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**LABOR MARKET ADJUSTMENT DURING
THE WORLD FINANCIAL CRISIS:
EVIDENCE FROM EGYPT**

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Abstract

The main objective of this paper is to investigate the impact of the world financial crisis of 2008 on the Egyptian labor market outcomes and dynamics. The paper uses the quarterly labor force surveys data for the period 2006 to 2009. The results of the paper show that there has not been a substantial crisis-related impact on the Egyptian labor market. There has been a mild decline in unemployment, combined with a slight increase in both labor force participation and employment to population ratio. Also, the effect of the crisis on hours worked, informality of employment and sectorial labor shift has been minimal; but a sharp decline in real earnings growth has been observed in the second half of 2009 in Egypt. Despite those minor effects of the crisis on the overall labor market outcomes, some subgroups of workers have been more vulnerable than others during the crisis. The results of this paper concur with the historical experience, which suggests that young, old, unskilled and female workers are more likely to bear the brunt of an economic downturn.

ملخص

تهدف هذه الورقة إلى بحث تأثير الأزمة المالية العالمية لسنة 2008 على مخرجات و ديناميكيات سوق العمل المصرية. و تستخدم الورقة بيانات المسوحات الفصلية للقوة العاملة خلال الفترة من 2006 إلى 2009. و تبين نتائج الورقة عدم وجود تأثير كبير للأزمات ذات الصلة في سوق العمل المصرية. حيث لوحظ انخفاض طفيف في معدلات البطالة، جنبا إلى جنب مع زيادة طفيفة في كل من معدلات المشاركة في قوة العمل والعمالة لنسبة السكان. كذلك، كان تأثير الأزمة على ساعات العمل و على التعيين والانتقال فيما بين القطاعات محدودا للغاية ، ولكن لوحظ حدوث انخفاض حاد في نمو الارباح الحقيقية في النصف الثاني من عام 2009 في مصر. و على الرغم من الآثار الطفيفة للأزمة على سوق العمل عموما، فإن بعض المجموعات الفرعية من العاملين كانت أكثر تأثرا عن غيرها خلال الأزمة. و تتفق نتائج هذه الدراسة مع التجارب السابقة ، بأن العاملين من الشباب، و كبار السن، والعمالة غير الماهرة والنساء أكثر عرضة لتحمل وطأة الانكماش الاقتصادي.

1. Introduction

The economic downturn of the recent global financial crisis has affected all regions of the world, but was more salient in Sub-Saharan Africa. However, there is a consensus that the effect of the crisis has been minimal on the Middle East in comparison to other parts of the world (World Bank 2009; ILO 2009). Nevertheless, very little data has been available to appropriately analyze those effects.

The main objective of this paper is to investigate the crisis-related impact on labor market outcomes and dynamics in Egypt. Particular attention is given to investigating how women weathered on the Egyptian labor market during the economic downturn. Even before the crisis, Egypt had some of the highest unemployment rates in the world, most of it concentrated among women and youth. These high unemployment rates were the combined effect of a pronounced youth bulge—a period during which the proportion of youth in the population increases significantly compared to other age groups—as well as a legacy of many years of guaranteed public employment to secondary school and university graduates, which had come to a sudden end. With relatively healthy growth rates in the years prior to the crisis, Egypt had begun to see some improvements in its employment situation, but the employment challenge, especially among youth, remained at the top of the policy agenda. Egypt was hard hit by the food and energy price shocks in early 2008, which was soon followed by the world financial crisis that has undoubtedly reversed the recent improvements in labor market conditions.

This paper uses the quarterly labor force surveys for the period 2006 to 2009. The availability of quarters of data in 2009 provides an excellent opportunity to obtain an up-to-date assessment of the continuing impact of the crisis on the labor market.

The results of the paper show that there has not been a substantial crisis-related impact on the Egyptian labor market. The findings provide supportive evidence to the ongoing consensus of the minimal effect of the economic downturn on the Middle East. Despite those minor effects on the overall labor market outcomes, particular subgroups of workers have been more vulnerable than others during this crisis. The youth, the less educated and female workers were more likely to bear the brunt of this economic downturn. These results also confirm the historical experience often documented in previous crisis literature.

The paper is organized as follows. Section 2 gives a brief background on the structural, economic and regulatory changes that took place in Egypt in the last decades. Section 3 presents the data sources. Section 4 discusses some methodological concerns and the definitions of key labor market indicators used in the analysis section of the paper. Section 5 documents the labor market impacts of the crisis, while section 6 investigated how different subgroups of workers adjusted during the crisis. Section 7 concludes the paper.

2. Background

2.1 Economic and structural changes in Egypt before the financial crisis

Following the guaranteed employment scheme of the 1960s, the Egyptian public sector was the main creator of employment opportunities, and typically the preferred sector by most new entrants to the labor market.[1] By mid 1970s, the role of the government started to decline in favor of the private sector. The open door policy of this period lead to substantial economic growth, due to the increasing revenue from petroleum export, Suez Canal dues, remittances by labor migrants to Gulf countries, as well as the massive increase in foreign grants and aid.

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[1] Since the promulgation of law 14 in 1964, which was later amended by law 85 in 1973.

However, after a period of economic growth, in the late 1980s and early 1990s, the economy suffered from serious internal and external imbalances, which were evident in the slowing economic growth, high unemployment, rising inflation, widening fiscal and external deficits and mounting external debt (Attia 2009).

The implementation of the Economic Reform Structural and Adjustment Program (ERSAP) in 1991, with the World Bank and the IMF, managed to reduce these macroeconomic imbalances and put the Egyptian economy on a growth path. Economic reforms curbed new employment opportunities in the public sector and initiated a privatization program of existing public enterprises, but the size of the private formal sector, although growing fairly rapidly, continued to be small. Additionally, the trade liberalization, following the ERSAP, lead to the contraction and closing down of the formal enterprises that were unable to compete with the cheap imports (Mokhtar and Wahba 2002).

After a period of fairly healthy growth following the economic reform and stabilization program, the Egyptian economy experienced a slowing trend from the late 1990s to 2004. In 1998/99, the Egyptian economy was hit by a series of exogenous shocks, leading to a five-year period of slower growth. The most important exogenous shocks to hit the Egyptian economy at that time were the collapse of the East Asian financial markets of 1997 which caused a slowdown in the world economy, the Luxor terrorist attack in November 1997 which had disastrous consequences on Egypt's tourism industry for several years, and the sharp decline in oil prices in 1998. This series of exogenous shocks adversely affected foreign and domestic investment, tourism revenues, and the number of Egyptian migrants abroad[2], which in turn led to high rates of unemployment and unutilized resources. These adverse shocks were later compounded by the regional and global fallout of the September 11, 2001 terrorist attacks and the war on Iraq in 2003.

The Egyptian economy began recovering from these series of shocks in 2004, and the growth rate has increased every year since then reaching a Growth Domestic Product (GDP) growth rate of 7.2 percent in 2007/08. However, due to the food and energy price shocks in early 2008, followed shortly by the world financial crisis, Egypt witnessed a drop in real GDP growth. In 2009, GDP growth dropped to 4.7 percent and is expected to rise only to 5.3 percent in 2010.[3] Yet, this impact of the financial crisis on the Egyptian economic growth is considered mild relative to other parts of the words.[4] This relative stability of the economic environment in Egypt is mainly attributed to the recent economic and financial reforms that were introduced in 2003/2004. Among those reforms is a new labor law that was decreed in 2003 (No. 12, 2003). This law regulates the employee-employer relationship and specifies their rights. The essence of the new law is to provide increased flexibility for private firms in the hiring/firing process, which has been a major bottleneck for the creation of formal employment in the Egyptian labor market, by allowing for an indefinite number of renewals

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[2] During this period, the total number of Egyptian migrants abroad decreased from 2.9 million in 1997 to 2.7 million in 2000 according to the ILO Database on Labour Statistics (LABORSTA). Available at http://laborsta.ilo.org/. Accessed in May 2010. In addition to raising unemployment rates, this slowdown in international migration substantially impacted the Egyptian domestic economy by decreasing the amount of remittances considerably. See Nassar (2005) for details on international migration trends in Egypt.

[3] Measured in constant Egyptian pounds, 2001/2001 base year. Data and estimates from the International Monetary Fund, *World Economic Outlook Database, April 2010.* Available at http://www.imf.org/external/pubs/ft/weo/2010/01/weodata/index.aspx. Accessed 25 May 2010.

[4] See Khanna et al. (2010) for a detailed analysis on the impact of the financial crisis on middle-income countries' economies.

on definite duration contracts and layoffs with severance on indefinite duration contracts. Hence, this law is expected to have led to greater formalization of employment in recent years (see Attia (2009) for a review of recent reforms). Nevertheless, it is likely that the slowdown in economic growth has had a negative impact on labor demand, particularly for youth and women in the private sector. Accordingly, an updated analysis of labor market conditions in Egypt is needed.

3. Data Sources

This paper makes use of the Egyptian Labor Force Surveys (ELFS) implemented quarterly by the Egyptian Central Agency for Public Mobilization and Statistics (CAPMAS). Data included in these those surveys has never been rigorously analyzed beyond the production of the standard tables published in the official bulletins.

The ELFS is carried on a nationally representative sample of 21,000 households per quarter. They are of fairly standard design, collecting information on demographic characteristics, education, labor force participation, unemployment, and the characteristics of employment, including employment status, occupation, economic activity and sector. The ELFS also include fairly detailed questions on wages that have heretofore not been analyzed or published. The ELFS contains a rotating panel design, where one third of the households in the sample in each quarter is followed and re-interviewed in the next quarter and one third is re-interviewed a year later. Unique identifiers are assigned to the households and individuals so that they can be traced over time. Because this data was collected for the exclusive purpose of assessing development in labor markets, it is more suited to study the impact of the crisis on employment and earnings than on household income and expenditure surveys. Besides providing more frequent measurements, the labor force surveys do a better job in measuring both employment and unemployment.

4. Methodological Concerns

Historical evidence has shown that several factors determine an economic downturn's effect on a country's labor market. Among those factors are the magnitude of the economic contraction, the sectoral composition of the collapse in aggregate demand, the role of the existing labor market institutions and the nature of the policy response (Verick 2010). On the firm front, there are three main channels through which firms adjust labor demand in response to an economic shock: working hours, employment and wages. Firms often start by adjusting working hours rather than number of workers, particularly for those workers of rare skills.[5] However, if the economic downturn is sharp, hiring freezes, massive layoffs and partial closures are often observed. This would certainly contribute to higher unemployment rates. In addition to adjusting through working hours and employment size, some firms may reduce wage levels as another channel of minimizing production cost (Cazes et al. 2009; Verick 2010).

Moreover, research on past crises highlights that gender-specific consequences of economic shocks may also be observed for women and children, particularly in poor countries. Country-evidence has shown that, during a recession, women may be simultaneously observed increasing their labor force participation (added-worker effect) or withdrawing from the labor force (discourage-worker effect). These opposite responses do not necessary represent competing hypotheses, as each response is generally observed among a different segment of the population. The added-worker effect is more likely to be observed among

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[5] A rapid response through adjusting hours of work has been evident in European countries during the financial crisis (Cazes et al. 2009).

middle-aged, married and less educated women from poor households, who entered the labor force to maintain household income.[6] In contrast, the discouraged-worker effect occurs primarily among the young, highly educated, single women working in the services sectors (World Bank 2009).[7]

Accordingly, to investigate the world financial crisis' impact on the Egyptian labor market, the analysis of this paper focuses on the three key labor market indicators: labor force participation, employment, and unemployment. Also, for those who are employed, we examine their employment and formality status, sectoral shifts, hours worked, and earnings. Particular attention is given in this paper to exploring the formality status of employment across time. Several dimensions and definitions exist in the labor market literature for informal employment. In this paper an employee is considered informal if he/she is hired with neither the benefits of a contract nor social insurance coverage.

