equation is estimated, by taking into account the selection process, for four categories of wage employment (formal/informal and manufacturing/services) for men and women separately. Since the reliable wage data are available for only 2006, the wage equations were estimated for that year. The following variables, in addition to the sample selection correction terms, are included into the model.

83. The (log) age and its square are used to estimate the age-wage profile and to estimate the effects of age/experience on wages. All educational level dummies are included to estimate the effects of education on wages. There are a number of dummy variables for occupations (Managers, Professionals, Technicians, Clerks, Service workers, Skilled agricultural workers, Craft workers, Machine operators) where "Elementary occupations" is the omitted occupation variable. The occupation variables are likely to be endogenous in the wage equation. For this reason, all wage equations are estimated without these variables as well. Dummy variables for firm size (small, 10-24 employees; medium-sized, 25-49 employees; large, 50 and more employees) are added to test the effect of firm size. The micro-firm (less than 10 employees) dummy is the omitted firm size variable. The firm size is included in the model as a proxy for unobserved labor and product market conditions. For example, workers in large firms are more likely to be organized in trade unions, and bargain for higher wages, i.e. firm size could be a proxy for unionization. Moreover, large firms are more likely to have stronger market power, and if they share their higher profits with their workers as a result of (Nash) bargaining, we would expect a positive correlation between firm size and wages. The (log) working time per week and a dummy variable for full time employees are used to control for working time and employment status on wages. The full time dummy is used to capture the effects of compensating wage differentials between full time and part time employees. The working time is included to control for over time wage premium.[25]

84. The descriptive statistics and estimation results are presented in Table 38-41. Since the dependent variable, the wage rate, is defined in log form, the coefficients of explanatory variables show the percentage change in the wage rate when a dummy explanatory variable change from 0 to 1.

85. There is an inverted U-shape relationship between wages and age.[26] The wage rate increases up to a certain age (on average, around 40s), than tends to decline. There is a monotonic increase in the wage rate by firm size in services. In manufacturing, micro-firms pay lower wages, but firm-size differential between small, medium-sized and large firms is negligible for women. Those who work full time receive higher wages, but the effect of working time, after controlling for the full time status, is ambiguous. In some cases, those who work longer hours get lower wages.

86. The effects of educational level on wages reveal a number of policy-relevant phenomena.[27] First, there seems to be no significant wage differential between illiterates and primary and secondary school graduates after controlling for the selection (labor market participation) effect. The importance of correcting for selection becomes obvious when we compare the estimation results with selection control (Table 39) with the OLS estimates without any selection control (Table 41). The OLS results suggest a monotonic increase in the wage rate by education, and significant returns to all, including primary and secondary, education. However, once the selection effect is controlled for, the positive effect of primary and secondary education on wages disappears, i.e., the estimation of the wage equation without selection correction tends to overestimate returns to education especially for primary and secondary education.

87. Second, vocational high school graduates earn much higher wages than illiterates, and primary and secondary school graduates, and, even in many cases, high school graduates. The informal sector does not pay higher wages for men graduated from vocational schools than men graduated from high schools.

88. Third, the estimated returns to education increase when the occupation variables are omitted (cf. Table

[25] The working time and firm size variables are likely to be endogenous. We estimated the wage models by dropping these variables, but there was no qualitative change in the estimation results for other variables.

[26] The only exception is the formal service sector for men. In this sector, there is an unexpected U-shape relationship. Note that some of other estimation results for this sector (for example, the effects of education) are not reasonable.

[27] The results indicate that there are not significant returns to education for informal females working in industry (column 1 of Table 39 and 40). However, this result is not reliable because of the lack of sufficient number of observations in high skill categories. There are only 25 (80) observations for "college" ("vocational school") category.

39 and Table 40). This is an expected outcome because high wage paying occupations like managers, professionals and technicians are expected to be filled by more educated people.

7. Conclusions and policy implications

89. The Turkish economy achieved very high growth rates after the 2001 Crisis. The average annual growth rate in GDP from 2002 to 2006 was about 7.5 percent.[28] The economy failed to generate any new job in 2001 and 2002, and in spite of rapid growth in output from 2002 to 2006, the average annual growth rate of employment remained at very low levels (about 1 percent) in the same period. Thus, the growth rate of employment lagged behind the growth rate of population, and, consequently, the employment ratio declined from 32.5 percent in 2000 to 30.6 percent in 2003, and recovered only a little afterwards (30.8 percent in 2006).

90. Although the aggregate data present a rather bleak view on the employment performance of the Turkish economy since the 2001 Crisis, an analysis at the sectoral level offers a different view, and sheds light on potential problem areas and relevant policy issues.

91. Turkey had a very high rural population compared to other countries at the same level of development, and the share of rural regions accounted almost half of total employment in 2000. Agriculture was the largest employment generating sector: the share of agriculture in total employment was 36 percent in 2000.

92. Turkey has experienced a very rapid reallocation of labor from rural to urban regions. Agricultural employment declined by 22 percent in only 6 years from 2000 to 2006, i.e., 1.7 million people lost their jobs in agriculture. Agricultural output, however, did not collapse. On the contrary, there was an increase in agricultural output albeit at a very low level. This shows that there was a substantial underemployment in agriculture and the rapid decline in rural population and agricultural employment did not cause a serious fall in agricultural output.

93. Employment in urban regions increased rather rapidly after the 2001 Crisis. The average annual growth rate of urban employment was about 4 percent from 2002 to 2006, well above the population growth rate which was 1.6 percent in the same period.[29] There were almost 2 million new jobs created in the urban regions in 4 years, from 2002 to 2006. These data show that the manufacturing industry and services in Turkey were able to generate new jobs in the urban areas, but they could not compensate for the rapid loss of employment in agriculture. The estimates on employment elasticities suggest that the manufacturing industry and a number of service sectors have significant employment generation potential if they sustain high growth rates.

94. Although the employment generation performance of the urban regions is respectable, our analysis point to a number of problem areas that need to be tackled. The first major problem in urban employment is the fact that the employment ratio for urban women is extremely low. The service sector, especially "other services" (public administration, education, health, etc.), provided a limited number of formal jobs for more educated (college graduate) women, and manufacturing and wholesale and retail trade, hotels and restaurants were the sources of informal jobs for less educated women. An assessment for the changes in employment patterns of urban women and the labor market participation decisions indicates that the "under-participation trap" could be a real problem for urban women in Turkey. As Booth and Coles (2007) suggest, an imperfectly competitive labor market leads to under-participation in the labor market. Those people who have high home workplace ability and home productivity will prefer to stay at home because they will not receive the full return to their investment in education if they work in the market. These workers, who are in the under-participation trap, will further lower their ex ante investment in education because the education they get could be useful at the workplace, but not so much for home production.[30]

95. The educational system in Turkey is likely to exacerbate the under-participation trap because only a small minority of high school graduates can get access to higher education. The value of education beyond

[28] The annual growth rate of the economy dropped to 4.5 percent in 2007.

[29] When the crisis years included, the average annual growth rate of urban employment becomes 2.6 percent from 2000 to 2006, still higher than the population growth rate.

[30] It must be emphasized that the valuation of home production performed by female members of the family is based on economic as well as cultural factors.

compulsory level for a woman in Turkey is a weighted average of expected returns to high school and college education, where weights are probabilities to complete a college education, and to find a job after education. Since the probability to complete a college education is low, the expected value of high school or vocational school education could be lower than the value of home production for many women. For those women whose home production is more valuable than a job in the market, there will not be any incentive to invest in education beyond compulsory level because that education is likely to have almost no contribution to home production. Thus, we will observe low investment in education and low participation in the market, as is the case in Turkey.

96. There are a number of policies that may help urban women to overcome the under-participation trap. As we have seen in equations 1 and 2, the relative prices of market products and services provided by home production are important for the labor market participation decision. A reduction in the price of services provided by home production may increase the participation rates. In this context, Booth and Coles (2007) propose that optimal policy is to subsidize labor market participation which might be efficiently targeted as state-provided childcare support. Moreover, the extent of informality reinforces the under-participation trap because informal jobs, by paying low wages, avoiding employment security, and offering poor working conditions, make workplace jobs less valuable than home production.

97. The second major problem in urban employment is the extent of informality. Informality is widespread i) among less educated employees, especially among less educated female employees, ii) among young employees, iii) in micro-establishments, and iv) in construction, manufacturing, and wholesale and retail trade, hotels and restaurants. Moreover, informality seems to be a permanent status for less educated women ("informality trap"), and it substitutes for formal jobs during economic crisis. There are substantial wage differentials between formal and informal employees, and these wage differentials are possibly due to productivity differentials. Moreover, informal female employees are paid much lower than informal male employees, but the gender wage differentials diminish in the formal sector. The government could pursue policies to encourage firms to employ formally the young people, and to help less educated women, through active labor market policies, to move to formal jobs. Moreover, policies that could reduce the barriers against small firm growth would encourage not only the generation of new jobs, but also the expansion of the formal sector.

98. Finally, the quality of jobs is as important as the quantity of jobs for poverty reduction. The share of "good jobs" in the urban sector has increased even during the crisis years in Turkey. The increase in the share of "good jobs" across all household size categories[31] may partly explain the decline in poverty rates in Turkey in the last 5 years. In spite of these encouraging developments, the share of "good jobs" is still extremely low (about 26 percent in 2006). One of the priorities of the public policy has to raise the share of "good jobs" that encourage higher participation rates, afford higher wages, and possibly stimulate the demand for skilled labor through pecuniary externalities between human capital investment and R&D (Redding, 1996). The analysis presented in this paper show that vocational education in Turkey, in spite of its existing problems and shortcomings, helps to generate "good jobs" because those people with vocational training are more likely to participate in the labor market and to get higher wages.

[31] There was a decline only in the largest household category (those households with 10 or more people). The share of this category in total population was 2.6 percent.

References

Acemoglu, D. (2001), "Good Jobs versus Bad Jobs", *Journal of Labor Economics*, (19): 1-21.

Booth, A.L. and Coles, M. (2007), "A Microfoundation for Increasing Returns in Human Capital Accumulation and the Under-Participation Trap", *European Economic Review* (51): 1661–1681.

Burdett, K. and Smith, E. (2002), "The Low Skill Trap", *European Economic Review* (46): 1439- 1451.

Cárdenas, M. and Villarreal, H.J. (2007), Inequality Reduction through Self-employment under High Inflation Periods: The Mexican Experience, Escuela de Graduados en Administración Pública y Políticas Públicas, Campus Monterrey, Working Papers No. 20072.

Engström, P., Holmlund, B. and Kolm, A. (2005), " Tax Differentiation, Search Unemployment, and Home Production", Oxford Economic Papers (57): 610-633.

Redding, S. (1996), "The Low-Skill, Low-Quality Trap: Strategic Complementarities between Human Capital and R&D", Economic Journal (106): 458-470.

Snower, D.J. (1994), The Low-Skill, Bad-Job Trap, IMF Working Paper WP/94/83.

Table 1: Population and employment, 2000-2006

	2000	2001	2002	2003	2004	2005	2006	Change 2006-2000
Population (million)								
Male								
Rural	13,51	13,62	13,58	13,56	13,57	13,43	13,29	-0,22
Urban	19,54	19,99	20,58	21,13	21,66	22,32	22,92	3,38
Female								
Rural	13,76	13,69	13,76	13,78	13,77	13,87	13,93	0,17
Urban	19,37	19,99	20,48	21,00	21,56	21,99	22,46	3,09
Total	*66,18*	*67,29*	*68,39*	*69,48*	*70,55*	*71,61*	*72,61*	*6,42*
Employment (million)								
Male								
Rural	6,72	6,56	6,39	6,23	6,51	6,31	6,15	-0,57
Urban	9,10	9,00	8,85	9,05	9,45	10,04	10,37	1,27
Female								
Rural	3,63	3,90	3,93	3,73	3,48	3,21	3,10	-0,53
Urban	2,09	2,07	2,29	2,28	2,27	2,52	2,71	0,62
Total	*21,54*	*21,53*	*21,46*	*21,29*	*21,71*	*22,08*	*22,33*	*0,79*
Employment rates (per cent)								
Male								
Rural	0,498	0,482	0,471	0,460	0,480	0,470	0,463	-0,035
Urban	0,466	0,450	0,430	0,428	0,436	0,450	0,452	-0,013
Female								
Rural	0,264	0,285	0,286	0,271	0,253	0,231	0,222	-0,042
Urban	0,108	0,103	0,112	0,109	0,105	0,114	0,121	0,013
Total	*0,325*	*0,320*	*0,314*	*0,306*	*0,308*	*0,308*	*0,308*	*-0,018*

Source: Turkstat

Table 2 : Output and employment growth by sectors, 2001-2007

Sector	Output growth rate (%)		Employment growth rate (%)					Net change (000)	2007 employ (000)
	2001-07	2002-07	Total	Urban	Rural	Male	Female		
Agriculture	10,9	2,0	-25,5	33,0	-29,0	-27,0	-23,7	-2082	6076
Mining	22,4	25,3	50,7	74,7	34,8	52,2	0,0	48	142
Manufacturing	54,3	49,9	18,6	13,6	43,5	16,5	27,4	663	4234
EGW	52,8	47,8	12,6	13,1	11,0	16,5	-34,5	12	105
Construction	90,6	67,3	7,3	11,6	-2,7	6,5	49,5	90	1324
Wholesale and retail trade	55,8	47,1	29,4	22,8	57,8	22,4	91,1	1089	4799
Transport and comm	72,3	53,7	14,0	11,5	20,8	13,1	28,5	148	1203
Finance, real estate	42,7	43,5	52,3	48,2	82,0	54,6	46,8	368	1071
Other services	15,8	11,8	24,7	23,3	29,1	18,4	42,3	747	3771
Total	*47,0*	*39,7*	*5,0*	*20,7*	*-11,7*	*6,2*	*1,6*	*1081*	*22724*

Note: Employment growth is calculated from the average value of 2000Q4-2001Q3 and the average value of 2006Q4-2007Q3
Source: Turkstat

Table 3: Employment elasticities, 2001Q1-2007Q3

	All	Male	Female		
			All	Skilled	Unskilled
Agriculture and fishing	0,074	0,035	0,097	0,016	0,038
	(0.204)	(0.218)	(0.279)	(0.037)	(0.135)
Mining and quarrying	0,474				
	0,519				
Manufacturing	0,268 **	0,343 **	-0,061	-0,052	0,004
	(0.109)	(0.096)	(0.310)	(0.095)	(0.119)
EGW	-0,418				
	(0.724)				
Construction	0,609 **				
	(0.179)				
Wholesale and retail trade,	0,231 **	0,212 **	0,376 *	-0,107	0,474 **
hotels, restaurants	(0.086)	(0.084)	(0.207)	(0.109)	(0.149)
Transport, storage and	0,155	0,140	0,423	0,018	0,012
communication	(0.164)	(0.179)	(0.605)	(0.047)	(0.042)
Financial intermediation,	0,462 *	0,350 **	-0,087	0,091	0,042
real estate, etc	(0.236)	(0.091)	(0.304)	(0.070)	(0.054)
Other services	0,979 **	0,861 **	1,255	0,035	0,041
	(0.404)	(0.325)	(0.937)	(0.033)	(0.034)

** (*) means statistically significant at the 5% (10%) level

Standard errors in parentheses

Table 4: Distribution of employment by region, 2000-2006 (percentage of total employment)

	2000	2001	2002	2003	2004	2005	2006
Male							
Rural	0,312	0,305	0,298	0,293	0,300	0,286	0,275
Urban	0,422	0,418	0,412	0,425	0,435	0,455	0,464
Female							
Rural	0,169	0,181	0,183	0,175	0,160	0,145	0,139
Urban	0,097	0,096	0,107	0,107	0,104	0,114	0,121
Total employment (million)	*21,538*	*21,530*	*21,463*	*21,291*	*21,709*	*22,081*	*22,330*

Table 5: Distribution of employment by sector, 2000-2006 (percentage of total employment)

	2000	2001	2002	2003	2004	2005	2006
Male							
Agriculture	0,203	0,201	0,180	0,180	0,188	0,164	0,147
Mining	0,003	0,004	0,005	0,004	0,005	0,005	0,006
Manufacturing	0,135	0,134	0,135	0,136	0,139	0,147	0,150
EGW	0,004	0,004	0,005	0,004	0,004	0,003	0,004
Construction	0,063	0,051	0,044	0,043	0,046	0,052	0,055
Trade, H&R	0,159	0,156	0,164	0,166	0,169	0,179	0,181
Transportation	0,046	0,045	0,044	0,045	0,048	0,048	0,049
Finance, real estate	0,022	0,023	0,023	0,026	0,026	0,029	0,033
Other services	0,100	0,105	0,112	0,114	0,111	0,114	0,115
Female							
Agriculture	0,161	0,176	0,176	0,167	0,154	0,135	0,126
Mining	0,000	0,000	0,000	0,000	0,000	0,000	0,000
Manufacturing	0,033	0,032	0,037	0,035	0,035	0,037	0,037
EGW	0,000	0,000	0,000	0,000	0,000	0,000	0,000
Construction	0,001	0,001	0,001	0,001	0,001	0,001	0,002
Trade, H&R	0,018	0,018	0,021	0,022	0,023	0,026	0,030
Transportation	0,003	0,003	0,003	0,003	0,003	0,003	0,003
Finance, real estate	0,010	0,009	0,009	0,009	0,010	0,011	0,012
Other services	0,038	0,038	0,043	0,044	0,040	0,045	0,049

Table 6: Distribution of employment by education level, 2000-2006 (percentage of total employment)

	2000	2001	2002	2003	2004	2005	2006
Male							
Younger than 6 or illiterate	0,031	0,029	0,024	0,022	0,024	0,018	0,017
Literate but no prim school	0,023	0,023	0,020	0,018	0,026	0,028	0,027
Primary school	0,409	0,388	0,365	0,358	0,361	0,339	0,326
Secondary education	0,085	0,088	0,092	0,096	0,103	0,113	0,118
General high school	0,084	0,081	0,080	0,083	0,092	0,091	0,087
Vocational high school	0,045	0,053	0,062	0,067	0,061	0,074	0,081
2-3 year faculty or above	0,057	0,061	0,067	0,074	0,070	0,078	0,083
Female							
Younger than 6 or illiterate	0,055	0,059	0,056	0,052	0,046	0,040	0,037
Literate but no prim school	0,011	0,012	0,012	0,011	0,013	0,017	0,018
Primary school	0,125	0,134	0,139	0,130	0,121	0,108	0,102
Secondary education	0,011	0,011	0,014	0,017	0,018	0,020	0,022
General high school	0,022	0,020	0,021	0,021	0,022	0,022	0,023
Vocational high school	0,012	0,012	0,014	0,015	0,013	0,016	0,018
2-3 year faculty or above	0,028	0,030	0,033	0,036	0,032	0,037	0,041

Table 7: Distribution of employment by establishment size, 2000-2006 (percentage of total employment)

	2000	2001	2002	2003	2004	2005	2006
Male							
<10	0,493	0,474	0,461	0,463	0,478	0,467	0,455
10-24	0,078	0,075	0,048	0,051	0,051	0,057	0,059
25-49	0,040	0,042	0,055	0,055	0,065	0,068	0,070
50+	0,124	0,131	0,147	0,149	0,141	0,149	0,155
Female							
<10	0,194	0,207	0,214	0,207	0,194	0,180	0,174
10-24	0,022	0,020	0,014	0,014	0,015	0,016	0,019
25-49	0,013	0,014	0,018	0,017	0,019	0,022	0,023
50+	0,037	0,036	0,045	0,043	0,037	0,041	0,045

Table 8: Distribution of employment by occupation, 2000-2006

	2001	2002	2003	2004	2005	2006
Male						
Managers	0,074	0,076	0,080	0,080	0,091	0,084
Professionals	0,035	0,037	0,040	0,037	0,039	0,039
Technicians	0,038	0,039	0,040	0,035	0,041	0,044
Clerks	0,029	0,033	0,033	0,032	0,033	0,037
Service workers	0,077	0,085	0,085	0,085	0,084	0,092
Skilled agr workers	0,192	0,166	0,169	0,170	0,146	0,128
Craft workers	0,135	0,123	0,121	0,124	0,128	0,127
Machine operators	0,074	0,075	0,077	0,088	0,092	0,095
Elementary occup	0,069	0,076	0,072	0,084	0,086	0,094
Female						
Managers	0,006	0,006	0,005	0,006	0,007	0,007
Professionals	0,019	0,021	0,021	0,019	0,021	0,023
Technicians	0,015	0,014	0,014	0,014	0,016	0,018
Clerks	0,015	0,020	0,023	0,019	0,020	0,022
Service workers	0,012	0,016	0,017	0,016	0,018	0,022
Skilled agr workers	0,170	0,158	0,159	0,132	0,115	0,101
Craft workers	0,018	0,019	0,016	0,016	0,016	0,015
Machine operators	0,006	0,007	0,007	0,008	0,010	0,010
Elementary occup	0,016	0,030	0,020	0,035	0,036	0,042

Table 9: Distribution of employment by status, 2000-2006 (percentage of total employment)

	2000	2001	2002	2003	2004	2005	2006
Male							
Regular	0,302	0,309	0,329	0,334	0,337	0,369	0,386
Casual	0,088	0,070	0,059	0,061	0,067	0,057	0,057
Employer	0,049	0,051	0,052	0,047	0,045	0,049	0,051
Self-employed	0,219	0,214	0,202	0,215	0,221	0,213	0,201
Unpaid family	0,077	0,079	0,068	0,060	0,066	0,053	0,045
Female							
Regular	0,081	0,080	0,089	0,090	0,087	0,098	0,107
Casual	0,012	0,012	0,017	0,016	0,015	0,014	0,015
Employer	0,002	0,002	0,003	0,002	0,002	0,002	0,003
Self-employed	0,031	0,036	0,036	0,035	0,027	0,035	0,034
Unpaid family	0,139	0,148	0,145	0,140	0,134	0,109	0,102

Table 10: Distribution of employment by registration status, 2000-2006 (percentage of total employment)

	2000	2001	2002	2003	2004	2005	2006
Male							
Informal	0,331	0,329	0,313	0,320	0,345	0,330	0,313
Formal	0,403	0,394	0,397	0,397	0,390	0,411	0,427
Female							
Informal	0,188	0,204	0,211	0,202	0,191	0,179	0,172
Formal	0,077	0,073	0,079	0,080	0,074	0,080	0,089

Table 11: Average monthly wage rates in urban areas, 2006

Sector	All workers		Informal workers		Formal workers		Good jobs	
	Female	Male	Female	Male	Female	Male	Female	Male
Agriculture	354	223	205	269	574	670	945	817
Mining	825	710	248	432	1011	885	1137	1090
Manufacturing	554	432	312	425	526	608	695	759
EGW	884	761	250	521	777	904	883	998
Construction	499	545	258	416	623	643	739	824
Trade, H&R	497	443	314	369	527	590	610	716
Transportation	642	759	327	448	836	775	1019	1030
Finance, real estate	639	641	317	396	721	686	841	901
Other services	792	667	278	331	826	878	899	1021
Total	*543*	*595*	*292*	*394*	*684*	*695*	*834*	*890*

Note: Geometric averages

"Good jobs" are formal jobs for vocational school and college graduates.