Through the paper we focus only on the working age population (WAP), which is the age group 15-64. We use the market definition of the labor force and the broad definitions of unemployment.[8] The market definition of the labor force includes all those who are either engaged in economic activity for purposes of market exchange or seeking such work. A standard definition of unemployment requires that the individual not to have worked during the week prior to the interview, to have desired work and been available for it, and to have actively searched for it during the three months prior to the survey. We refer to this group of active searchers as the active unemployed. In the broad definition used in this paper, we relax the search criteria to include the discouraged unemployed, i.e. those who are no longer actively searching for a job, among the unemployed besides the active unemployed (see Assaad and Roushdy 2007 for more details on measurements issues).

Moreover, the ELFS data allows us to investigate the distribution and development of real monthly earnings of wage and salary workers in Egypt through the period 2006 to 2009. Real monthly wage is calculated as the sum of wages earned in the reference month from primary job. For the sake of comparability between the years of the ELFSs, all wages are inflated to 2007 Egyptian pounds using the consumer price index (CPI).

There has been an agreement among recent studies that the recent global financial crisis, after brewing for a while, started to show its effects around the middle of 2008 (see World Bank 2009; ILO 2009; Khanna et al. 2010). Accordingly, in the following discussion we will divide the period under study into two: the pre-crisis period (from the first quarter of 2006 to the end of the second quarter of 2008); and the post-crisis period (from the third quarter of 2008 to the fourth quarter of 2009).

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[6] During the Latin American debt crisis, in early 1980s and late 1990s., women labor force rose in Peru, Costa Rica and Argentina (see Cerutti 2000; Francke 1992; Leslie et al. 1988).

[7] In South Korea during the 1997 financial crisis, more women than men dropped out of the labor market. This discouraged-worker effect was observed among the young women working in clerical and services sector (see Kim and Voos 2007).

[8] The quarterly data available from the ELFS, from the first quarter of the 2007 to the fourth quarter of 2009, allows the construction of both the standard and the broad definition of unemployment. However, information available from the 2006 quarters does not provide information on job search, thus preventing the measure of the standard definition of unemployment. Hence, for sake of comparability between the quarters, we focus only on the broad definition of unemployment.

5. Overview of Crisis-Related Impact on the Egyptian Labor Market

The main objective of this section is to investigate how the Egyptian labor market adjusted during the 2008/2009 financial crisis. This section investigates the overall trends in major labor market aggregates, namely employment, unemployment and labor force participation. It also examines the patterns of hours worked, sectoral shifts, earnings and informality of employment.

As shown in Figure 1, the market labor force in Egypt grew from about 22.8 million in early 2006 to more than 24.8 million by end of 2009, at a growth rate of about 2.2 percent per annum. Table 1 shows that through the 2006–2009 period, labor force participation rate in the market labor force increased by only about 1 percentage points, from around 50 percent to 51 percent. This reflects a slight increase in both males and females participation; however, the increase for males has been significantly larger through the period (1.6 percentage points for males vs. 0.4 percentage points for females). Nevertheless, as table 1 reveals, the quarter to quarter change in the labor force participation rate has been minimal. Comparing the pre- and post-crisis rates, we find that, on average, there has not been a significant crisis-related impact on labor force participation rates.

According to Assaad and Roushdy (2007), unemployment has notably declined in Egypt during the 1998–2006 period after having risen significantly during the 1988–1998 period. However, Table 2 shows that, according to the broad definition of unemployment and the market definition of labor force, unemployment rate has been unstable during the 2006–2009 period. Yet, on average, it has declined from about 10.5 percent during the pre-crisis period to 9.3 percent during the post-crisis period. This mild decline has been fairly broad, cutting across urban and rural areas. Also, both males and females benefited from the decline in unemployment. Female unemployment rates went from an average of 23 percent during the per-crisis period to an average of 21.8 percent during the post-crisis period, while male unemployment rates declined from 6.8 percent to 5.5 percent.

The direct implication of this mild decline in unemployment combined with the minor increase in labor force participation is also a limited change in employment growth. Employment to population ratio has only increased from a pre-crisis average of 45 percent to a post-crisis average of 46 percent (table 3).

Furthermore, figure 2 demonstrates that the impact of the financial crisis on the growth rates of GDP and employment have been relatively mild compared to the substantial decline observed for the real earnings growth and, hence, for the wage bill growth.[9]

The figure shows that the recent positive trends in the growth of the real earnings have stalled near the end of 2007, reaching a growth rate of 6 percent in early 2008 from a growth rate of 32 percent in the third quarter of 2007. This fall in real earnings was mainly due to the increased inflation witnessed in late 2007 as a result of the food and fuel crisis (figure 3). In early 2008 real earnings growth started to slightly increased, but it was shortly hit again near the middle of 2008 due to the financial crisis. The decline in both the real earning and wage bill growth started slowly in early 2008, but it significantly accelerated in 2009 reaching negative levels during the second to the fourth quarter of that year. Figure 4 highlights that both males and females have suffered from this decline in real earnings. Earnings have been unstable during the 2006–2009 period, but the lowest decline was observed, for both males and females, after the second half of 2009.

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[9] The real wage bill is defined in this paper as the product of total employment and median real earnings.

On the economic activity front, as shown in figure 5, there has not been a considerable labor shift among sectors of economic activities through the 2006–2009 period. Similarly, there has been no evidence of substantial crisis-related change in hours worked, overall and among both males and females (table 4).[10]

Table 5 shows the trends in formality of employment through the 2006–2009 period. Surprisingly, once again, there is no sign of a significant crisis-related impact on the share of formal jobs from the overall employment. Overall, informal employment represents an average of 53 percent of total employment during the post-crisis period, which constitutes a minor increase from its average share of about 52 percent during the pre-crisis period. This stable pre- and post-crisis trend of informal employment has been fairly broad, cutting across different education levels, age groups, urban and rural areas, and among both males and females. The table shows that, on average, males and females are almost equally likely to be formally employed during the 2006–2009 period. Formal employment significantly increases by age and education level. On average across the post-crisis period, we find that only about 20 percent of the working youth have been formally employed, compared to 50 percent of young adults and 60 percent of mature adults. Around 29 percent of those with primary or less education had formal jobs during the post-crisis period. In contrast, an average of 52 and 85 percent of the secondary and above secondary education workers, respectively, worked formally. Furthermore, the post-crisis average percent of formal employment is higher among those working in the services sector (75 percent), followed by the industry (45 percent) and agriculture sectors (7 percent).

6. Who Has Been More Affected during the Financial Crisis?

This section investigates which subgroups of the population have been most vulnerable during the financial crisis. A logistic specification is estimated to separately model the determinants of three labor force states: labor force participation, formality of the employment and unemployment, for each of the 12 waves of the ELFSs from 2007-2009. All of the 12 waves are used in order to detangle any potential seasonal effects. In each model, the dependent variable takes the value 1 if the individual, i, is in the labor force (unemployed/working formally) and zero otherwise. Separate models are fitted for males and females. The explanatory variables consist of the individual's age, education and household urban/rural residence.[11] The economic activity is added in the formality of the employment model. The education is captured by the two dummy variables (no education or primary education is the omitted category): secondary and technical secondary education (referred to as medium education level); and tertiary and above education (referred to as high education level). The economic activities are measured by two dummies (agriculture is the omitted category): industry, and services. The regression results are presented in tables 6 to 11. All tables show the marginal effects.[12]

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[10] In contrast, a decline in number of hours worked combined with shift in employment away from the traditional better-paid industrial sector were the major factor behind earning reduction in several countries in East and Central Asia and in Eastern Europe (Khanna et al. 2010).

[11] It is worth mentioning here that we need to restrict the analysis to variables which are less likely to be endogenous to the work decision *per se*. For instance, we avoid using marital status and household size variables. Since the decision of getting married, working and having children are often done simultaneously by an individual—particularly for women. Also, another important limitation to the choice of the explanatory variables was the availability of the chosen variables in all ELFS waves. For instance, household head characteristics and assets holding were excluded from the analysis, due to missing information in certain waves.

[12] Marginal effects are based on marginal change for continuous variables and change from 0 to 1 for dummy variables using the command margeff in STATA. Coefficients are available upon request.

Tables 6, 7 and 8 present the regressions results of the female labor force participation, unemployment and formality status, respectively. The tables show that an additional year of age from the mean increases the likelihood of being active and of being formally employed and decrease the likelihood of being unemployed. The likelihood of activity, formal employment as well as unemployment, increases with education level. Furthermore, females working in the services and industry sector, relative to those working in agriculture, are more likely to be formally employed. As expected, urban females are more likely to be inactive or unemployed than rural females, but at the same time they are more likely to be formally employed. However, the above effects have not been consistent through the period of the study. Among the most striking results is the sudden decrease in the effect of having a university education, relative to primary or less education, on the probability of unemployment starting from 2009. Also, the magnitude of the marginal effect of age on unemployment substantially increases starting from the first quarter of 2009. The effect of age and education is investigated further in what follows. Similar results have been observed for men in tables 9, 10 and 11.

To underpin further how different subgroups of the population fared during the crisis, we use the results of the regression models to estimate and plot the average predicted probability of the labor force states for several subgroups by age, gender and education. In the following, we discuss the results of the most vulnerable groups during the crisis. We also focus on the changes that are statistically significant.

Among the important changes observed since the onset of the crisis is the substantial increase in the predicted probabilities of unemployment for low educated, young, urban females in 2009, particularly in the second and third quarter of that year. As figure 6 shows, this increase has followed the slight decline that was observed in the first three quarters of 2008, relative to the 2007 levels (see figure A1 in the Appendix for the confidence intervals of figure 6). In contrast, the predicted probability of unemployment has only slightly declined among the young low educated males (those below age 25) through most quarters of 2008 and 2009 (figure 7), yet this decline was only significant in the last quarter of 2009 (see figure A2 in the Appendix). Also, unemployment has not significantly changed for both males and females with secondary and higher education during the 2007–2009. However, the only prominent change observed during the crisis is the significant increase in the predicted probability of unemployment for urban, high educated older females (near and above age 40) since the first quarter of 2009 (figure 8 and figure A3 in the Appendix).

On the labor force front, no strong crisis-related impact has been observed on the probability of activity among both males and females. The only slightly significant observed change is the deterioration in the predicted probability of activity among females with medium and high education in the third and fourth quarter of 2008, relative to the 2007 level, which disappeared in 2009 (figure 9 and figure A4 in the Appendix). Accordingly, the above observed stability in young skilled women unemployment rate is primarily due to the young women's decision to withdraw from the labor force rather than a stability or an increase in women employment (see table 3). This agrees with the discourage-worker effect hypothesis discussed above.[13]

Finally, in line with the above findings, minimal changes have been observed over the crisis period in the predicted probability of formal employment among both males and females of all age groups and education levels.

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[13] This discouraged worker effect among females has been observed in South Korea during the 1997 financial crisis and in Brazil during the 1980s debt crisis (Kim and Voos 2007; Humphrey 1996).

7. Conclusion and Policy Implications

This study makes use of existing labor force survey data from Egypt to investigate the impact of the world financial crisis of 2008 on the Egyptian labor market outcomes and dynamics. The results of this paper support the ongoing consensus of the minimal effect of the financial crisis on the Middle East, compared to other parts of the world (World Bank 2009).

The analysis provides evidence that there has not been a substantial crisis-related impact on the Egyptian labor market. Comparing the pre- and post-crisis labor market average outcomes, we find that there has been a mild decline in unemployment, combined with a slight increase in both labor force participation and employment to population ratio. Additionally, the effect of the crisis on hours worked, informality of employment and sectorial labor shift has been minimal. Finally, despite the sharp decline in real earnings growth observed in the second half of 2009, the average real earning over the whole pre-crisis period is slightly lower than that during the post-crisis period.

Despite those minor effects of the crisis on the overall labor market outcomes, some subgroups of workers have been more vulnerable than others during the crisis. The results of this paper concur with the historical experience, which suggests that young, old, unskilled and female workers are more likely to bear the brunt of an economic downturn.

The results of this paper highlight the need of an in-depth analysis of the Egyptian labor market outcome and dynamics, which exploits the panel structure of the ELFS. The panel data would allow decomposing employment and unemployment dynamics into growth flows into and out of employment and unemployment. This would facilitate calculating the job creation and destruction rates quarter-on-quarter and year-on-year. This is the forthcoming extension of this paper.

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Figure 1: Size and Growth Of Market Labor Force for Working Age Population, 2006–2009
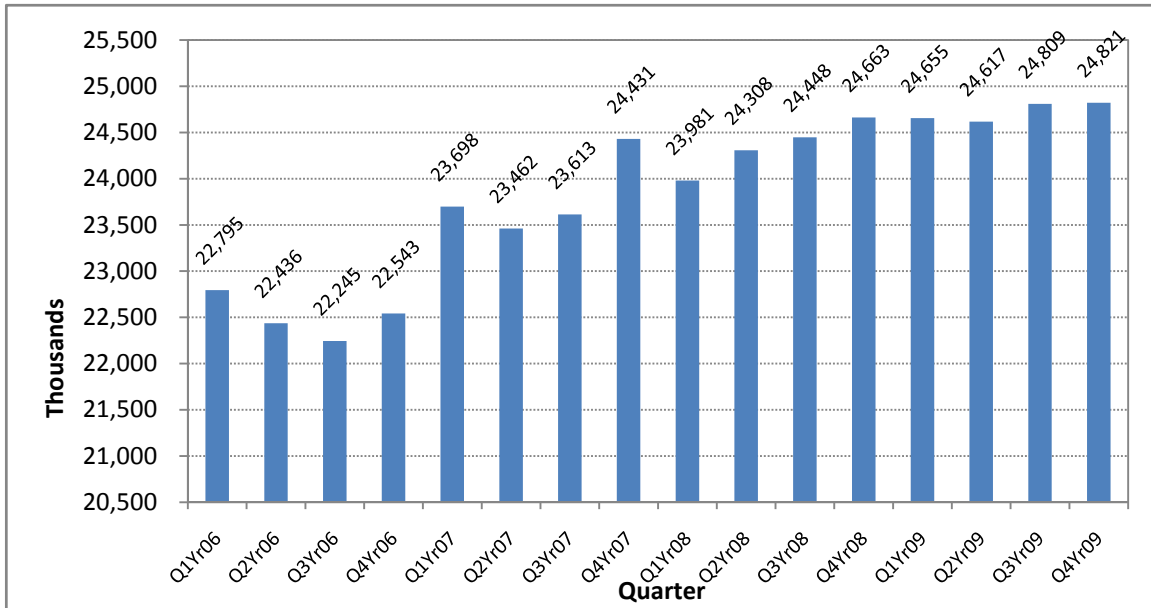
Figure 2: GDP, Employment, Real Monthly Earning, and Wage Bill Growth Rates, 2007–2009[14]

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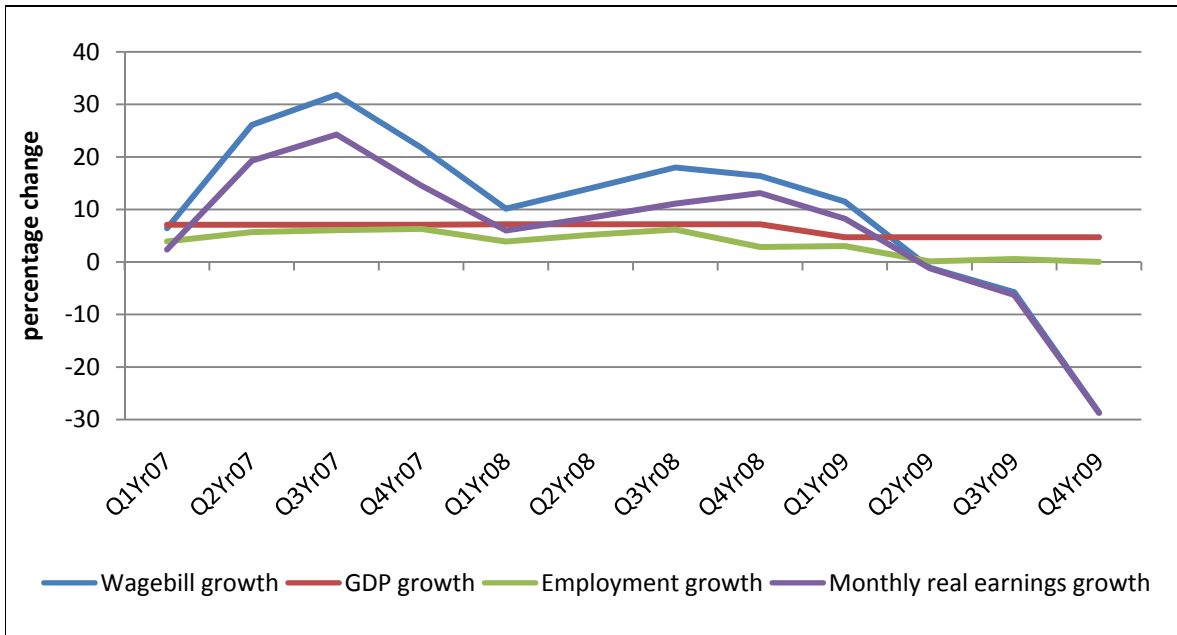
[14] Unless otherwise specified, from this point forward growth rates presented in this section are based on year-to-year same quarter change.

Figure 3: Nominal Earning and CPI Growth Rates
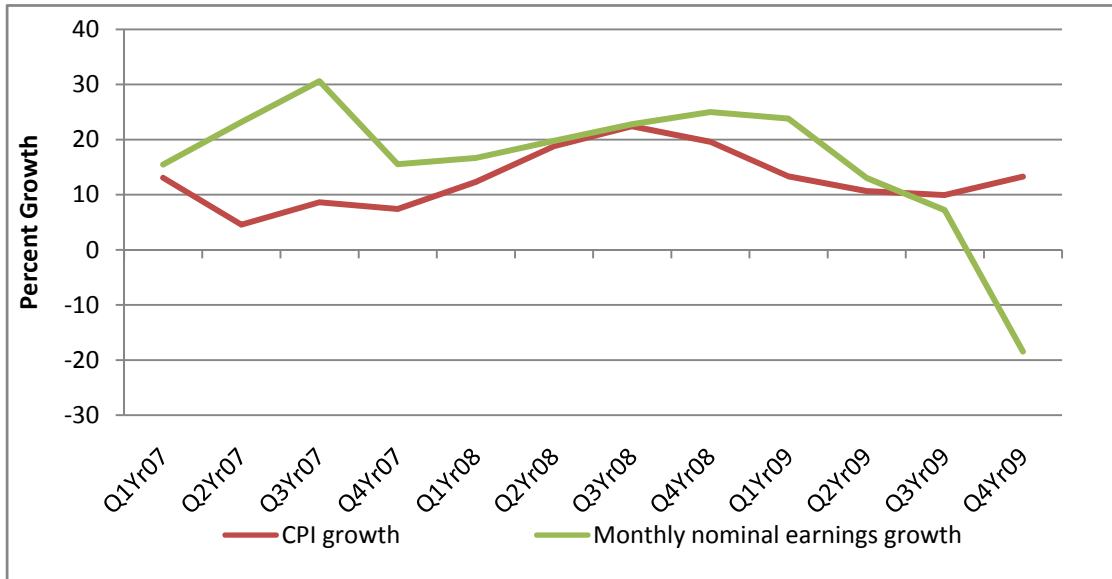
Figure 4: Average Real Monthly Earnings (2007 prices) by Gender
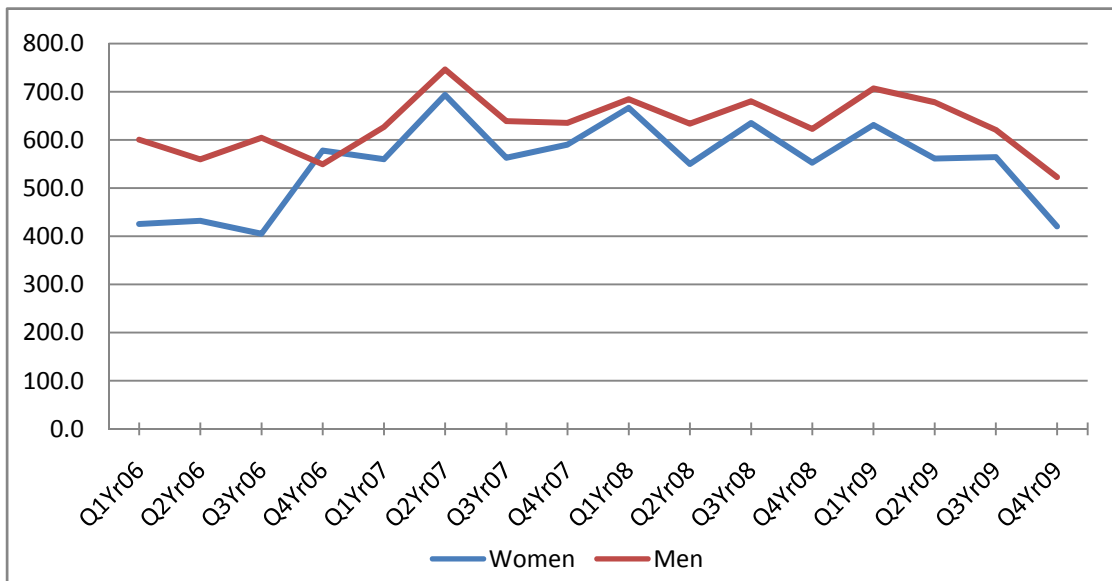
Figure 5: Share of Agricultural, Industrial and Services in Total Employment, 2006–2009
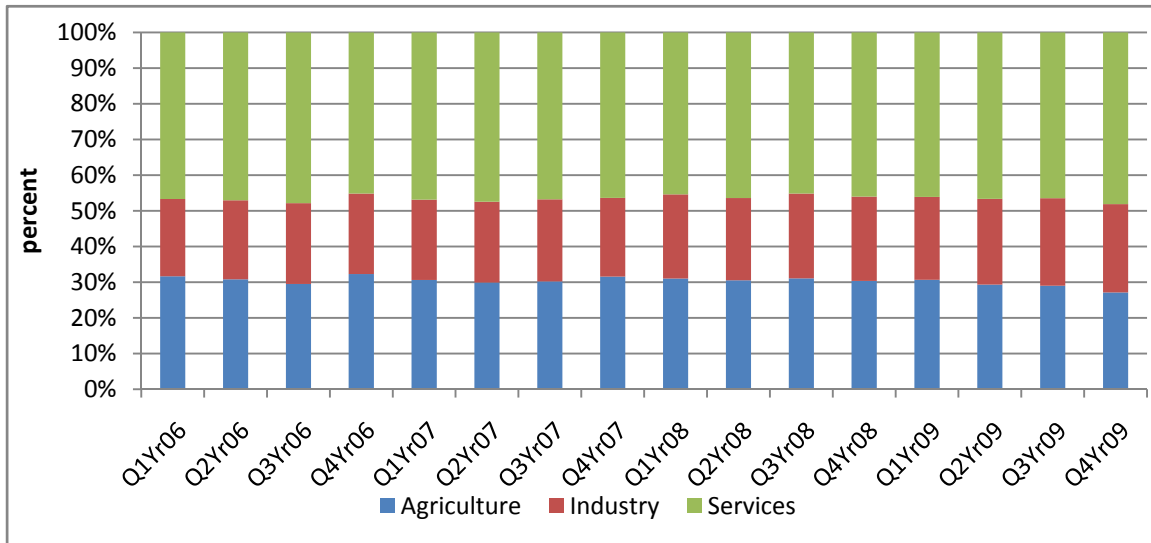
Figure 6: Predicted Probability of Unemployment for Low Educated, Urban Females by Age
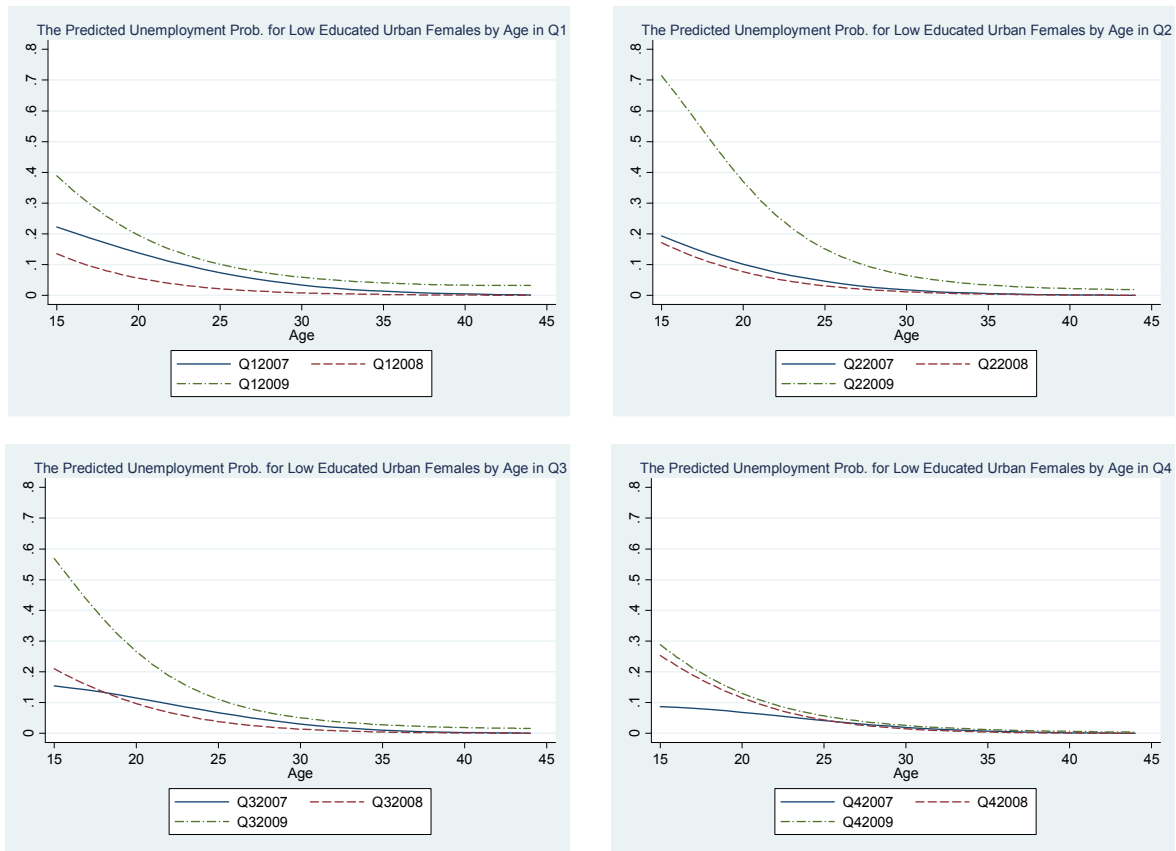
Figure 7: Predicted Probability of Unemployment for Low Educated, Urban Males by Age