Table 12: Sectoral composition of urban employment, 2000-2006 (percentage of total urban employment)

Sector	2000	2001	2002	2003	2004	2005	2006	Average
Female								
Agriculture	0.018	0.021	0.022	0.019	0.024	0.022	0.020	0.021
Mining	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Manufacturing	0.049	0.048	0.054	0.054	0.050	0.050	0.049	0.051
EGW	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000
Construction	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Trade, H&R	0.031	0.030	0.034	0.035	0.034	0.036	0.041	0.035
Transportation	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Finance, real estate	0.017	0.016	0.016	0.016	0.016	0.016	0.019	0.017
Other services	0.064	0.065	0.072	0.070	0.062	0.067	0.070	0.067
Total	*0.187*	*0.187*	*0.206*	*0.202*	*0.194*	*0.200*	*0.207*	*0.198*
Male								
Agriculture	0.023	0.023	0.024	0.024	0.035	0.031	0.028	0.027
Mining	0.003	0.003	0.004	0.004	0.005	0.005	0.005	0.004
Manufacturing	0.218	0.218	0.206	0.210	0.211	0.212	0.206	0.212
EGW	0.006	0.006	0.006	0.006	0.005	0.004	0.005	0.005
Construction	0.076	0.071	0.062	0.058	0.059	0.065	0.067	0.066
Trade, H&R	0.244	0.243	0.245	0.245	0.238	0.235	0.235	0.241
Transportation	0.064	0.063	0.059	0.060	0.062	0.060	0.059	0.061
Finance, real estate	0.038	0.038	0.039	0.039	0.041	0.042	0.047	0.041
Other services	0.140	0.147	0.150	0.152	0.151	0.146	0.142	0.147
Total	*0.813*	*0.813*	*0.794*	*0.798*	*0.806*	*0.800*	*0.793*	*0.802*
Total number of employees (million)	*11.26*	*11.11*	*11.18*	*11.36*	*11.72*	*12.56*	*13.08*	*11.75*

Table 13: Share of formal employment in urban areas by sector, 2000-2006 (percentage of sectoral employment by gender)

Sector	2000	2001	2002	2003	2004	2005	2006	Average
Female								
Agriculture	0.044	0.018	0.014	0.021	0.017	0.020	0.026	0.023
Mining	1.000	1.000	0.870	1.000	0.807	0.924	0.749	0.907
Manufacturing	0.616	0.584	0.578	0.585	0.573	0.538	0.530	0.572
EGW	1.000	1.000	1.000	1.000	1.000	1.000	0.983	0.998
Construction	0.799	0.731	0.763	0.741	0.744	0.866	0.793	0.777
Trade, H&R	0.652	0.635	0.579	0.571	0.555	0.559	0.552	0.586
Transportation	0.891	0.895	0.907	0.870	0.829	0.848	0.857	0.871
Finance, real estate	0.848	0.850	0.818	0.832	0.780	0.774	0.828	0.818
Other services	0.846	0.827	0.794	0.800	0.769	0.756	0.769	0.794
Total	*0.677*	*0.647*	*0.621*	*0.634*	*0.589*	*0.588*	*0.607*	*0.623*
Male								
Agriculture	0.291	0.246	0.269	0.292	0.219	0.276	0.296	0.270
Mining	0.938	0.925	0.946	0.935	0.858	0.882	0.882	0.909
Manufacturing	0.777	0.765	0.730	0.738	0.723	0.719	0.715	0.738
EGW	0.978	1.000	0.985	0.993	0.985	0.968	0.961	0.981
Construction	0.386	0.395	0.419	0.397	0.345	0.349	0.406	0.385
Trade, H&R	0.619	0.603	0.589	0.585	0.552	0.568	0.587	0.586
Transportation	0.669	0.663	0.672	0.650	0.602	0.604	0.603	0.637
Finance, real estate	0.844	0.821	0.798	0.795	0.783	0.784	0.817	0.806
Other services	0.889	0.886	0.876	0.876	0.865	0.852	0.848	0.870
Total	*0.695*	*0.688*	*0.678*	*0.678*	*0.645*	*0.649*	*0.660*	*0.671*

Table 14: Share of "good jobs" in urban areas by sector, 2000-2006 (percentage of sectoral employment by gender)

Sector	2000	2001	2002	2003	2004	2005	2006	Average
Female								
Agriculture	0.011	0.005	0.003	0.001	0.004	0.004	0.005	0.005
Mining	0.742	1.000	0.669	0.815	0.321	0.439	0.613	0.657
Manufacturing	0.143	0.138	0.147	0.176	0.147	0.153	0.164	0.153
EGW	0.422	0.612	0.623	0.778	0.536	0.355	0.586	0.559
Construction	0.293	0.371	0.426	0.321	0.372	0.484	0.453	0.389
Trade, H&R	0.209	0.242	0.212	0.219	0.212	0.225	0.221	0.220
Transportation	0.378	0.399	0.459	0.533	0.457	0.497	0.543	0.467
Finance, real estate	0.454	0.533	0.518	0.530	0.491	0.502	0.550	0.511
Other services	0.597	0.613	0.605	0.629	0.598	0.608	0.622	0.610
Total	*0.335*	*0.350*	*0.341*	*0.365*	*0.324*	*0.343*	*0.365*	*0.346*
Male								
Agriculture	0.045	0.029	0.025	0.041	0.027	0.037	0.045	0.035
Mining	0.225	0.294	0.327	0.263	0.193	0.199	0.237	0.248
Manufacturing	0.138	0.153	0.181	0.192	0.170	0.189	0.202	0.175
EGW	0.363	0.343	0.403	0.459	0.445	0.496	0.539	0.436
Construction	0.082	0.099	0.112	0.121	0.089	0.093	0.114	0.101
Trade, H&R	0.099	0.109	0.118	0.128	0.114	0.135	0.147	0.122
Transportation	0.116	0.135	0.159	0.178	0.126	0.148	0.164	0.147
Finance, real estate	0.419	0.412	0.414	0.431	0.385	0.403	0.425	0.413
Other services	0.381	0.411	0.446	0.462	0.426	0.456	0.476	0.437
Total	*0.174*	*0.191*	*0.214*	*0.227*	*0.198*	*0.218*	*0.234*	*0.208*

Table 15: Composition of urban employment by establishment size, 2000-2006 (percentage of total urban employment)

Firm size	2000	2001	2002	2003	2004	2005	2006	Average
Female								
Less than 10	0.073	0.075	0.085	0.082	0.083	0.085	0.086	0.081
10-24	0.031	0.031	0.019	0.020	0.020	0.021	0.024	0.024
25-49	0.020	0.022	0.029	0.027	0.030	0.032	0.032	0.027
+50 and more	0.062	0.060	0.072	0.073	0.061	0.062	0.065	0.065
Total	*0.187*	*0.187*	*0.206*	*0.202*	*0.194*	*0.200*	*0.207*	*0.198*
Male								
Less than 10	0.438	0.428	0.421	0.416	0.427	0.417	0.409	0.422
10-24	0.111	0.111	0.065	0.067	0.070	0.074	0.074	0.082
25-49	0.058	0.061	0.078	0.078	0.091	0.093	0.094	0.079
+50 and more	0.206	0.212	0.230	0.237	0.218	0.217	0.216	0.219
Total	*0.813*	*0.813*	*0.794*	*0.798*	*0.806*	*0.800*	*0.793*	*0.802*

Table 16: Share of formal employment in urban areas by establishment size, 2000-2006 (percentage of employment by establishment size and gender)

Firm size	2000	2001	2002	2003	2004	2005	2006	Average
Female								
Less than 10	0.341	0.292	0.262	0.277	0.252	0.254	0.282	0.280
10-24	0.763	0.760	0.684	0.718	0.660	0.633	0.648	0.695
25-49	0.879	0.886	0.854	0.842	0.804	0.793	0.811	0.839
+50 and more	0.962	0.950	0.933	0.935	0.921	0.924	0.921	0.935
Total	*0.677*	*0.647*	*0.621*	*0.634*	*0.589*	*0.588*	*0.607*	*0.623*
Male								
Less than 10	0.529	0.504	0.493	0.479	0.447	0.451	0.466	0.481
10-24	0.748	0.747	0.701	0.730	0.686	0.692	0.698	0.715
25-49	0.900	0.902	0.841	0.852	0.830	0.815	0.829	0.853
+50 and more	0.961	0.967	0.953	0.956	0.943	0.944	0.942	0.952
Total	*0.695*	*0.688*	*0.678*	*0.678*	*0.645*	*0.649*	*0.660*	*0.671*

Table 17: Share of "good jobs" in urban areas by establishment size, 2000-2006 (percentage of employment by establishment size and gender)

Firm size	2000	2001	2002	2003	2004	2005	2006	Average
Female								
Less than 10	0.119	0.111	0.106	0.125	0.106	0.120	0.133	0.117
10-24	0.375	0.424	0.372	0.415	0.376	0.368	0.407	0.391
25-49	0.513	0.580	0.536	0.539	0.513	0.491	0.524	0.528
+50 and more	0.507	0.528	0.531	0.558	0.513	0.563	0.578	0.540
Total	*0.335*	*0.350*	*0.341*	*0.365*	*0.324*	*0.343*	*0.365*	*0.346*
Male								
Less than 10	0.081	0.086	0.097	0.100	0.086	0.101	0.112	0.095
10-24	0.210	0.215	0.225	0.255	0.221	0.236	0.241	0.229
25-49	0.309	0.339	0.339	0.353	0.312	0.327	0.336	0.331
+50 and more	0.312	0.346	0.381	0.401	0.363	0.391	0.418	0.373
Total	*0.174*	*0.191*	*0.214*	*0.227*	*0.198*	*0.218*	*0.234*	*0.208*