The Predicted Unemployment Prob. for Low Educated Urban Males by Age in Q1

Q12007 — Q12008 — Q12009

The Predicted Unemployment Prob. for Low Educated Urban Males by Age in Q2

Q22007 — Q22008 — Q22009

The Predicted Unemployment Prob. for Low Educated Urban Males by Age in Q3

Q32007 — Q32008 — Q32009

The Predicted Unemployment Prob. for Low Educated Urban Males by Age in Q4

Q42007 — Q42008 — Q42009
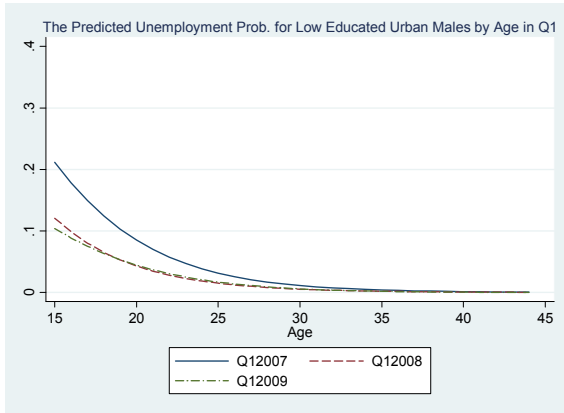
Figure 8: Predicted Probability of Unemployment for High Educated, Urban Females by Age
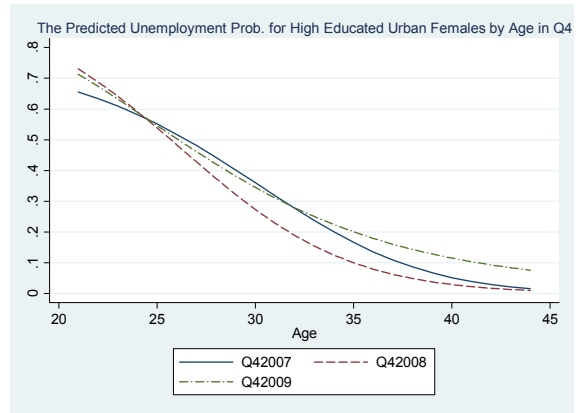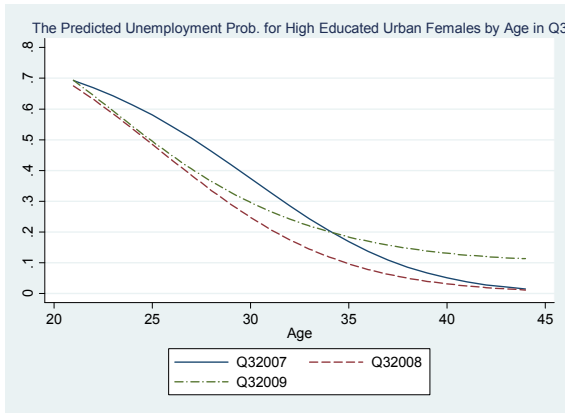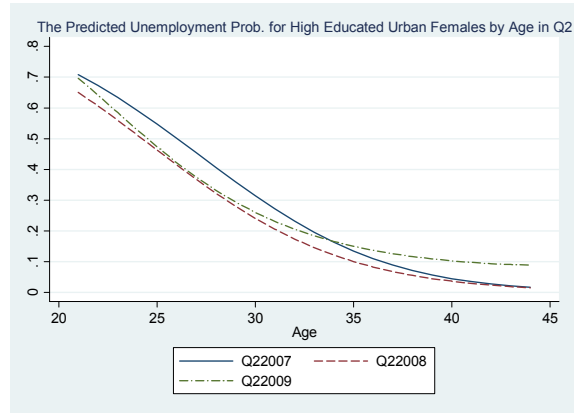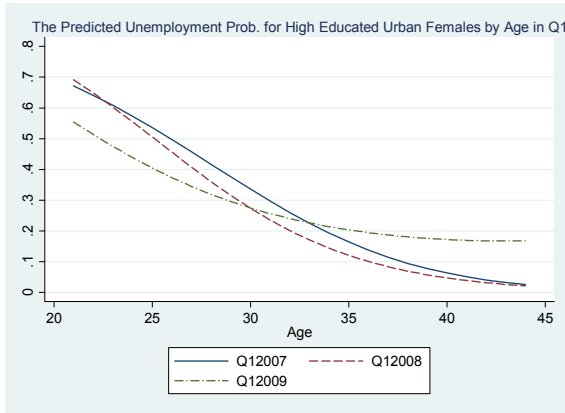
Figure 9: Predicted Probability of Labor Force Participation for Urban Female, by Age and Education
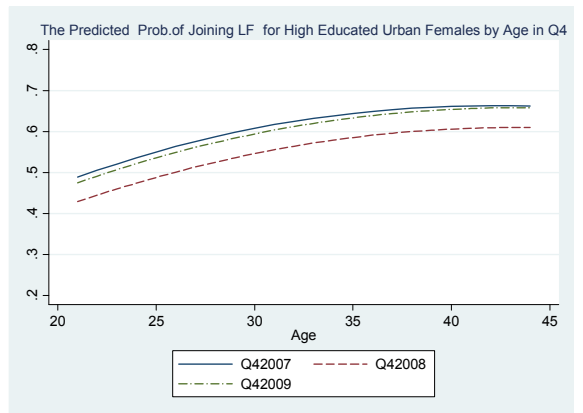
Table 1: Labor Force Participation by Sex, Age, Education Status, and Urban/Rural Location, 2006–2009 (*market labor force and broad definition of unemployment, WAP*)

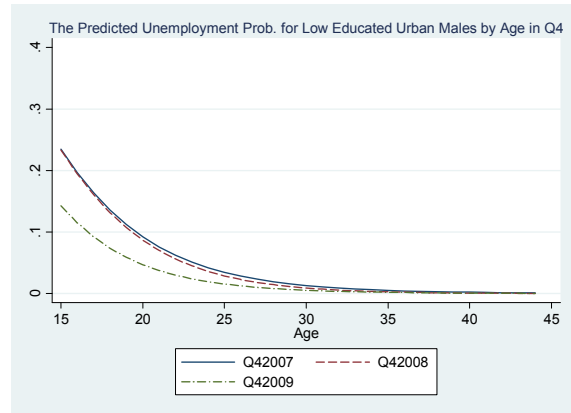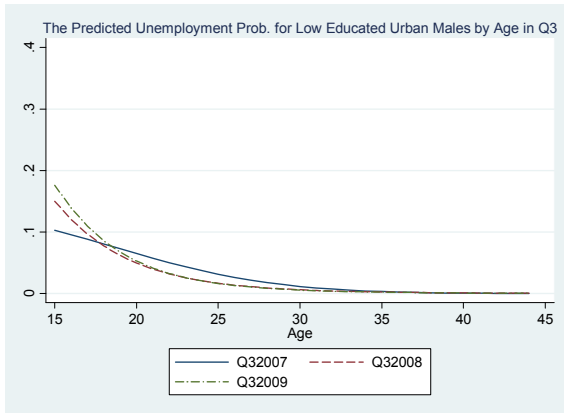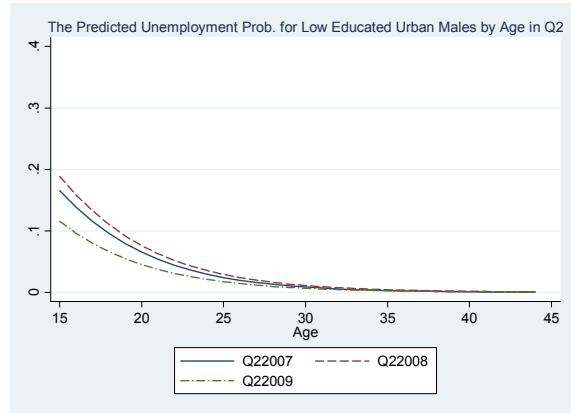|	2006				2007				2008				2009			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Males																
No Education/ Primary	71.9	71.8	72.2	72.5	71.5	71.5	72.6	73.4	72.3	71.8	72.7	72.6	71.9	71.6	72.9	71.9
Secondary	74.8	76.4	76.3	75.5	76.9	74.7	75.9	76.5	76.2	75.6	77.6	76.1	74.7	74.9	77.2	76.9
Tertiary+	92.4	93.1	92.6	88.6	91.7	92.5	93.2	93.1	92.6	92.4	92.1	91.4	91.8	91.8	92.0	92.3
Youth (15-24)	45.9	46.5	48.2	45.1	48.0	46.8	49.1	51.5	49.8	48.8	51.2	50.2	48.0	47.1	51.1	49.9
Young Adult (25-44)	98.0	98.0	97.8	97.4	97.9	98.0	98.1	98.4	98.0	97.9	98.4	98.1	98.4	98.1	98.2	98.3
Mature adult (45-64)	84.5	85.3	84.5	86.9	85.7	85.3	85.5	84.9	85.8	85.2	83.7	84.2	85.0	85.3	85.0	84.9
														4.0	0.2	0.4
Urban	72.8	73.8	73.5	73.0	73.3	73.3	74.9	75.0	74.5	73.5	74.7	74.2	74.0	73.0	74.9	75.0
Rural	77.7	77.6	78.2	77.7	79.2	78.1	78.5	79.6	78.8	78.7	79.5	78.8	78.1	78.6	79.6	78.8
All	75.5	75.9	76.1	75.6	76.6	76.0	76.9	77.6	76.9	76.3	77.3	76.8	76.3	76.1	77.5	77.1
Females																
No Education/ Primary	13.5	11.7	7.9	15.2	12.3	12.8	13.5	16.2	14.6	13.5	14.3	15.2	16.1	15.9	15.4	14.7
Secondary	35.7	34.6	32.1	30.3	31.2	29.0	31.1	31.9	27.9	26.8	27.0	27.9	26.2	26.7	28.4	28.0
Tertiary+	64.8	66.6	63.0	58.5	60.2	60.5	63.1	63.1	62.0	61.2	56.0	56.6	59.5	59.5	60.6	60.9
Youth (15-24)	21.1	20.9	19.0	17.3	19.9	18.4	21.4	22.6	19.7	18.2	18.3	19.8	18.8	20.4	20.5	19.7
Young Adult (25-44)	29.2	26.3	22.5	30.9	27.8	27.6	28.1	30.2	28.3	26.5	26.4	27.0	28.7	27.3	28.2	28.1
Mature adult (45-64)	19.6	16.3	14.7	19.1	19.7	21.0	20.3	23.6	22.3	22.1	21.4	22.7	24.4	24.1	23.6	24.2
Urban	22.2	21.5	20.1	21.4	21.8	21.7	22.0	23.6	23.4	22.0	21.0	22.1	23.3	22.8	23.2	24.3
Rural	25.6	22.4	18.7	25.2	24.4	24.0	25.5	28.1	24.5	23.3	23.9	24.9	25.4	25.6	25.8	24.7
All	24.1	22.0	19.4	23.5	23.2	23.0	24.0	26.1	24.0	22.7	22.6	23.7	24.5	24.3	24.6	24.5
Total																
No Education/ Primary	40.0	39.2	37.2	41.6	39.4	39.8	40.6	42.5	40.9	40.3	41.1	41.8	41.8	41.4	41.9	41.0
Secondary	57.4	57.9	56.7	55.7	56.9	54.7	56.0	56.8	55.3	54.5	55.6	54.8	53.2	53.8	55.6	55.2
Tertiary+	81.6	83.2	80.9	76.5	78.4	79.2	80.6	80.5	79.5	79.2	76.8	76.6	78.1	78.2	78.7	78.7
Youth (15-24)	34.2	34.6	34.6	32.3	35.2	33.9	36.4	38.5	36.1	35.2	36.4	36.7	34.9	35.2	37.4	36.5
Young Adult (25-44)	62.1	60.7	58.3	62.9	60.9	61.0	61.0	62.3	61.0	59.9	60.5	60.3	61.4	60.6	61.2	60.8
Mature adult (45-64)	52.7	51.0	50.0	53.7	53.4	54.0	53.7	54.8	54.5	54.0	52.9	53.8	54.9	54.8	54.4	54.5
Urban	47.8	48.0	47.1	47.7	47.7	47.8	48.6	49.4	49.1	48.0	48.0	48.3	48.9	48.1	49.2	49.7
Rural	51.8	50.2	48.6	51.9	52.3	51.7	52.4	54.4	52.1	51.5	52.3	52.5	52.2	52.6	53.3	52.2
All	50.0	49.2	48.0	50.0	50.2	49.9	50.7	52.2	50.8	49.9	50.4	50.6	50.7	50.6	51.4	51.1

Table 2: Unemployment Rate by Sex, Age, Education Status, and Urban/Rural Location, 2006–2009 (*market labor force and broad definition of unemployment, WAP*)

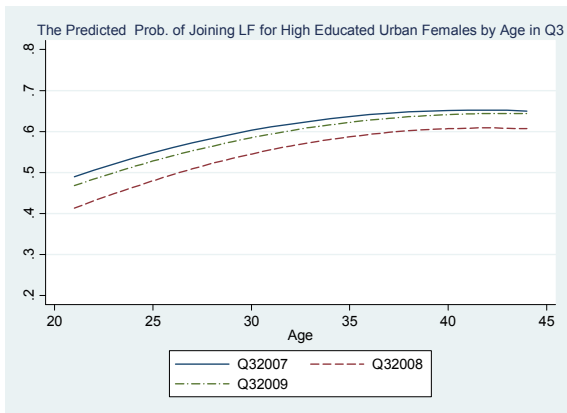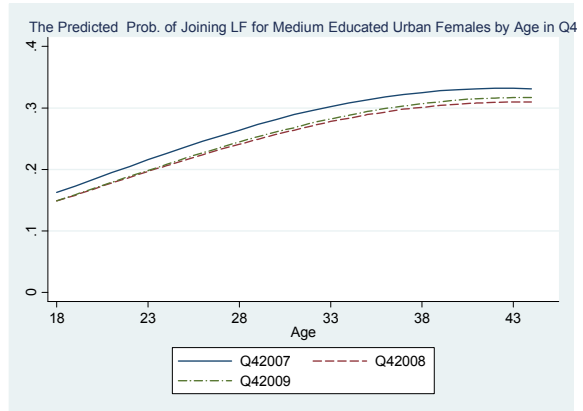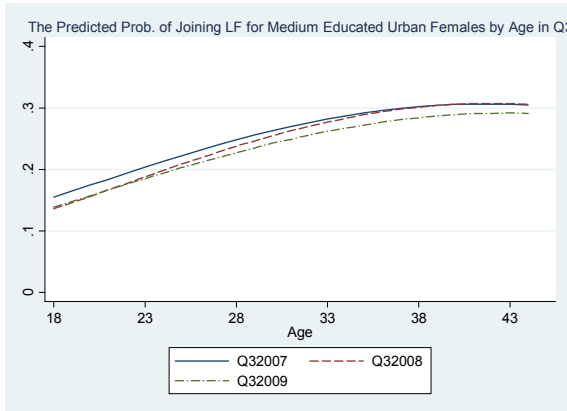|	2006				2007				2008				2009			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Males																
No Education/ Primary	1.2	1.4	1.4	1.4	1.6	1.0	1.1	1.6	0.9	1.4	1.0	1.5	0.9	0.9	1.0	0.9
Secondary	13.3	12.0	12.3	9.8	14.2	10.4	11.3	10.5	10.0	8.7	9.4	8.2	7.6	7.8	7.6	7.4
Tertiary+	13.4	13.6	13.8	11.9	13.3	12.3	14.5	14.1	12.0	10.5	12.5	12.1	11.6	11.4	12.1	12.0
Youth (15-24)	23.4	20.7	22.1	16.4	24.6	18.9	19.7	20.1	17.9	15.7	17.2	17.5	15.3	15.2	15.7	16.8
Young Adult (25-44)	4.2	4.2	4.0	4.7	5.2	4.3	5.1	4.3	3.8	3.8	3.7	3.3	3.8	3.9	3.3	3.0
Mature adult (45-64)	0.1	0.4	0.3	0.4	0.3	0.3	0.1	0.3	0.2	0.2	0.3	0.1	0.1	0.2	0.2	0.2
Urban	8.7	8.8	10.0	7.8	10.1	8.9	9.5	10.0	7.8	8.0	8.3	8.5	7.7	7.5	8.3	7.8
Rural	6.3	5.4	5.1	4.7	6.7	4.4	5.1	4.8	4.8	3.6	4.1	3.7	3.5	3.7	3.2	3.6
All	7.3	6.9	7.2	6.0	8.1	6.4	7.0	7.0	6.1	5.5	5.9	5.7	5.3	5.3	5.4	5.4
Females																
No Education/ Primary	0.8	0.8	1.5	2.0	2.8	1.8	1.8	1.1	1.3	1.6	1.7	1.6	6.4	9.1	5.1	2.2
Secondary	48.2	42.5	37.9	32.1	42.9	37.8	38.3	37.1	39.7	34.8	33.4	36.1	38.1	37.4	36.0	36.3
Tertiary+	28.7	27.1	26.4	26.3	28.1	26.6	32.3	31.5	28.0	23.5	24.3	26.4	30.3	28.2	31.7	32.8
Youth (15-24)	64.5	53.9	54.0	45.9	60.3	55.9	55.7	54.1	56.2	52.2	53.0	56.5	50.7	60.1	56.2	57.7
Young Adult (25-44)	16.2	16.2	17.1	14.2	17.7	15.4	16.2	14.8	14.3	12.4	10.4	11.4	14.7	13.5	14.1	17.7
Mature adult (45-64)	0.1	0.2	0.1	0.0	0.5	0.4	0.2	0.3	0.3	0.4	0.2	0.1	14.4	6.8	7.5	2.7
Urban	32.1	29.3	26.9	26.3	28.0	28.0	31.1	29.3	24.7	23.7	22.4	26.7	29.0	29.8	32.0	29.5
Rural	23.5	21.6	24.5	13.9	23.4	17.6	18.8	17.2	19.3	15.3	15.5	15.1	18.6	18.5	16.2	17.9
All	27.0	24.9	25.6	18.8	25.4	22.0	23.9	22.1	21.6	19.0	18.4	20.0	23.1	23.3	23.0	23.1
Total																
No Education/ Primary	1.1	1.3	1.4	1.5	1.8	1.2	1.2	1.5	0.9	1.4	1.1	1.5	2.0	2.6	1.8	1.1
Secondary	22.9	20.1	18.7	15.1	21.1	16.7	17.9	17.2	16.5	14.2	14.4	14.5	14.3	14.2	14.0	13.9
Tertiary+	18.2	17.6	17.7	16.3	18.1	16.8	20.3	19.8	17.3	14.8	16.2	16.6	17.6	16.8	18.5	19.0
Youth (15-24)	35.4	30.0	30.3	23.7	33.8	28.1	29.4	29.2	27.4	24.1	25.3	26.9	23.8	26.8	25.6	26.5
Young Adult (25-44)	7.1	6.9	6.7	7.1	8.2	6.9	7.8	7.0	6.4	5.8	5.2	5.2	6.5	6.2	5.9	6.6
Mature adult (45-64)	0.1	0.3	0.3	0.4	0.3	0.3	0.1	0.3	0.2	0.2	0.3	0.1	3.3	1.7	1.8	0.7
Urban	14.1	13.3	13.5	11.8	14.2	13.2	14.4	14.6	11.8	11.6	11.4	12.6	12.7	12.7	13.8	13.1
Rural	10.5	9.0	8.8	6.9	10.5	7.4	8.4	8.0	8.2	6.2	6.7	6.3	7.1	7.2	6.2	6.9
All	12.0	10.9	10.9	9.0	12.1	9.9	11.0	10.7	9.7	8.5	8.7	9.0	9.5	9.6	9.5	9.6

Table 3: Employment to Population Ratio by Sex, Age, Education Status, and Urban/Rural Location, 2006–2009 (*market labor force, WAP*)