Table 18: Distribution of urban working age (15+) population by education, 2000-2006 (percentage of total working age population in urban areas)

Education level	2000	2001	2002	2003	2004	2005	2006	Average
Female								
Illiterate	0.073	0.072	0.069	0.066	0.078	0.075	0.073	0.072
Literate	0.022	0.021	0.022	0.022	0.024	0.032	0.034	0.025
Primary	0.231	0.234	0.227	0.221	0.217	0.205	0.196	0.219
Secondary	0.054	0.056	0.057	0.058	0.060	0.061	0.063	0.059
High school	0.065	0.061	0.061	0.063	0.062	0.059	0.057	0.061
Vocational	0.022	0.025	0.028	0.031	0.026	0.030	0.033	0.028
College	0.032	0.032	0.036	0.038	0.033	0.038	0.040	0.036
Total	*0.499*	*0.501*	*0.501*	*0.500*	*0.502*	*0.499*	*0.497*	*0.500*
Male								
Illiterate	0.015	0.014	0.013	0.013	0.015	0.014	0.014	0.014
Literate	0.015	0.014	0.014	0.014	0.017	0.021	0.021	0.016
Primary	0.218	0.210	0.200	0.193	0.195	0.187	0.181	0.198
Secondary	0.085	0.087	0.088	0.090	0.091	0.093	0.096	0.090
High school	0.083	0.079	0.079	0.081	0.083	0.078	0.074	0.080
Vocational	0.038	0.044	0.050	0.051	0.044	0.051	0.055	0.047
College	0.049	0.050	0.055	0.059	0.053	0.058	0.061	0.055
Total	*0.501*	*0.499*	*0.499*	*0.500*	*0.498*	*0.501*	*0.503*	*0.500*
Share in total pop	*0.709*	*0.712*	*0.712*	*0.712*	*0.712*	*0.714*	*0.721*	*0.713*

Table 19: Share of employees by education, 2000-2006 (percentage of population of working age in urban areas by education and gender)

Education level	2000	2001	2002	2003	2004	2005	2006	Average
Female								
Illiterate	0.050	0.051	0.052	0.046	0.052	0.058	0.053	0.052
Literate	0.071	0.068	0.072	0.072	0.077	0.085	0.090	0.077
Primary	0.095	0.095	0.106	0.097	0.102	0.109	0.113	0.102
Secondary	0.108	0.090	0.108	0.115	0.107	0.121	0.123	0.110
High school	0.232	0.204	0.210	0.192	0.196	0.203	0.211	0.207
Vocational	0.336	0.306	0.290	0.280	0.283	0.273	0.283	0.293
College	0.631	0.632	0.605	0.589	0.593	0.603	0.609	0.609
Total	*0.152*	*0.145*	*0.156*	*0.152*	*0.147*	*0.160*	*0.167*	*0.154*
Male								
Illiterate	0.406	0.359	0.309	0.299	0.307	0.328	0.297	0.329
Literate	0.412	0.359	0.295	0.259	0.370	0.402	0.415	0.359
Primary	0.729	0.696	0.660	0.653	0.667	0.676	0.674	0.679
Secondary	0.531	0.516	0.506	0.505	0.510	0.537	0.534	0.520
High school	0.601	0.575	0.546	0.543	0.583	0.591	0.586	0.575
Vocational	0.708	0.689	0.669	0.688	0.700	0.725	0.725	0.700
College	0.773	0.774	0.756	0.747	0.765	0.777	0.769	0.766
Total	*0.658*	*0.634*	*0.607*	*0.603*	*0.617*	*0.633*	*0.630*	*0.626*

Table 20: Share of formal employees by education, 2000-2006
(percentage of employment in urban areas by education and gender)

Education level	2000	2001	2002	2003	2004	2005	2006	Average
Female								
Illiterate	0.117	0.066	0.080	0.087	0.054	0.062	0.081	0.078
Literate	0.228	0.127	0.148	0.159	0.170	0.143	0.156	0.162
Primary	0.406	0.371	0.341	0.338	0.323	0.311	0.316	0.344
Secondary	0.652	0.610	0.534	0.524	0.473	0.439	0.463	0.528
High school	0.838	0.803	0.773	0.765	0.724	0.731	0.723	0.765
Vocational	0.842	0.811	0.778	0.758	0.779	0.764	0.770	0.786
College	0.957	0.953	0.937	0.947	0.925	0.926	0.934	0.940
Total	*0.682*	*0.650*	*0.623*	*0.637*	*0.589*	*0.588*	*0.607*	*0.623*
Male								
Illiterate	0.246	0.235	0.224	0.241	0.175	0.143	0.170	0.205
Literate	0.351	0.296	0.319	0.235	0.214	0.222	0.230	0.267
Primary	0.617	0.607	0.581	0.569	0.551	0.560	0.572	0.580
Secondary	0.697	0.676	0.648	0.640	0.598	0.580	0.588	0.633
High school	0.801	0.789	0.768	0.770	0.739	0.748	0.742	0.765
Vocational	0.837	0.808	0.810	0.812	0.793	0.781	0.794	0.805
College	0.940	0.927	0.915	0.920	0.899	0.895	0.901	0.914
Total	*0.699*	*0.691*	*0.680*	*0.680*	*0.645*	*0.649*	*0.660*	*0.672*

Table 21: Distribution of urban young (15-24 years old) population by education, 2000-2006
(percentage of total young population in urban areas)

Education level	2000	2001	2002	2003	2004	2005	2006	Average
Female								
Illiterate	0.018	0.018	0.018	0.018	0.025	0.024	0.023	0.021
Literate	0.013	0.014	0.016	0.020	0.024	0.033	0.041	0.023
Primary	0.193	0.187	0.171	0.152	0.140	0.117	0.097	0.151
Secondary	0.110	0.119	0.120	0.126	0.140	0.145	0.156	0.131
High school	0.112	0.109	0.110	0.111	0.112	0.108	0.104	0.109
Vocational	0.034	0.039	0.045	0.049	0.042	0.047	0.048	0.043
College	0.023	0.021	0.024	0.027	0.025	0.028	0.029	0.025
Total	*0.502*	*0.506*	*0.503*	*0.503*	*0.509*	*0.502*	*0.498*	*0.503*
Male								
Illiterate	0.007	0.007	0.006	0.005	0.008	0.008	0.007	0.007
Literate	0.013	0.015	0.016	0.021	0.020	0.026	0.026	0.020
Primary	0.139	0.119	0.105	0.091	0.082	0.066	0.055	0.094
Secondary	0.149	0.155	0.157	0.167	0.182	0.189	0.203	0.172
High school	0.128	0.129	0.132	0.130	0.128	0.123	0.120	0.127
Vocational	0.043	0.050	0.061	0.060	0.051	0.062	0.064	0.056
College	0.018	0.018	0.019	0.022	0.021	0.024	0.026	0.021
Total	*0.498*	*0.494*	*0.497*	*0.497*	*0.491*	*0.498*	*0.502*	*0.497*
Share in total pop	*0.195*	*0.192*	*0.189*	*0.185*	*0.177*	*0.174*	*0.173*	*0.184*

Table 22: Share of young (15-24 years old) employees by education, 2000-2006 (percentage of young population in urban areas by education and gender)

Education level	2000	2001	2002	2003	2004	2005	2006	Average
Female								
Illiterate	0.068	0.074	0.051	0.055	0.078	0.088	0.081	0.071
Literate	0.048	0.072	0.062	0.065	0.099	0.103	0.134	0.083
Primary	0.137	0.131	0.140	0.136	0.143	0.134	0.132	0.136
Secondary	0.076	0.063	0.077	0.086	0.084	0.100	0.098	0.083
High school	0.196	0.170	0.170	0.144	0.141	0.146	0.151	0.160
Vocational	0.358	0.311	0.302	0.278	0.282	0.278	0.299	0.301
College	0.491	0.498	0.459	0.450	0.453	0.488	0.525	0.481
Total	*0.163*	*0.149*	*0.156*	*0.150*	*0.148*	*0.156*	*0.162*	*0.155*
Male								
Illiterate	0.388	0.309	0.302	0.300	0.319	0.335	0.313	0.324
Literate	0.244	0.229	0.162	0.131	0.304	0.375	0.419	0.266
Primary	0.725	0.708	0.690	0.693	0.698	0.748	0.736	0.714
Secondary	0.268	0.254	0.253	0.265	0.282	0.328	0.333	0.283
High school	0.305	0.296	0.252	0.222	0.267	0.266	0.271	0.268
Vocational	0.521	0.473	0.436	0.473	0.488	0.522	0.538	0.493
College	0.501	0.500	0.404	0.424	0.496	0.539	0.571	0.490
Total	0.437	0.406	0.371	0.359	0.379	0.406	0.405	0.395

Table 23: Share of formal young employees by education, 2000-2006 (percentage of young employment in urban areas by education and gender)

Education level	2000	2001	2002	2003	2004	2005	2006	Average
Female								
Illiterate	0.122	0.104	0.139	0.019	0.059	0.054	0.017	0.073
Literate	0.193	0.102	0.130	0.075	0.189	0.097	0.106	0.127
Primary	0.431	0.384	0.336	0.359	0.370	0.349	0.360	0.370
Secondary	0.530	0.492	0.414	0.396	0.364	0.368	0.322	0.412
High school	0.786	0.719	0.681	0.674	0.605	0.624	0.619	0.673
Vocational	0.779	0.756	0.706	0.671	0.690	0.677	0.708	0.712
College	0.930	0.912	0.900	0.885	0.853	0.860	0.871	0.887
Total	*0.650*	*0.602*	*0.567*	*0.563*	*0.528*	*0.534*	*0.537*	*0.623*
Male								
Illiterate	0.127	0.082	0.019	0.132	0.071	0.066	0.037	0.076
Literate	0.168	0.082	0.051	0.045	0.078	0.057	0.099	0.083
Primary	0.368	0.336	0.300	0.294	0.286	0.365	0.415	0.338
Secondary	0.418	0.381	0.338	0.336	0.321	0.301	0.317	0.345
High school	0.571	0.560	0.532	0.511	0.456	0.493	0.491	0.516
Vocational	0.642	0.562	0.598	0.609	0.583	0.592	0.614	0.600
College	0.885	0.782	0.761	0.803	0.718	0.747	0.795	0.784
Total	*0.458*	*0.427*	*0.406*	*0.411*	*0.381*	*0.409*	*0.434*	*0.418*

Table 24: Distribution of urban polulation by household size, 2000-2006 (percentage of total urban population)