	2006				2007				2008				2009			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Males																
No Education/ Primary	71.0	70.8	71.2	71.5	70.4	70.7	71.8	72.2	71.7	70.9	71.9	71.6	71.3	70.9	72.1	71.3
Secondary	64.8	67.2	66.9	68.1	66.0	66.9	67.3	68.5	68.6	69.1	70.4	69.9	69.0	69.1	71.3	71.2
Tertiary+	80.0	80.5	79.8	78.1	79.5	81.2	79.7	80.0	81.5	82.7	80.5	80.4	81.1	81.3	80.8	81.2
Youth (15-24)	35.2	36.9	37.5	37.7	36.2	38.0	39.5	41.1	40.9	41.2	42.4	41.5	40.6	39.9	43.1	41.5
Young Adult (25-44)	93.9	93.9	93.9	92.9	92.8	93.8	93.1	94.2	94.2	94.2	94.8	94.9	94.7	94.3	95.0	95.3
Mature adult (45-64)	84.4	85.0	84.3	86.5	85.5	85.1	85.4	84.6	85.6	85.0	83.5	84.1	84.9	85.1	84.8	84.8
Urban	66.5	67.3	66.2	67.3	65.9	66.8	67.7	67.4	68.7	67.6	68.4	67.9	68.3	67.6	68.7	69.2
Rural	72.9	73.4	74.2	74.1	73.9	74.7	74.5	75.8	75.0	75.8	76.2	75.9	75.4	75.8	77.1	75.9
All	70.0	70.7	70.6	71.1	70.4	71.2	71.5	72.1	72.2	72.1	72.7	72.4	72.2	72.1	73.3	72.9
Females																
No Education/ Primary	13.4	11.6	7.8	14.9	11.9	12.6	13.3	16.0	14.4	13.3	14.1	15.0	15.1	14.5	14.6	14.4
Secondary	18.5	19.9	19.9	20.6	17.8	18.1	19.2	20.1	16.8	17.5	18.0	17.8	16.2	16.7	18.2	17.8
Tertiary+	46.2	48.6	46.4	43.1	43.3	44.4	42.7	43.2	44.6	46.8	42.4	41.6	41.5	42.8	41.4	40.9
Youth (15-24)	7.5	9.6	8.7	9.4	7.9	8.1	9.5	10.4	8.6	8.7	8.6	8.6	9.3	8.1	9.0	8.3
Young Adult (25-44)	24.4	22.0	18.6	26.5	22.9	23.4	23.5	25.7	24.2	23.2	23.7	23.9	24.5	23.6	24.2	23.1
Mature adult (45-64)	19.6	16.3	14.7	19.1	19.6	20.9	20.3	23.5	22.3	22.0	21.3	22.7	20.9	22.5	21.8	23.5
Urban	15.1	15.2	14.7	15.8	15.7	15.7	15.2	16.7	17.6	16.8	16.3	16.2	16.6	16.0	15.8	17.1
Rural	19.6	17.6	14.2	21.7	18.7	19.8	20.7	23.3	19.8	19.8	20.2	21.2	20.7	20.9	21.6	20.3
All	17.6	16.5	14.4	19.1	17.3	17.9	18.2	20.4	18.8	18.4	18.4	18.9	18.8	18.7	18.9	18.9
Total																
No Education/ Primary	39.6	38.7	36.7	41.0	38.7	39.3	40.1	41.9	40.6	39.7	40.7	41.2	40.9	40.4	41.2	40.5
Secondary	44.2	46.3	46.1	47.3	44.9	45.5	46.0	47.0	46.1	46.7	47.6	46.9	45.5	46.1	47.8	47.5
Tertiary+	66.8	68.6	66.6	64.0	64.2	65.8	64.3	64.6	65.7	67.5	64.4	63.9	64.4	65.0	64.1	63.8
Youth (15-24)	22.1	24.2	24.1	24.7	23.3	24.4	25.7	27.2	26.2	26.7	27.2	26.8	26.5	25.8	27.9	26.8
Young Adult (25-44)	57.6	56.6	54.5	58.4	55.9	56.8	56.2	58.0	57.1	56.4	57.3	57.2	57.4	56.8	57.6	56.8
Mature adult (45-64)	52.6	50.8	49.9	53.5	53.2	53.9	53.6	54.6	54.4	53.9	52.7	53.8	53.1	53.9	53.4	54.1
Urban	41.0	41.6	40.7	42.0	41.0	41.5	41.6	42.2	43.3	42.4	42.6	42.2	42.7	42.0	42.4	43.2
Rural	46.3	45.7	44.3	48.3	46.8	47.9	48.0	50.1	47.9	48.3	48.8	49.2	48.5	48.8	50.0	48.6
All	44.0	43.9	42.7	45.5	44.2	45.0	45.1	46.6	45.8	45.7	46.0	46.1	45.9	45.7	46.5	46.2

Table 4: Hours Work Per Week by Sex, Age, Education Status, and Urban/Rural Location, 2006–2009 (*primary job, WAP*)

	2006				2007				2008				2009			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Males																
No Education/ Primary	50.3	50.7	51.4	47.2	48.5	48.6	48.4	47.6	47.7	48.4	48.3	49.0	49.4	49.6	49.9	49.1
Secondary	49.1	48.9	49.5	47.3	47.8	48.0	48.0	47.0	47.7	48.1	48.3	48.8	48.4	48.8	49.2	48.6
Tertiary+	47.2	45.6	46.7	46.8	46.7	45.7	46.1	45.4	45.9	46.5	46.8	46.5	46.7	47.6	47.5	47.6
Youth (15-24)	49.6	50.4	50.1	46.2	47.6	47.7	47.5	46.3	47.3	47.8	47.7	48.9	48.7	48.8	49.5	48.5
Young Adult (25-44)	49.8	49.5	50.2	47.7	48.2	48.3	48.4	47.7	47.9	48.4	48.7	48.9	49.0	49.5	49.8	49.3
Mature adult (45-64)	48.7	48.7	50.0	47.0	47.8	47.3	47.3	46.6	46.7	47.5	47.2	47.6	47.9	48.2	48.3	47.7
Urban	51.5	50.4	50.8	49.5	50.7	48.9	49.0	48.8	48.0	49.2	49.2	49.2	49.4	50.4	50.4	49.6
Rural	47.9	48.7	49.7	45.5	46.0	47.1	47.0	45.9	46.9	47.1	47.2	48.0	47.9	47.8	48.5	47.9
All	49.4	49.4	50.1	47.2	48.0	47.9	47.9	47.0	47.4	48.0	48.0	48.5	48.5	48.9	49.3	48.7
Females																
No Education/ Primary	31.7	32.2	31.3	31.1	34.0	35.1	31.7	30.2	30.4	30.1	27.9	28.5	29.2	30.2	31.8	31.9
Secondary	42.9	41.0	42.2	40.2	42.5	42.3	40.4	40.4	42.2	41.1	41.1	39.9	39.9	40.9	40.5	41.6
Tertiary+	43.6	41.7	42.8	42.1	42.8	42.2	41.9	41.8	42.3	42.4	43.5	43.4	42.1	43.3	43.2	43.8
Youth (15-24)	38.5	38.5	40.6	37.4	40.5	40.3	38.3	37.9	38.2	38.2	38.7	38.4	39.1	40.9	40.0	40.7
Young Adult (25-44)	37.9	37.0	38.2	35.7	39.0	39.1	36.6	35.3	36.2	36.2	35.4	35.1	35.0	35.9	36.7	38.0
Mature adult (45-64)	36.7	36.4	38.0	36.7	38.7	39.0	36.8	36.0	37.2	36.7	34.9	34.8	34.4	36.0	36.8	36.8
Urban	43.4	42.0	43.7	42.5	43.7	43.3	42.1	43.0	42.1	42.2	43.1	42.8	40.6	43.2	44.0	44.1
Rural	34.1	33.8	34.4	32.6	35.8	36.5	33.9	31.8	32.9	32.6	30.6	30.8	32.0	32.3	33.0	33.5
All	37.7	37.2	38.6	36.2	39.1	39.2	37.0	36.0	36.8	36.6	35.7	35.5	35.4	36.6	37.2	37.9
Total																
No Education/ Primary	46.8	47.7	49.0	44.1	46.2	46.3	45.5	44.1	44.5	45.2	44.6	45.1	45.4	45.8	46.5	45.9
Secondary	47.9	47.4	48.1	45.9	46.9	47.0	46.6	45.8	46.8	47.0	47.1	47.3	47.1	47.5	47.7	47.4
Tertiary+	46.2	44.6	45.7	45.5	45.6	44.7	44.9	44.4	44.8	45.3	45.9	45.7	45.4	46.4	46.4	46.5
Youth (15-24)	47.9	48.2	48.5	44.6	46.5	46.6	46.0	44.9	45.9	46.4	46.4	47.4	47.2	47.7	48.1	47.5
Young Adult (25-44)	47.1	47.0	48.1	44.9	46.2	46.3	45.8	44.8	45.3	45.8	45.8	45.9	45.9	46.5	46.9	46.9
Mature adult (45-64)	46.5	46.7	48.2	45.2	46.2	45.8	45.4	44.4	44.8	45.3	44.8	45.0	45.3	45.6	46.0	45.4
Urban	50.0	48.9	49.5	48.2	49.4	47.8	47.8	47.6	46.8	47.9	48.0	48.0	47.7	49.1	49.2	48.5
Rural	45.0	45.9	47.2	42.7	44.1	45.0	44.2	42.7	44.2	44.3	43.9	44.4	44.6	44.6	45.2	45.1
All	47.1	47.2	48.2	44.9	46.3	46.2	45.7	44.7	45.3	45.8	45.6	45.9	45.9	46.5	46.9	46.5

Table 5: Percent of Formal Employment by Sex, Age, Education Status, and Urban/Rural Location, 2007–2009 (*market labor force, WAP*)

	2007				2008				2009			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Males												
No Education/ Primary	32.3	32.9	36.8	35.5	34.3	33.4	34.1	34.4	31.9	32.8	34.4	35.0
Secondary	49.4	50.3	50.6	48.8	49.3	48.9	48.4	49.1	46.4	50.6	49.4	49.3
Tertiary+	84.5	84.1	84.4	83.8	85.0	83.6	81.5	81.9	81.1	82.7	82.6	83.9
Youth (15-24)	17.3	17.3	15.5	16.7	18.1	17.1	18.3	18.4	17.4	16.7	17.6	18.5
Young Adult (25-44)	49.7	50.9	53.5	52.0	50.6	50.2	50.0	51.2	48.4	50.5	51.1	52.2
Mature adult (45-64)	60.7	62.0	64.7	64.0	64.9	63.6	61.8	61.4	60.8	63.6	64.3	64.2
Urban	62.4	62.3	61.6	60.0	61.4	61.1	59.6	60.0	57.5	62.3	61.7	61.4
Rural	36.3	37.5	40.7	40.2	39.0	37.5	37.7	38.6	37.6	37.4	38.1	40.1
All	47.2	47.9	49.4	48.3	48.4	47.4	46.9	47.5	46.0	48.0	48.0	49.0
Females												
No Education/ Primary	7.4	6.4	6.1	6.4	6.9	5.6	7.0	7.1	6.8	7.2	6.8	9.4
Secondary	73.8	72.0	62.2	62.5	73.2	71.6	67.0	66.9	66.9	70.6	64.6	69.8
Tertiary+	93.8	95.2	92.6	91.9	94.3	93.9	93.6	93.3	92.3	93.8	92.3	93.8
Youth (15-24)	34.2	32.3	25.2	24.5	34.6	33.5	33.8	32.6	31.2	36.3	28.8	35.5
Young Adult (25-44)	54.9	53.4	49.7	47.5	49.3	51.2	47.1	47.0	46.0	47.6	46.0	52.3
Mature adult (45-64)	55.3	55.6	48.4	45.5	53.1	52.0	49.8	48.2	50.5	51.7	51.7	50.6
Urban	86.2	86.7	81.4	75.0	77.9	80.5	77.7	81.5	76.8	82.5	83.4	81.2
Rural	28.4	27.6	24.1	25.0	27.3	26.5	24.8	22.7	24.4	25.0	21.9	27.7
All	52.0	51.0	45.3	43.2	48.4	48.9	46.0	45.4	45.2	47.5	45.3	49.5
Total												
No Education/ Primary	28.1	28.3	31.3	29.5	29.0	28.3	29.1	29.1	26.8	27.8	29.1	30.1
Secondary	53.7	54.1	52.7	51.4	53.1	52.6	51.4	52.1	49.7	53.8	51.9	52.7
Tertiary+	87.1	87.2	86.7	86.0	87.7	86.6	84.9	85.1	84.2	85.8	85.3	86.7
Youth (15-24)	20.0	19.6	17.1	18.0	20.5	19.4	20.5	20.4	19.6	19.4	19.2	20.8
Young Adult (25-44)	50.8	51.4	52.7	51.0	50.3	50.4	49.4	50.3	47.8	49.9	49.9	52.2
Mature adult (45-64)	59.8	60.8	61.7	60.1	62.5	61.2	59.4	58.6	58.8	61.1	61.7	61.3
Urban	67.0	66.9	65.2	63.0	64.7	64.9	63.0	64.1	61.2	66.1	65.8	65.3
Rural	34.8	35.5	37.2	36.7	36.6	35.3	35.1	35.2	34.8	34.8	34.7	37.6
All	48.2	48.5	48.6	47.2	48.4	47.7	46.7	47.0	45.9	47.9	47.5	49.1