Family size	2000	2001	2002	2003	2004	2005	2006	Average
Female								
1	0.012	0.012	0.012	0.013	0.012	0.011	0.011	0.012
2	0.046	0.046	0.046	0.048	0.048	0.048	0.048	0.047
3	0.089	0.089	0.091	0.093	0.090	0.091	0.093	0.091
4	0.147	0.146	0.144	0.147	0.140	0.140	0.141	0.143
5	0.095	0.095	0.094	0.091	0.093	0.091	0.090	0.093
6	0.051	0.052	0.053	0.050	0.051	0.049	0.048	0.051
7-9	0.047	0.049	0.047	0.044	0.050	0.052	0.050	0.048
10+	0.011	0.012	0.012	0.011	0.016	0.015	0.014	0.013
Total	*0.498*	*0.500*	*0.499*	*0.498*	*0.499*	*0.496*	*0.495*	*0.498*
Male								
1	0.005	0.005	0.005	0.006	0.005	0.005	0.005	0.005
2	0.040	0.041	0.041	0.043	0.043	0.043	0.044	0.042
3	0.094	0.094	0.095	0.099	0.094	0.097	0.101	0.096
4	0.157	0.155	0.156	0.158	0.149	0.152	0.154	0.154
5	0.097	0.096	0.095	0.093	0.095	0.093	0.093	0.094
6	0.051	0.050	0.051	0.050	0.050	0.048	0.047	0.050
7-9	0.047	0.047	0.046	0.042	0.050	0.051	0.049	0.047
10+	0.012	0.011	0.012	0.011	0.016	0.014	0.013	0.013
Total	*0.502*	*0.500*	*0.501*	*0.502*	*0.501*	*0.504*	*0.505*	*0.502*

Table 25: Share of people living in households with any employment, 2000-2006 (percentage of population by gender and household size, urban areas)

Family size	2000	2001	2002	2003	2004	2005	2006	Average
Female								
1	0.129	0.114	0.123	0.117	0.118	0.136	0.132	0.124
2	0.501	0.464	0.455	0.449	0.455	0.467	0.466	0.465
3	0.790	0.782	0.756	0.756	0.766	0.773	0.776	0.771
4	0.881	0.861	0.849	0.847	0.853	0.861	0.858	0.858
5	0.893	0.859	0.852	0.856	0.862	0.866	0.869	0.865
6	0.899	0.879	0.854	0.844	0.861	0.866	0.870	0.868
7-9	0.919	0.873	0.842	0.830	0.848	0.847	0.834	0.856
10+	0.945	0.924	0.887	0.841	0.857	0.855	0.815	0.875
Total	*0.822*	*0.797*	*0.779*	*0.771*	*0.784*	*0.790*	*0.788*	*0.790*
Male								
1	0.521	0.530	0.492	0.515	0.509	0.514	0.492	0.510
2	0.555	0.521	0.511	0.499	0.498	0.513	0.514	0.516
3	0.822	0.808	0.780	0.787	0.799	0.810	0.813	0.803
4	0.897	0.878	0.860	0.860	0.869	0.880	0.880	0.875
5	0.906	0.873	0.857	0.863	0.870	0.877	0.881	0.875
6	0.908	0.888	0.865	0.854	0.873	0.873	0.881	0.877
7-9	0.924	0.881	0.851	0.841	0.865	0.863	0.854	0.868
10+	0.952	0.933	0.905	0.870	0.858	0.864	0.841	0.889
Total	*0.858*	*0.834*	*0.813*	*0.809*	*0.820*	*0.828*	*0.828*	*0.827*

Table 26: Share of people living in households with any formal employment, 2000-2006 (percentage of population by gender and household size, urban areas)

Family size	2000	2001	2002	2003	2004	2005	2006	Average
Female								
1	0.103	0.088	0.094	0.097	0.084	0.103	0.096	0.095
2	0.379	0.348	0.330	0.329	0.318	0.319	0.323	0.336
3	0.641	0.631	0.593	0.590	0.588	0.590	0.603	0.605
4	0.711	0.689	0.678	0.666	0.648	0.660	0.668	0.674
5	0.682	0.635	0.624	0.629	0.617	0.628	0.625	0.634
6	0.627	0.613	0.589	0.576	0.546	0.571	0.575	0.585
7-9	0.559	0.524	0.502	0.499	0.450	0.439	0.458	0.490
10+	0.423	0.438	0.382	0.380	0.351	0.340	0.329	0.378
Total	*0.619*	*0.593*	*0.573*	*0.567*	*0.547*	*0.554*	*0.562*	*0.574*
Male								
1	0.420	0.430	0.379	0.412	0.365	0.391	0.378	0.396
2	0.418	0.390	0.374	0.365	0.349	0.352	0.360	0.373
3	0.665	0.648	0.604	0.611	0.612	0.616	0.631	0.627
4	0.719	0.701	0.686	0.672	0.659	0.670	0.683	0.684
5	0.682	0.637	0.616	0.620	0.617	0.632	0.628	0.633
6	0.629	0.604	0.587	0.572	0.539	0.554	0.587	0.582
7-9	0.562	0.518	0.499	0.506	0.443	0.436	0.458	0.489
10+	0.422	0.434	0.381	0.390	0.369	0.342	0.335	0.382
Total	*0.644*	*0.617*	*0.594*	*0.591*	*0.570*	*0.578*	*0.592*	*0.598*

Table 27: Share of people living in households with any "good jobs", 2000-2006 (percentage of population by gender and household size, urban areas)

Family size	2000	2001	2002	2003	2004	2005	2006	Average
Female								
1	0.073	0.068	0.067	0.076	0.064	0.078	0.080	0.072
2	0.154	0.146	0.159	0.166	0.151	0.162	0.174	0.159
3	0.232	0.255	0.260	0.271	0.250	0.274	0.291	0.262
4	0.212	0.220	0.236	0.236	0.221	0.244	0.262	0.233
5	0.153	0.151	0.173	0.176	0.156	0.185	0.189	0.169
6	0.116	0.123	0.128	0.146	0.124	0.142	0.163	0.135
7-9	0.067	0.074	0.093	0.099	0.085	0.087	0.100	0.086
10+	0.046	0.058	0.035	0.041	0.025	0.053	0.053	0.044
Total	*0.168*	*0.175*	*0.187*	*0.195*	*0.174*	*0.195*	*0.210*	*0.186*
Male								
1	0.206	0.246	0.251	0.280	0.226	0.239	0.253	0.243
2	0.156	0.155	0.172	0.177	0.158	0.166	0.187	0.167
3	0.233	0.253	0.258	0.272	0.255	0.280	0.302	0.265
4	0.209	0.219	0.239	0.239	0.222	0.243	0.261	0.233
5	0.146	0.142	0.167	0.169	0.153	0.183	0.187	0.164
6	0.110	0.111	0.119	0.144	0.119	0.136	0.163	0.129
7-9	0.065	0.075	0.091	0.094	0.079	0.092	0.098	0.085
10+	0.045	0.050	0.032	0.039	0.029	0.053	0.057	0.044
Total	*0.170*	*0.177*	*0.193*	*0.201*	*0.179*	*0.201*	*0.219*	*0.191*

Note: "Good job" is defined as the employemnt of vocational school and college graduates in formal jobs.

Table 28: Descriptive statistics on variables used in the labor market participation model, (mean values, urban areas, working age population)

	2000	2001	2002	2003	2004	2005	2006	Average
Female								
Child	0.278	0.284	0.282	0.275	0.270	0.270	0.268	0.275
Age (log)	3.510	3.512	3.521	3.531	3.544	3.549	3.561	3.533
Primary	0.046	0.046	0.049	0.050	0.053	0.071	0.075	0.056
Secondary	0.563	0.569	0.556	0.550	0.547	0.527	0.516	0.547
High school	0.125	0.114	0.114	0.117	0.115	0.106	0.103	0.113
Vocational	0.042	0.047	0.055	0.058	0.052	0.059	0.064	0.054
College	0.060	0.059	0.066	0.070	0.059	0.066	0.071	0.064
Single	0.245	0.245	0.243	0.241	0.230	0.228	0.227	0.237
Divorced	0.102	0.102	0.106	0.113	0.107	0.109	0.111	0.107
Parent*household size	0.902	0.895	0.894	0.888	0.911	0.911	0.908	0.901
Child*household size	0.440	0.452	0.446	0.430	0.433	0.431	0.426	0.437
Any formal	0.945	0.943	0.937	0.937	0.938	0.935	0.934	0.938
Unemployed HH	0.302	0.326	0.348	0.352	0.334	0.332	0.339	0.333
Male								
Child	0.319	0.318	0.318	0.315	0.319	0.318	0.315	0.317
Age (log)	3.523	3.527	3.534	3.539	3.545	3.549	3.559	3.539
Primary	0.034	0.035	0.035	0.035	0.040	0.050	0.048	0.040
Secondary	0.604	0.602	0.586	0.577	0.577	0.564	0.557	0.581
High school	0.159	0.148	0.146	0.150	0.154	0.142	0.137	0.148
Vocational	0.069	0.080	0.093	0.093	0.089	0.102	0.109	0.091
College	0.097	0.098	0.106	0.112	0.103	0.109	0.116	0.106
Single	0.298	0.293	0.293	0.294	0.291	0.288	0.286	0.292
Divorced	0.019	0.020	0.021	0.021	0.021	0.021	0.021	0.021
Parent*household size	0.881	0.882	0.880	0.872	0.879	0.880	0.878	0.879
Child*household size	0.500	0.497	0.493	0.485	0.502	0.498	0.489	0.495
Any formal	0.531	0.535	0.550	0.551	0.538	0.536	0.546	0.541
Unemployed HH	0.144	0.154	0.165	0.166	0.159	0.161	0.163	0.159

* Weighted average values are used

Table 29: Estimated labor market outcome probabilities at mean values (percentage) (for an average illiterate married parent without any formal employee in the household)

	2000	2001	2002	2003	2004	2005	2006
Female							
Non-employment	0.970	0.974	0.971	0.972	0.973	0.971	0.966
Informal manuf	0.003	0.003	0.004	0.004	0.004	0.005	0.005
Informal services	0.006	0.006	0.008	0.008	0.007	0.008	0.010
Formal manuf	0.008	0.006	0.007	0.006	0.007	0.006	0.006
Formal services	0.009	0.007	0.006	0.006	0.005	0.006	0.008
Employer	0.000	0.000	0.001	0.000	0.000	0.000	0.000
Self-employed	0.004	0.004	0.003	0.003	0.003	0.004	0.004
Male							
Non-employment	0.360	0.403	0.455	0.467	0.495	0.466	0.442
Informal manuf	0.059	0.058	0.057	0.054	0.054	0.060	0.059
Informal services	0.069	0.075	0.086	0.086	0.080	0.084	0.082
Formal manuf	0.138	0.124	0.105	0.101	0.094	0.094	0.101
Formal services	0.198	0.176	0.156	0.152	0.135	0.139	0.161
Employer	0.056	0.055	0.050	0.042	0.035	0.040	0.045
Self-employed	0.120	0.109	0.092	0.098	0.108	0.117	0.112

Table 30: Marginal effects of schooling on employment probability (base: illiterate)

	2000	2001	2002	2003	2004	2005	2006	Average
Female								
Primary		0.032 *	0.037 *	0.036 *		0.040 *	0.041 *	0.037
Secondary		0.044 *	0.048 *	0.040 *		0.048 *	0.055 *	0.047
High school		0.290 *	0.271 *	0.232 *		0.296 *	0.307 *	0.279
Vocational		0.493 *	0.449 *	0.414 *		0.460 *	0.458 *	0.455
College		0.763 *	0.711 *	0.700 *		0.746 *	0.752 *	0.734
Male								
Primary	0.067 *	0.068 *	0.161 *	0.080 *	0.138 *	0.203 *	0.167 *	0.136
Secondary	0.252 *	0.302 *	0.357 *	0.340 *	0.355 *	0.389 *	0.367 *	0.352
High school	0.250 *	0.322 *	0.390 *	0.374 *	0.408 *	0.430 *	0.396 *	0.387
Vocational	0.295 *	0.351 *	0.423 *	0.432 *	0.453 *	0.462 *	0.433 *	0.426
College	0.348 *	0.407 *	0.473 *	0.480 *	0.497 *	0.499 *	0.471 *	0.471

* means statistically significant at the 5% level

Table 31: Marginal effects of schooling on informal manufacturing employment probability (base: illiterate)

	2000	2001	2002	2003	2004	2005	2006	Average
Female								
Primary		0.003	0.006 *	0.005 *		0.005 *	0.007 *	0.005
Secondary		0.003 *	0.006 *	0.005 *		0.005 *	0.005 *	0.005
High school		-0.001	0.002	-0.001		0.000	0.000	0.000
Vocational		0.000	0.004 *	0.004 *		0.002	0.000	0.002
College		-0.001	0.000	-0.002 *		-0.002 *	-0.003 *	-0.002
Male								
Primary	-0.015 *	-0.006	-0.006	0.019 *	0.002	-0.010	0.003	0.000
Secondary	-0.040 *	-0.024 *	-0.008	0.000	0.004	-0.009 *	-0.013 *	-0.008
High school	-0.072 *	-0.064 *	-0.060 *	-0.055 *	-0.052 *	-0.063 *	-0.062 *	-0.059
Vocational	-0.060 *	-0.057 *	-0.055 *	-0.051 *	-0.046 *	-0.057 *	-0.055 *	-0.053
College	-0.072 *	-0.068 *	-0.063 *	-0.060 *	-0.060 *	-0.069 *	-0.068 *	-0.065

* means statistically significant at the 5% level

Table 32: Marginal effects of schooling on informal services employment probability (base: illiterate)

	2000	2001	2002	2003	2004	2005	2006	Average
Female								
Primary		0.003	0.004	0.006 *		0.004 *	0.002	0.004
Secondary		0.005 *	0.008 *	0.005 *		0.007 *	0.009 *	0.007
High school		0.007 *	0.011 *	0.006 *		0.009 *	0.011 *	0.009
Vocational		0.009 *	0.019 *	0.013 *		0.013 *	0.013 *	0.013
College		0.003	0.008 *	0.002		0.003	0.003	0.004
Male								
Primary	-0.018 *	-0.001	-0.011	0.000	0.011	-0.013	-0.007	-0.003
Secondary	-0.025 *	-0.008	0.004	0.001	0.015 *	0.006	0.000	0.003
High school	-0.059 *	-0.056 *	-0.056 *	-0.061 *	-0.045 *	-0.062 *	-0.056 *	-0.056
Vocational	-0.056 *	-0.052 *	-0.056 *	-0.064 *	-0.053 *	-0.064 *	-0.058 *	-0.058
College	-0.068 *	-0.068 *	-0.072 *	-0.078 *	-0.066 *	-0.074 *	-0.073 *	-0.072

* means statistically significant at the 5% level

Table 33: Marginal effects of schooling on formal manufacturing employment probability (base: illiterate)

	2000	2001	2002	2003	2004	2005	2006	Average
Female								
Primary		0.021 *	0.010	0.006		0.011 *	0.013 *	0.012
Secondary		0.018 *	0.016 *	0.014 *		0.014 *	0.014 *	0.015
High school		0.056 *	0.036 *	0.037 *		0.031 *	0.033 *	0.039
Vocational		0.089 *	0.066 *	0.066 *		0.043 *	0.047 *	0.062
College		0.067 *	0.042 *	0.040 *		0.030 *	0.033 *	0.042
Male								
Primary	0.039	0.035	0.066 *	0.053	0.013	-0.004	0.006	0.028
Secondary	0.100 *	0.106 *	0.119 *	0.122 *	0.114 *	0.093 *	0.097 *	0.109
High school	0.004	0.031	0.061 *	0.073 *	0.062 *	0.002	0.005	0.039
Vocational	0.102 *	0.111 *	0.175 *	0.188 *	0.183 *	0.080 *	0.097 *	0.139
College	-0.021	0.002	0.050 *	0.058 *	0.027	-0.018	-0.012	0.018

* means statistically significant at the 5% level

Table 34: Marginal effects of schooling on formal services employment probability (base: illiterate)

	2000	2001	2002	2003	2004	2005	2006	Average
Female								
Primary		0.004	0.013 *	0.017 *		0.018 *	0.015 *	0.013
Secondary		0.015 *	0.013 *	0.014 *		0.016 *	0.020 *	0.016
High school		0.224 *	0.202 *	0.178 *		0.237 *	0.226 *	0.213
Vocational		0.386 *	0.343 *	0.321 *		0.380 *	0.367 *	0.359
College		0.683 *	0.624 *	0.630 *		0.684 *	0.664 *	0.657
Male								
Primary	0.029	-0.035	0.050	-0.021	0.062 *	0.180 *	0.148 *	0.064
Secondary	0.170 *	0.168 *	0.162 *	0.159 *	0.158 *	0.231 *	0.235 *	0.186
High school	0.365 *	0.368 *	0.364 *	0.363 *	0.382 *	0.491 *	0.490 *	0.410
Vocational	0.343 *	0.367 *	0.343 *	0.342 *	0.349 *	0.474 *	0.474 *	0.392
College	0.519 *	0.526 *	0.505 *	0.534 *	0.566 *	0.656 *	0.661 *	0.575

* means statistically significant at the 5% level

Table 35: Marginal effects of schooling on employer probability (base: illiterate)

	2000	2001	2002	2003	2004	2005	2006	Average
Female								
Primary		0.000	0.001	0.001		0.000	0.001	0.001
Secondary		0.000 *	0.001 *	0.001 *		0.001 *	0.003 *	0.001
High school		0.003	0.016	0.010		0.014	0.032	0.015
Vocational		0.005	0.011	0.007		0.017	0.027	0.013
College		0.008	0.031	0.027		0.024	0.051	0.028
Male								
Primary	0.023	0.070 *	0.066 *	0.024	0.039 *	0.070 *	0.028	0.049
Secondary	0.063 *	0.075 *	0.081 *	0.065 *	0.061 *	0.085 *	0.061 *	0.071
High school	0.093 *	0.116 *	0.138 *	0.109 *	0.114 *	0.145 *	0.087 *	0.118
Vocational	0.056 *	0.063 *	0.083 *	0.088 *	0.090 *	0.118 *	0.053 *	0.083
College	0.083 *	0.105 *	0.129 *	0.102 *	0.107 *	0.104 *	0.056 *	0.101

* means statistically significant at the 5% level

Table 36: Marginal effects of schooling on self-employment probability (base: illiterate)

	2000	2001	2002	2003	2004	2005	2006	Average
Female								
Primary		0.001	0.003 *	0.000		0.003 *	0.003 *	0.002
Secondary		0.003 *	0.003 *	0.001 *		0.004 *	0.004 *	0.003
High school		0.001	0.004 *	0.002 *		0.006 *	0.005 *	0.004
Vocational		0.005 *	0.005 *	0.003 *		0.005 *	0.004 *	0.004
College		0.003 *	0.006 *	0.003 *		0.006 *	0.005 *	0.005
Male								
Primary	0.009	0.004	-0.003	0.005	0.011	-0.021 *	-0.011	-0.003
Secondary	-0.017 *	-0.015 *	-0.002	-0.007	0.003	-0.017 *	-0.013 *	-0.009
High school	-0.080 *	-0.071 *	-0.057 *	-0.056 *	-0.054 *	-0.083 *	-0.068 *	-0.065
Vocational	-0.090 *	-0.081 *	-0.067 *	-0.071 *	-0.070 *	-0.090 *	-0.079 *	-0.076
College	-0.093 *	-0.090 *	-0.076 *	-0.076 *	-0.077 *	-0.099 *	-0.093 *	-0.085

* means statistically significant at the 5% level

Table 37: Marginal effects of household characteristics on employment probability

	2000	2001	2002	2003	2004	2005	2006	Average
Household size								
Female								
Parent	-0.012 *	-0.011 *	-0.013 *	-0.011 *	-0.012 *	-0.009 *	-0.010 *	-0.011
Child	0.007 *	0.008 *	0.009 *	0.010 *	0.005 *	0.000	0.005 *	0.006
Male								
Parent	0.100 *	0.083 *	0.067 *	0.066 *	0.023 *	0.052 *	0.073 *	0.066
Child	0.055 *	0.081 *	0.110 *	0.145 *	0.035 *	0.079 *	0.059 *	0.080
Formal (registered) employment in the household								
Female	-0.646 *	-0.632 *	-0.670 *	-0.654 *	-0.554 *	-0.592 *	-0.643 *	-0.627
Male	-0.674 *	-0.721 *	-0.742 *	-0.748 *	-0.697 *	-0.694 *	-0.686 *	-0.709
Unemployed household head								
Female	-0.016 *	-0.014 *	-0.016 *	-0.012 *	-0.008 *	-0.011 *	-0.014 *	-0.013
Male	-0.100 *	-0.091 *	-0.085 *	-0.087 *	-0.068 *	-0.076 *	-0.091 *	-0.085

* means statistically significant at the 5% level

Table 38: Descriptive statistics for wage workers, urban regions, 2006 (mean values)