Table 6: The Marginal Effects of the Logistic Regression for Females Entering the Labor Force (0 out of labor force, 1 in the labor force)

VARIABLES	Q12007	Q22007	Q32007	Q42007	Q12008	Q22008	Q32008	Q42008
age	0.0239***	0.0241***	0.0213***	0.0240***	0.0247***	0.0205***	0.0242***	0.0214***
	(0.00125)	(0.00125)	(0.00125)	(0.00131)	(0.00125)	(0.00122)	(0.00122)	(0.00125)
age^2	-0.000296***	-0.000290***	-0.000256***	-0.000284***	-0.000301***	-0.000236***	-0.000288***	-0.000247***
	(1.70e-05)	(1.69e-05)	(1.71e-05)	(1.77e-05)	(1.69e-05)	(1.63e-05)	(1.64e-05)	(1.67e-05)
educlvl2	0.259***	0.230***	0.253***	0.230***	0.186***	0.198***	0.185***	0.192***
	(0.00778)	(0.00781)	(0.00778)	(0.00771)	(0.00764)	(0.00769)	(0.00763)	(0.00764)
educlvl3	0.583***	0.564***	0.593***	0.555***	0.542***	0.555***	0.491***	0.495***
	(0.00932)	(0.00951)	(0.00898)	(0.00905)	(0.00940)	(0.00949)	(0.0103)	(0.00997)
Urban	-0.139***	-0.128***	-0.140***	-0.132***	-0.102***	-0.103***	-0.0984***	-0.104***
	(0.00534)	(0.00532)	(0.00542)	(0.00565)	(0.00545)	(0.00528)	(0.00528)	(0.00546)
Observations	25,725	25,787	26,198	26,086	26,179	26,215	25,594	25,754

VARIABLES	Q12009	Q22009	Q32009	Q42009
age	0.0270***	0.0194***	0.0218***	0.0221***
	(0.00126)	(0.00125)	(0.00123)	(0.00125)
age^2	-0.000324***	-0.000227***	-0.000253***	-0.000254***
	(1.68e-05)	(1.67e-05)	(1.64e-05)	(1.67e-05)
educlvl2	0.155***	0.164***	0.193***	0.192***
	(0.00765)	(0.00768)	(0.00767)	(0.00756)
educlvl3	0.495***	0.511***	0.543***	0.529***
	(0.00982)	(0.00965)	(0.00931)	(0.00919)
Urban	-0.103***	-0.123***	-0.121***	-0.0875***
	(0.00555)	(0.00553)	(0.00548)	(0.00548)
Observations	25,744	26,098	26,587	26,613

Notes: Standard errors in parentheses   *** p<0.01, ** p<0.05, * p<0.1. Reported dy/dx is for discrete change of dummy variable from 0 to 1

Table 7: The Marginal Effects of the Logistic Regression for Females Unemployment (0 employed, 1unemployed)

VARIABLES	Q12007	Q22007	Q32007	Q42007	Q12008	Q22008	Q32008	Q42008
age	-0.00183	-0.00231	0.00386**	0.00349***	-0.00593***	-0.00369**	-0.00269*	-0.00183
	(0.00290)	(0.00186)	(0.00155)	(0.00105)	(0.00200)	(0.00167)	(0.00154)	(0.00290)
age^2	-0.000158***	-7.05e-05***	-0.000181***	-0.000140***	-8.42e-06	-2.11e-05	-2.94e-05*	-0.000158***
	(3.94e-05)	(2.32e-05)	(2.10e-05)	(1.57e-05)	(2.53e-05)	(1.99e-05)	(1.73e-05)	(3.94e-05)
educlvl2	0.315***	0.245***	0.198***	0.201***	0.354***	0.220***	0.145***	0.315***
	(0.0256)	(0.0291)	(0.0245)	(0.0249)	(0.0337)	(0.0301)	(0.0244)	(0.0256)
educlvl3	0.289***	0.229***	0.222***	0.226***	0.309***	0.189***	0.165***	0.289***
	(0.0283)	(0.0304)	(0.0292)	(0.0299)	(0.0330)	(0.0285)	(0.0290)	(0.0283)
Urban	0.0141**	0.0157***	0.0153***	0.00911***	0.00136	0.00623***	0.00543**	0.0141**
	(0.00557)	(0.00364)	(0.00365)	(0.00257)	(0.00281)	(0.00241)	(0.00218)	(0.00557)
Observations	6,019	6,002	6,325	6,831	6,248	6,006	5,852	6,019

VARIABLES	Q12009	Q22009	Q32009	Q42009
age	-0.00221*	-0.0447***	-0.0556***	-0.0445***
	(0.00133)	(0.00272)	(0.00287)	(0.00262)
age^2	-3.00e-05**	0.000520***	0.000603***	0.000477***
	(1.40e-05)	(3.69e-05)	(3.90e-05)	(3.54e-05)
educlvl2	0.135***	0.359***	0.273***	0.299***
	(0.0250)	(0.0183)	(0.0181)	(0.0186)
educlvl3	0.147***	0.307***	0.244***	0.306***
	(0.0288)	(0.0193)	(0.0188)	(0.0202)
Urban	0.0111***	0.0203**	0.0362***	0.0620***
	(0.00272)	(0.0103)	(0.0100)	(0.00939)
Observations	6,190	6,312	6,384	6,514

Notes: Standard errors in parentheses   *** p<0.01, ** p<0.05, * p<0.1. Reported dy/dx is for discrete change of dummy variable from 0 to 1

Table 8: The Marginal Effects of the Logistic Regression for Females Formal Employment (0 informal, 1 formal)

VARIABLES	Q12007	Q22007	Q32007	Q42007	Q12008	Q22008	Q32008	Q42008
age	0.0581***	0.0584***	0.0768***	0.0974***	0.0605***	0.0676***	0.0569***	0.0399***
	(0.00922)	(0.00888)	(0.00771)	(0.00728)	(0.00821)	(0.00814)	(0.00759)	(0.00752)
age2	-0.000536***	-0.000547***	-0.000755***	-0.00104***	-0.000557***	-0.000662***	-0.000571***	-0.000340***
	(0.000123)	(0.000118)	(0.000101)	(9.41e-05)	(0.000106)	(0.000104)	(9.90e-05)	(9.91e-05)
educlvl2	0.625***	0.634***	0.608***	0.631***	0.634***	0.694***	0.527***	0.589***
	(0.0236)	(0.0250)	(0.0279)	(0.0255)	(0.0240)	(0.0226)	(0.0299)	(0.0270)
educlvl3	0.724***	0.777***	0.763***	0.768***	0.779***	0.805***	0.713***	0.720***
	(0.0199)	(0.0186)	(0.0202)	(0.0189)	(0.0179)	(0.0171)	(0.0243)	(0.0230)
econact2	0.550***	0.627***	0.594***	0.685***	0.661***	0.695***	0.719***	0.712***
	(0.0260)	(0.0271)	(0.0339)	(0.0233)	(0.0235)	(0.0237)	(0.0192)	(0.0207)
econact3	0.682***	0.729***	0.697***	0.709***	0.712***	0.715***	0.728***	0.717***
	(0.0201)	(0.0177)	(0.0189)	(0.0168)	(0.0181)	(0.0179)	(0.0172)	(0.0172)
Urban	0.169***	0.109***	0.118***	0.0245	0.0315	0.0283	0.0267	0.133***
	(0.0320)	(0.0309)	(0.0278)	(0.0244)	(0.0284)	(0.0282)	(0.0273)	(0.0285)
Constant								
Observations	4,486	4,710	4,802	5,315	4,881	4,871	4,762	4,952

VARIABLES	Q12009	Q22009	Q32009	Q42009
age	0.0481***	0.0680***	0.0448***	0.0642***
	(0.00739)	(0.00792)	(0.00728)	(0.00776)
age2	-0.000397***	-0.000646***	-0.000335***	-0.000608***
	(9.48e-05)	(0.000101)	(9.44e-05)	(9.92e-05)
educlvl2	0.596***	0.570***	0.611***	0.594***
	(0.0285)	(0.0264)	(0.0262)	(0.0235)
educlvl3	0.736***	0.730***	0.750***	0.726***
	(0.0224)	(0.0206)	(0.0205)	(0.0190)
econact2	0.667***	0.619***	0.705***	0.641***
	(0.0242)	(0.0231)	(0.0200)	(0.0202)
econact3	0.669***	0.698***	0.717***	0.725***
	(0.0192)	(0.0187)	(0.0173)	(0.0159)
Urban	0.0783***	0.0546*	0.0676**	0.158***
	(0.0267)	(0.0303)	(0.0280)	(0.0283)
Constant				
Observations	4,851	4,896	5,029	5,074

Source: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Reported dy/dx is for discrete change of dummy variable from 0 to 1

Table 9: The Marginal Effects of The Logistic Regression For Males Unemployment (0 employed, 1unemployed)

VARIABLES	Q12007	Q22007	Q32007	Q42007	Q12008	Q22008	Q32008	Q42008
age	-0.00173***	-0.00118***	0.000197**	-0.00243***	-0.00138***	-0.00168***	-0.00217***	-0.000811***
	(0.000467)	(0.000343)	(8.85e-05)	(0.000489)	(0.000361)	(0.000415)	(0.000399)	(0.000311)
age^2	6.12e-07	5.80e-07	-1.25e-05***	1.03e-05*	4.40e-06	5.41e-06	1.41e-05***	-4.45e-07
	(5.08e-06)	(3.79e-06)	(1.40e-06)	(5.87e-06)	(4.07e-06)	(4.89e-06)	(4.86e-06)	(3.03e-06)
educlvl2	0.0304***	0.0228***	0.00899***	0.0259***	0.0261***	0.0201***	0.0280***	0.00940***
	(0.00432)	(0.00348)	(0.00212)	(0.00315)	(0.00397)	(0.00287)	(0.00341)	(0.00211)
educlvl3	0.0804***	0.0661***	0.0288***	0.0844***	0.0826***	0.0590***	0.0999***	0.0360***
	(0.0114)	(0.0101)	(0.00683)	(0.00989)	(0.0125)	(0.00842)	(0.0119)	(0.00800)
Urban	0.00541***	0.00607***	0.00219***	0.0106***	0.00378***	0.00766***	0.00713***	0.00452***
	(0.000898)	(0.000970)	(0.000519)	(0.00133)	(0.000679)	(0.00113)	(0.000981)	(0.000980)
Constant								
Observations	20,804	20,639	20,642	21,161	20,725	20,827	20,729	20,810

VARIABLES	Q12009	Q22009	Q32009	Q42009
age	-0.000329*	-0.00125***	-0.00209***	-0.00141***
	(0.000195)	(0.000345)	(0.000362)	(0.000352)
age^2	-3.96e-06**	2.90e-06	1.55e-05***	6.63e-06
	(1.77e-06)	(4.01e-06)	(4.38e-06)	(4.04e-06)
educlvl2	0.0104***	0.0211***	0.0208***	0.0179***
	(0.00255)	(0.00323)	(0.00269)	(0.00287)
educlvl3	0.0362***	0.0687***	0.0794***	0.0673***
	(0.00889)	(0.0104)	(0.00985)	(0.0106)
Urban	0.00245***	0.00392***	0.00705***	0.00455***
	(0.000598)	(0.000720)	(0.000975)	(0.000785)
Constant				
Observations	20,307	20,549	20,883	20,936

Notes: Standard errors in parentheses   *** p<0.01, ** p<0.05, * p<0.1. Reported dy/dx is for discrete change of dummy variable from 0 to 1

Table 10: The Marginal Effects of the Logistic Regression for Males Formal Employment (0 informal, 1 formal)