	Female				Male			
	Informal		Formal		Informal		Formal	
	Manuf	Services	Manuf	Services	Manuf	Services	Manuf	Services
Wage rate (log)	5.601	5.613	6.233	6.581	5.996	5.870	6.412	6.611
Age (log)	3.259	3.392	3.367	3.440	3.409	3.401	3.477	3.563
Wage rate	271	274	509	721	402	354	609	743
Age	26	30	29	31	30	30	32	35
Occupation								
Managers	0.004	0.009	0.033	0.039	0.007	0.039	0.025	0.069
Professionals	0.006	0.041	0.064	0.321	0.006	0.025	0.034	0.159
Technicians	0.052	0.051	0.148	0.213	0.018	0.057	0.089	0.131
Clerks	0.052	0.128	0.153	0.242	0.015	0.056	0.053	0.132
Service workers	0.027	0.450	0.028	0.101	0.017	0.387	0.039	0.209
Skilled agr workers	0.000	0.000	0.001	0.000	0.000	0.002	0.001	0.004
Craft workers	0.392	0.025	0.191	0.006	0.566	0.121	0.355	0.073
Machine operators	0.293	0.007	0.259	0.004	0.171	0.149	0.299	0.096
Elementary occup	0.174	0.290	0.123	0.075	0.200	0.164	0.106	0.126
Firm size								
Less than 10	0.375	0.796	0.058	0.174	0.659	0.802	0.153	0.230
10-24	0.257	0.078	0.082	0.147	0.143	0.080	0.102	0.120
25-49	0.172	0.071	0.181	0.233	0.099	0.072	0.152	0.203
50 or more	0.196	0.055	0.679	0.446	0.098	0.045	0.594	0.448
Education level								
Illiterate	0.062	0.069	0.012	0.004	0.034	0.021	0.005	0.002
Primary	0.126	0.048	0.022	0.005	0.080	0.047	0.010	0.007
Secondary	0.661	0.542	0.479	0.121	0.742	0.658	0.573	0.366
High school	0.080	0.155	0.164	0.160	0.060	0.123	0.105	0.171
Vocational	0.055	0.109	0.144	0.163	0.068	0.100	0.206	0.152
College	0.016	0.078	0.179	0.548	0.017	0.051	0.100	0.302
lwtime	3.870	3.749	3.910	3.776	3.996	4.033	3.960	3.894
fulltime	0.891	0.805	0.982	0.894	0.940	0.929	0.989	0.958
n	1248	2283	2161	7324	5612	6419	11968	20417

Table 39: Determinants of urban wages, 2006 (multinomial logit selection model)

	Female				Male			
	Informal		Formal		Informal		Formal	
	Manuf	Services	Manuf	Services	Manuf	Services	Manuf	Services
Age (log)	2.844 **	2.975 ***	4.547 ***	5.205 ***	5.009 ***	5.779 ***	2.027 **	-2.022 ***
Age2 (log2)	-0.434 **	-0.376 ***	-0.632 ***	-0.689 ***	-0.647 ***	-0.780 ***	-0.217	0.336 ***
Managers	0.428	0.224 *	0.629 ***	0.677 ***	0.658 ***	0.261 ***	0.726 ***	0.482 ***
Professionals	0.380 *	0.350 ***	0.445 ***	0.440 ***	0.595 ***	0.508 ***	0.517 ***	0.387 ***
Technicians	0.265 ***	0.075	0.228 ***	0.404 ***	0.215 ***	0.313 ***	0.313 ***	0.331 ***
Clerks	0.194 **	-0.002	0.135 ***	0.236 ***	0.010	0.152 ***	0.228 ***	0.189 ***
Service workers	0.173 *	-0.117 ***	0.106 **	0.191 ***	-0.079	0.107 ***	0.152 ***	0.207 ***
Skilled agr workers			0.167		-0.444	0.223	0.218 **	0.046
Craft workers	-0.126 ***	-0.344 ***	0.030	0.135 **	0.029 *	0.121 ***	0.141 ***	0.239 ***
Machine operators	0.220 ***	-0.180	0.071 ***	0.172 **	0.123 ***	0.254 ***	0.140 ***	0.183 ***
10-24	0.406 ***	0.136 ***	0.116 ***	0.113 ***	0.142 ***	0.144 ***	0.067 ***	0.118 ***
25-49	0.367 ***	0.192 ***	0.091 ***	0.126 ***	0.176 ***	0.176 ***	0.068 ***	0.152 ***
50 or more	0.357 ***	0.259 ***	0.153 ***	0.235 ***	0.210 ***	0.322 ***	0.133 ***	0.278 ***
Primary	-0.086	0.015	0.091	0.023	0.056	0.065	0.026	-0.075
Secondary	-0.151 **	0.080	0.137 *	0.138 *	-0.026	0.017	0.074	-0.181 ***
High school	-0.152	0.411 ***	0.307 ***	0.409 ***	0.279 ***	0.245 ***	0.279 ***	-0.184 **
Vocational	-0.195	0.479 ***	0.375 ***	0.469 ***	0.095	0.169 **	0.332 ***	-0.160 **
College	-0.293	0.741 ***	0.657 ***	0.636 ***	0.603 ***	0.483 ***	0.502 ***	-0.141
Working time	0.239 ***	0.508 ***	0.010	-0.049 **	0.199 ***	0.329 ***	-0.115 ***	-0.092 ***
Full time	0.881 ***	0.017	0.681 ***	0.210 ***	0.300 ***	0.198 ***	0.632 ***	0.219 ***
n obs	1248	2283	2161	7324	5612	6419	11968	20417
F-stat	53.0 ***	45.5 ***	74.9 **	270.6 ***	45.5 ***	107.6 ***	276.2 ***	649.6 ***
R-squared	0.530	0.344	0.487	0.491	0.344	0.313	0.385	0.462

Note: Omitted categories: "Elementary occupations", "firm size less than 10", and "illiterate".
Constant term and selection correction variables are omitted.
*** (**, *) means the coefficient is statistically significant at the 1% (5%, 10%) level.

Table 40: Determinants of urban wages, 2006 (multinomial logit selection model, no occupation variables)

	Female				Male			
	Informal		Formal		Informal		Formal	
	Manuf	Services	Manuf	Services	Manuf	Services	Manuf	Services
Age (log)	2.848 **	2.906 ***	4.399 ***	5.527 ***	5.631 ***	5.919 ***	1.896 **	-1.955 ***
Age2 (log2)	-0.430 **	-0.364 ***	-0.608 ***	-0.739 ***	-0.734 ***	-0.796 ***	-0.186	0.335 ***
10-24	0.467 ***	0.181 ***	0.109 ***	0.116 ***	0.164 ***	0.163 ***	0.078 ***	0.112 ***
25-49	0.439 ***	0.232 ***	0.075 **	0.129 ***	0.208 ***	0.199 ***	0.071 ***	0.134 ***
50 or more	0.410 ***	0.313 ***	0.124 ***	0.231 ***	0.244 ***	0.349 ***	0.131 ***	0.251 ***
Primary	-0.114	-0.009	0.123	0.007	0.073 *	0.091 *	0.033	-0.054
Secondary	-0.162 **	0.056	0.170 **	0.190 **	-0.022	0.068	0.074	-0.121 *
High school	-0.083	0.422 ***	0.412 ***	0.587 ***	0.342 ***	0.341 ***	0.371 ***	-0.031
Vocational	-0.156	0.507 ***	0.471 ***	0.704 ***	0.146 **	0.257 ***	0.400 ***	-0.009
College	-0.140	0.902 ***	0.914 ***	0.929 ***	0.872 ***	0.684 ***	0.769 ***	0.140
Working time	0.261 ***	0.481 ***	-0.022	-0.093 ***	0.183 ***	0.307 ***	-0.122 ***	-0.097 ***
Full time	0.949 ***	-0.009	0.671 ***	0.187 ***	0.325 ***	0.202 ***	0.629 ***	0.188 ***
n obs	1248	2283	2161	7324	5612	6419	11968	20417
F-stat	62.3 ***	56.4 ***	83.0 **	312.5 ***	94.5 ***	134.0 ***	314.6 ***	782.8 ***
R-squared	0.491	0.321	0.424	0.448	0.243	0.285	0.333	0.422

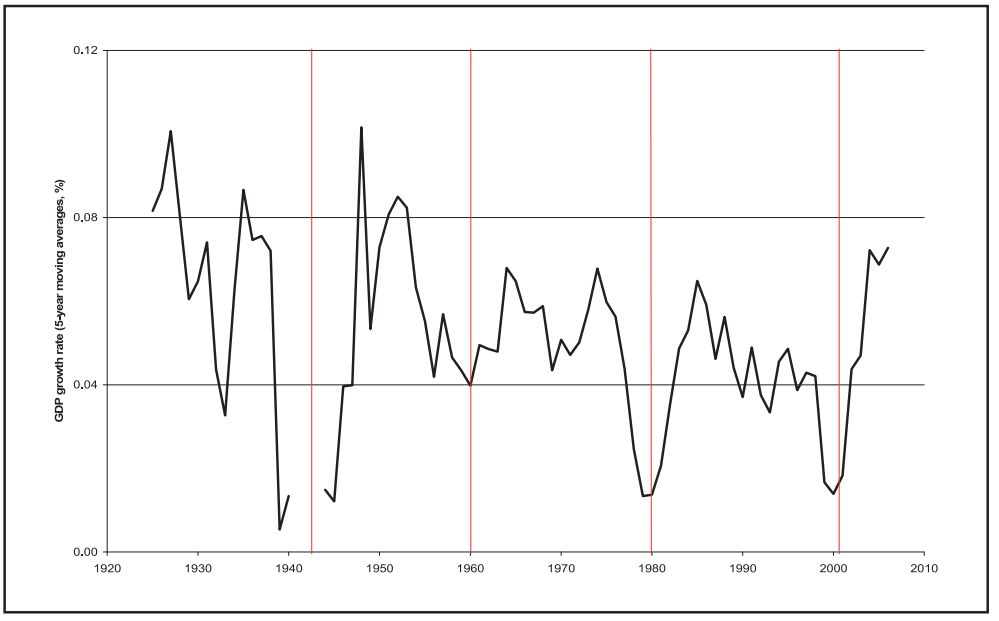
Note: Omitted categories: "Elementary occupations", "firm size less than 10", and "illiterate".
Constant term and selection correction variables are omitted.
*** (**, *) means the coefficient is statistically significant at the 1% (5%, 10%) level.