VARIABLES	Q12007	Q22007	Q32007	Q42007	Q12008	Q22008	Q32008	Q42008
age	0.0499***	0.0499***	0.0554***	0.0661***	0.0599***	0.0566***	0.0525***	0.0475***
	(0.00269)	(0.00269)	(0.00272)	(0.00271)	(0.00265)	(0.00269)	(0.00267)	(0.00252)
age2	-0.000425***	-0.000425***	-0.000487***	-0.000601***	-0.000527***	-0.000465***	-0.000424***	-0.000385***
	(3.42e-05)	(3.42e-05)	(3.46e-05)	(3.42e-05)	(3.39e-05)	(3.39e-05)	(3.40e-05)	(3.22e-05)
educlvl2	0.200***	0.200***	0.211***	0.190***	0.199***	0.228***	0.232***	0.198***
	(0.0107)	(0.0107)	(0.0108)	(0.0109)	(0.0108)	(0.0109)	(0.0108)	(0.0104)
educlvl3	0.439***	0.439***	0.430***	0.418***	0.430***	0.461***	0.451***	0.423***
	(0.0112)	(0.0112)	(0.0113)	(0.0111)	(0.0110)	(0.0105)	(0.0112)	(0.0115)
econact2	0.507***	0.507***	0.497***	0.456***	0.520***	0.503***	0.524***	0.507***
	(0.0112)	(0.0112)	(0.0115)	(0.0114)	(0.0109)	(0.0109)	(0.0113)	(0.0112)
econact3	0.625***	0.625***	0.646***	0.628***	0.646***	0.627***	0.668***	0.630***
	(0.00897)	(0.00897)	(0.00874)	(0.00887)	(0.00867)	(0.00892)	(0.00849)	(0.00883)
Urban	-0.00138	-0.00138	-0.0269***	-0.0516***	-0.0393***	-0.0320***	-0.0381***	-0.0165*
	(0.00973)	(0.00973)	(0.00994)	(0.0101)	(0.00981)	(0.00997)	(0.00978)	(0.00944)
Observations	19,109	19,109	19,325	19,205	19,666	19,439	19,680	19,539

VARIABLES	Q12009	Q22009	Q32009	Q42009
age	0.0494***	0.0572***	0.0573***	0.0608***
	(0.00257)	(0.00265)	(0.00258)	(0.00267)
age2	-0.000405***	-0.000492***	-0.000495***	-0.000538***
	(3.27e-05)	(3.35e-05)	(3.28e-05)	(3.39e-05)
educlvl2	0.179***	0.229***	0.206***	0.184***
	(0.0108)	(0.0107)	(0.0106)	(0.0106)
educlvl3	0.427***	0.438***	0.437***	0.442***
	(0.0116)	(0.0110)	(0.0110)	(0.0103)
econact2	0.530***	0.456***	0.469***	0.461***
	(0.0116)	(0.0121)	(0.0121)	(0.0118)
econact3	0.654***	0.632***	0.635***	0.634***
	(0.00886)	(0.00907)	(0.00901)	(0.00898)
Urban	-0.0457***	-0.00840	-0.00328	-0.00703
	(0.00943)	(0.00988)	(0.00972)	(0.00978)
Constant				
Observations	19,242	19,481	19,805	19,837

Notes: Standard errors in parentheses   *** p<0.01, ** p<0.05, * p<0.1. Reported dy/dx is for discrete change of dummy variable from 0 to 1

Appendix: Confidence Intervals

Figure A1: Confidence Intervals of the Predicted Probability of Unemployment for Low Educated, Urban Females by Age
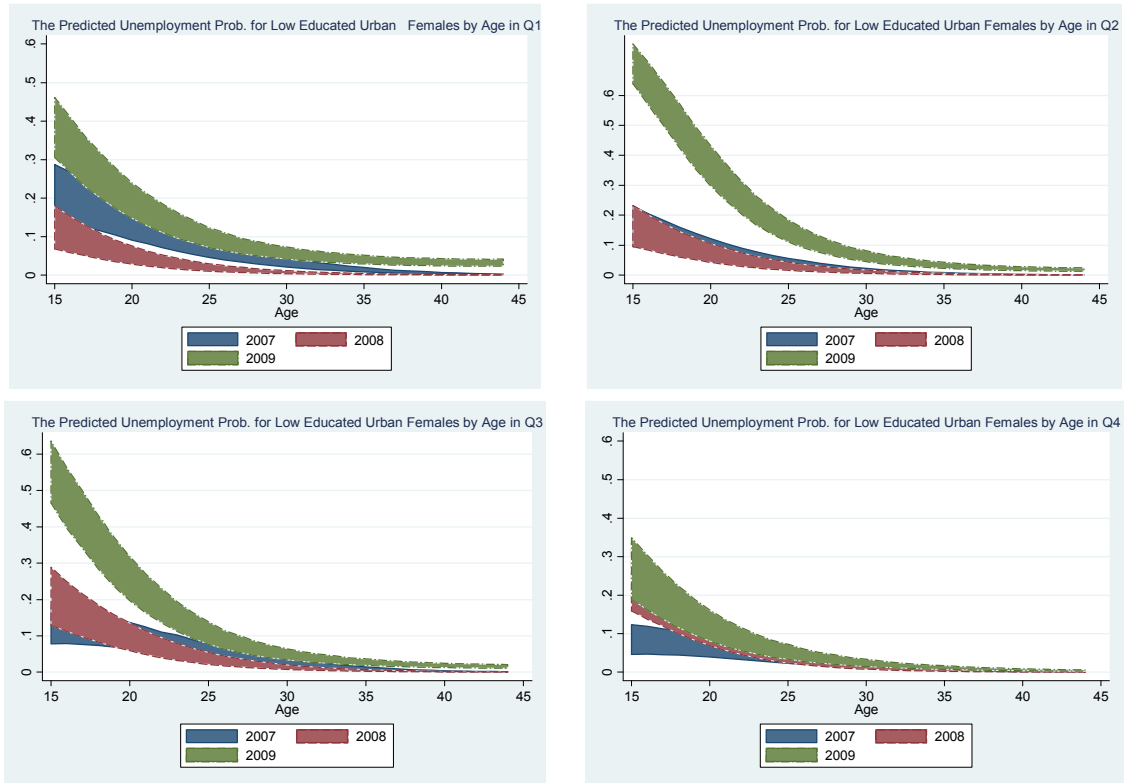
Figure A2: Confidence Intervals of the Predicted Probability of Unemployment for Low Educated, Urban Males by Age
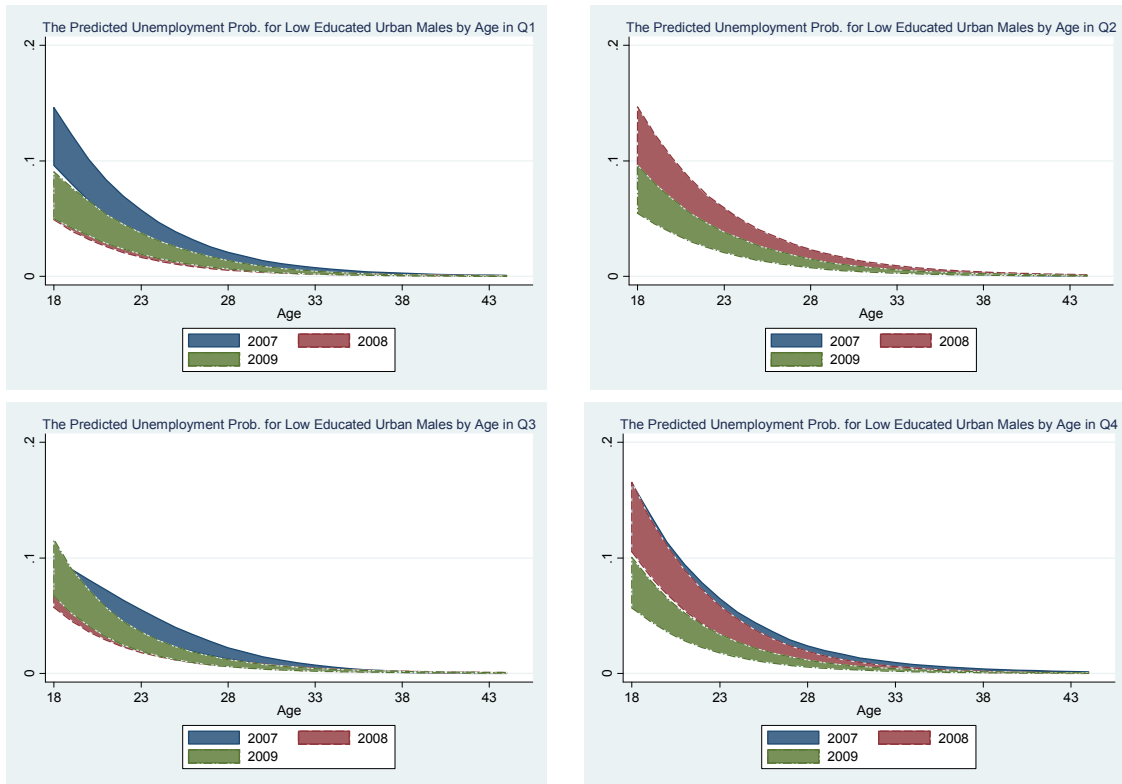
Figure A3: Confidence Intervals of the Predicted Probability of Unemployment for High Educated, Urban Females by Age
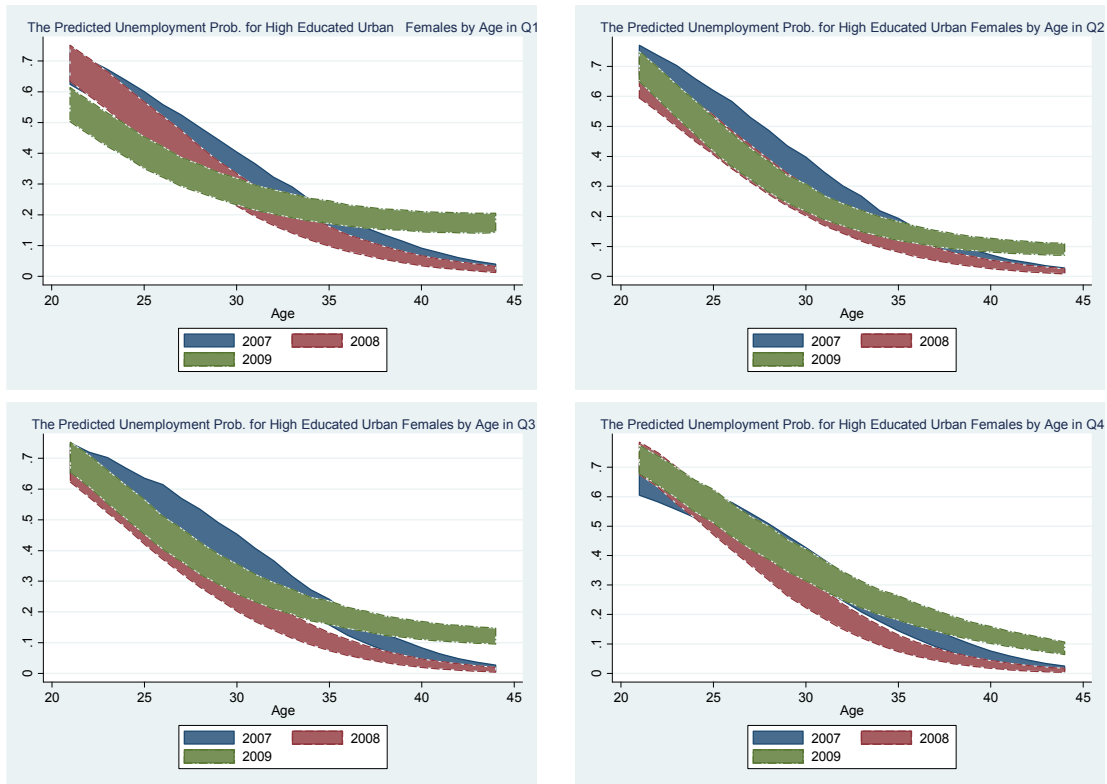
Figure A4: Confidence Intervals of the Predicted Probability of Labor Force Participation for Urban Female, by Age and Education