Table 41: Determinants of urban wages, 2006 (OLS estimates with no sample selection)

	Male				Female			
	Informal		Formal		Informal		Formal	
	Manuf	Services	Manuf	Services	Manuf	Services	Manuf	Services
Age (log)	5.004 ***	5.712 ***	2.484 ***	4.091 ***	2.958 ***	1.601 **	0.889	4.179 ***
Age2 (log2)	-0.673 ***	-0.774 ***	-0.274 ***	-0.510 ***	-0.444 ***	-0.172 *	-0.077	-0.516 ***
Managers	0.719 ***	0.288 ***	0.774 ***	0.496 ***	0.716 ***	0.269 **	0.676 ***	0.709 ***
Professionals	0.690 ***	0.539 ***	0.534 ***	0.394 ***	0.399 **	0.381 ***	0.455 ***	0.469 ***
Technicians	0.221 ***	0.321 ***	0.319 ***	0.335 ***	0.280 ***	0.088	0.235 ***	0.433 ***
Clerks	0.029	0.157 ***	0.239 ***	0.190 ***	0.190 **	-0.001	0.140 ***	0.256 ***
Service workers	-0.065	0.113 ***	0.161 ***	0.212 ***	0.170 *	-0.108 ***	0.073	0.217 ***
Skilled agr workers	-0.416	0.226	0.213 **	0.044			0.220	
Craft workers	0.035 **	0.129 ***	0.148 ***	0.242 ***	-0.132 ***	-0.341 ***	0.040	0.139 **
Machine operators	0.131 ***	0.259 ***	0.147 ***	0.182 ***	0.224 ***	-0.165	0.088 ***	0.198 **
10-24	0.145 ***	0.146 ***	0.069 ***	0.121 ***	0.406 ***	0.139 ***	0.118 ***	0.118 ***
25-49	0.182 ***	0.181 ***	0.069 ***	0.156 ***	0.369 ***	0.204 ***	0.097 ***	0.134 ***
50 or more	0.220 ***	0.339 ***	0.136 ***	0.284 ***	0.354 ***	0.274 ***	0.155 ***	0.248 ***
Primary	0.117 ***	0.128 **	0.179 ***	0.140 **	0.025	0.095	0.154 *	0.155
Secondary	0.152 ***	0.173 ***	0.282 ***	0.198 ***	0.010	0.154 ***	0.195 ***	0.158 **
High school	0.184 ***	0.256 ***	0.416 ***	0.347 ***	0.135	0.281 ***	0.365 ***	0.353 ***
Vocational	0.172 ***	0.268 ***	0.463 ***	0.345 ***	0.040	0.280 ***	0.328 ***	0.383 ***
College	0.326 ***	0.414 ***	0.640 ***	0.590 ***	0.246 *	0.458 ***	0.608 ***	0.593 ***
Working time	0.199 ***	0.328 ***	-0.120 ***	-0.093 ***	0.250 ***	0.499 ***	-0.007	-0.068 ***
Full time	0.297 ***	0.198 ***	0.605 ***	0.212 ***	0.881 ***	0.033	0.654 ***	0.206 ***
n obs	5612	6419	11968	20417	1248	2283	2161	7324
F-stat	95.7 ***	140.4 ***	356.0 ***	845.3 ***	68.4 ***	59.1 ***	91.7 **	355.0 ***
R-squared	0.255	0.305	0.373	0.453	0.514	0.332	0.461	0.480

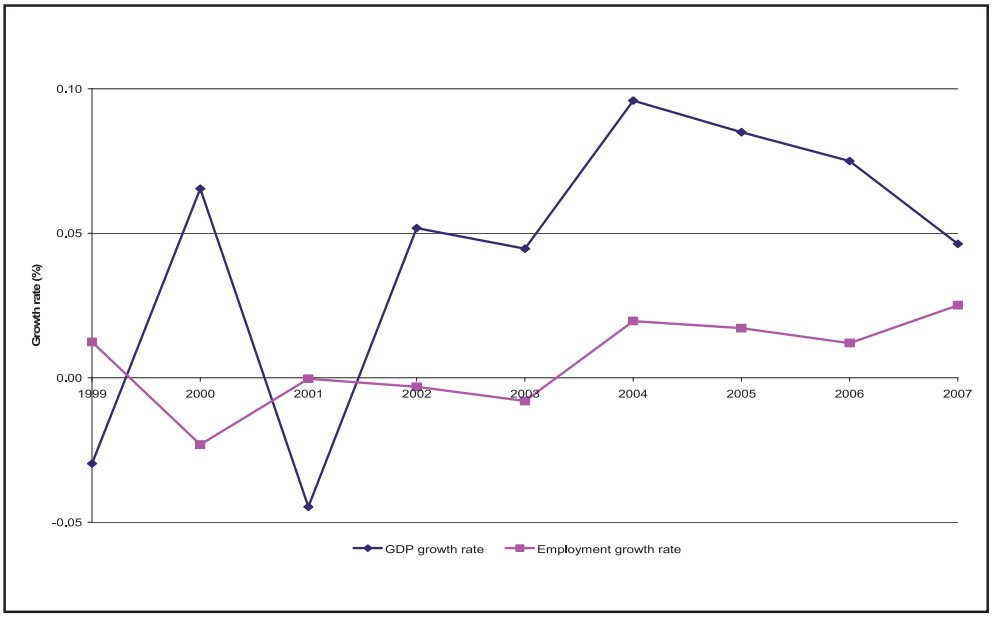
Note: Omitted categories: "Elementary occupations", "firm size less than 10", and "illiterate". Constant term is omitted.
*** (**, *) means the coefficient is statistically significant at the 1% (5%, 10%) level.

Figure 1: Long-term economic growth cycles in Turkey (5-year moving average GDP growth rates)



Source: Turkstat (new GDP series after 1998)

Figure 2: GDP and employment growth rates, 1999-2007



Source: Turkstat (new GDP series)

Figure 3: Output and employment growth, selected sectors, 2000Q4-2007Q3

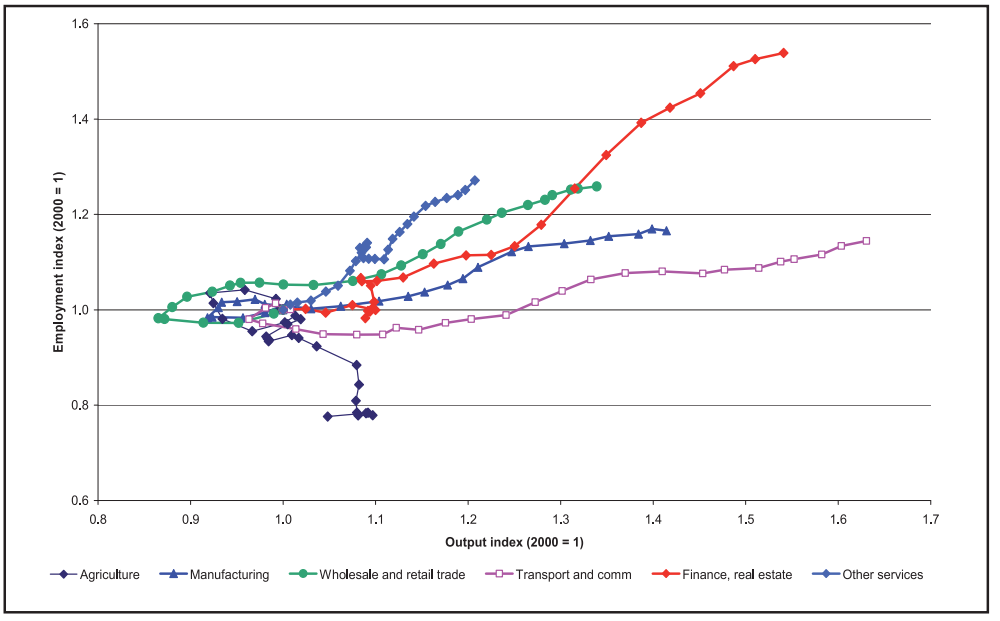


Figure 4: Output and employment growth, selected sectors, 2000Q4-2007Q3

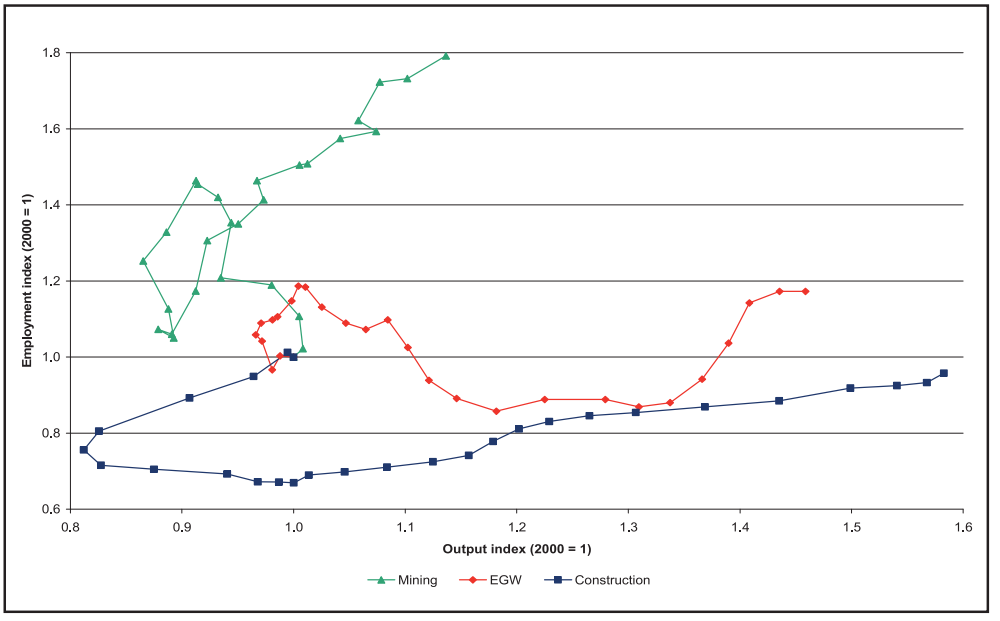


Figure 5: Age-employment probability profiles, female employees (percentage)

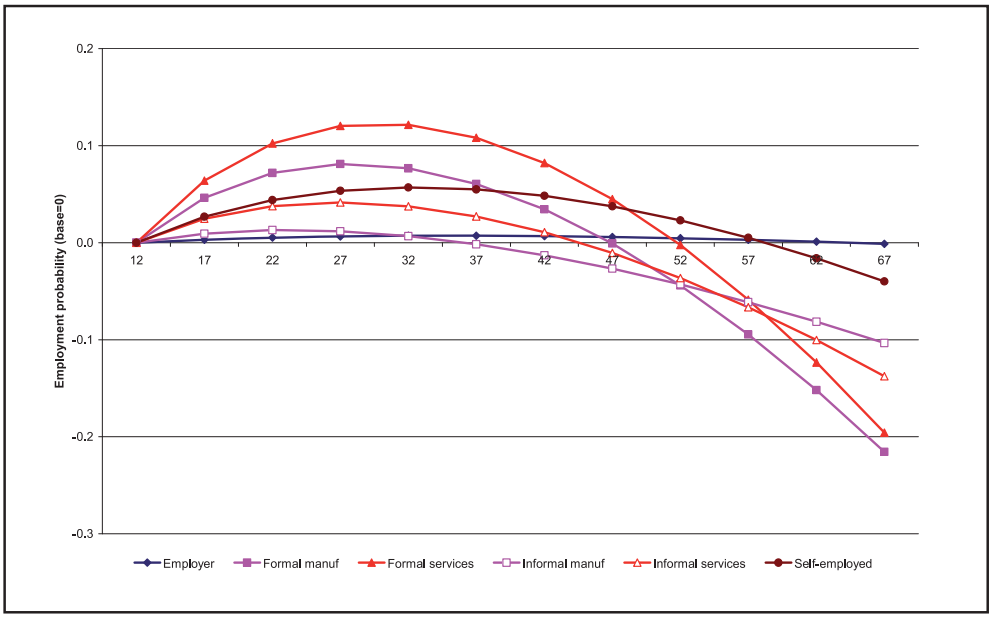


Figure 6: Age-employment probability profiles, male employees (percentage)