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THE EVOLUTION OF LABOR SUPPLY
AND UNEMPLOYMENT IN THE EGYPTIAN
ECONOMY: 1988-2012

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Abstract

This paper analyzes the evolution of labor supply and unemployment in Egypt in the period from 1999 to 2012, focusing on the impact of the demographic phenomenon known as the youth bulge and the impact of the world financial crisis and the marked economic slowdown following the January 25th 2011 revolution. Data from the Egypt Labor Market Panel Survey of 2012 is used and compared to previous survey rounds. Trends in population, the labor force, employment, and unemployment are investigated and examined by age and education. Even though demographic pressures on the labor market have decreased since 2006 as the youth bulge generation has already made its way into the labor market, employment rates have decreased, labor force participation among women has decreased, unemployment has slightly increased, and under-employment has increased substantially. Overall, the labor market post-revolution is in a weaker position than in 2006.

JEL Classifications: J00, J21, J64, J11

Keywords: Labor Force Participation, Unemployment, Employment, Under-employment, Population Growth, Egypt

ملخص

تحلل هذه الورقة تطور المعروض من العمالة والبطالة في مصر في الفترة من 1999 إلى 2012، مع التركيز على تأثير ظاهرة الديموغرافية المعروفة باسم تضخم اعداد الشباب وتأثير الأزمة المالية العالمية وتباطؤ الاقتصادي الملحوظ بعد ثورة 25 يناير 2011. نستخدم البيانات من المسح التتبعي لسوق العمل المصري لعام 2012 بالمقارنة بجولات سابقة للمسح. ونقوم بالتحقيق في اتجاهات السكان وقوة العمل، والعمالة، والبطالة، وندرسها حسب العمر ومستوى التعليم. وعلى الرغم من انخفاض الضغوط الديموغرافية على سوق العمل منذ عام 2006 حيث ان جيل تضخم اعداد الشباب حقق بالفعل طريقه إلى سوق العمل، إلا ان معدلات التوظيف انخفضت، معدل المشاركة في القوى العاملة بين النساء قد انخفض، وارتفع معدل البطالة بشكل طفيف، ونقص العمالة زاد بشكل كبير. وعموما، فإن سوق العمل بعد الثورة هو في موقف أضعف مما كانت عليه في عام 2006.

1. Introduction

The Egypt Labor Market Panel Survey of 2012 collected detailed data on labor market trends in Egypt, which allows for in-depth analyses of the evolution of labor supply and unemployment in a period characterized by significant demographic shifts and recurring economic crises. Even with decreasing demographic pressures on the labor market since 2006 due to the completion of the labor market insertion of the “youth bulge” generation, employment rates have decreased, labor force participation among women has decreased, unemployment has slightly increased, and under-employment has increased substantially. Overall, the labor market post-revolution in early 2012 is clearly in a weaker position than it was in 2006.

The deterioration in labor market conditions has occurred despite demographic and educational trends that should have resulted in lower unemployment and increased female labor force participation. Demographic trends favor decreases in unemployment due to the aging of the “youth bulge” generation. The marked youth bulge that Egypt has experienced resulted from a sharp decline in early childhood mortality in the 1980s, followed with a lag by a decrease in fertility rates. These trends resulted in marked increase in the share of the generation born around the mid 1980s, a generation that began entering the labor market in the late 1990s and through the mid 2000s. By 2006, the peak age for this group was 22, and many had already transitioned into the labor market. By 2012, the peak age for this group was 28, and the youth bulge had been largely integrated into the workforce.

Given that unemployment in Egypt is primarily a new entrant phenomenon, we would expect the aging of the youth bulge to have substantially decreased unemployment by 2012; instead unemployment has ticked up slightly, a reflection of slowing labor demand in the economy. While the unemployment rate has increased only slightly, looking at under-employment, there has been a substantial increase in visible (time-related) under-employment. It appears that initially Egyptian firms have retained workers, but hours have decreased in the depressed economic climate post-revolution.

Additionally, given the increasing levels of education among women and the historically strong relationship between female labor force participation and educational attainment, we would have expected female labor force participation to have risen; instead it has fallen substantially. Again, this is an indication of the declining opportunity structure facing women in the labor market, especially public sector employment, upon which they have strongly relied in the past, continues to decline, and with continued weakness in private sector employment growth. Despite the decline in female participation rates, female unemployment rates have continued to climb, at a time that male rates have declined slightly from 2006 to 2012.

In what follows, we examine trends in population growth, the labor force, labor force participation, employment, unemployment, and joblessness in the Egyptian economy from 1988 to 2012. We focus primarily on trends from 1998-2012 due to better comparability in the data; however whenever possible we also compare to 1988. The four surveys we use, the Labor Force Sample Survey 1988 (LFSS 1988), the Egypt Labor Market Survey of 1998 (ELMS 1998), the Egypt Labor Market Panel Survey of 2006 (ELMPS 2006), and the Egypt Labor Market Panel Survey of 2012 (ELMPS 2012) are generally comparable in terms of survey design and methodology. The 1998, 2006 and 2012 rounds were designed to be a panel; however, we do not rely on the panel design in what follows. Although there has been attrition from 1998 to 2006

and 2006 to 2012, we have ensured that the survey has remained nationally representative by using weights that account for attrition.¹

2. The Egypt Labor Market Panel Survey of 2012

The ELMPS 2012 is a follow-up survey to the ELMS 1998 and ELMPS 2006.² As with the 1998 and 2006 surveys, the 2012 survey was carried out by the Economic Research Forum in cooperation with the Egyptian Central Agency for Public Mobilization and Statistics—the main statistical agency of the Egyptian Government.

The initial ELMS 1998 was carried out with a nationally representative sample of 4,816 households and was designed to be comparable to the special round of the Egyptian Labor Force Sample survey carried out in 1988. The ELMPS 2006 followed the initial ELMS 1998 sample, locating 3,684 households from the original ELMS 1998 survey and adding 2,167 new households that emerged from these households as a result of splits, as well as a refresher sample of 2,498 households. The ELMPS 2012 is therefore the third round of a periodic longitudinal survey that tracks the labor market and the demographic characteristics of households and individuals interviewed in 2006, both individuals included in the ELMS 1998 and individuals added in 2006, as well as a refresher sample of 2,000 new households to ensure that the data continues to be nationally representative. The field work for the ELMPS 2012 was carried out from March to June of 2012.

The final sample for the ELMPS 2012 was 12,060 households, consisting of 6,752 households from the 2006 sample, 3,308 new households that emerged from these households as a result of splits, and a refresher sample of 2,000 households. Of the 37,140 individuals interviewed in the 2006 survey, 28,770 (77 percent) were successfully re-interviewed in 2006. These individuals, 13,218 of whom were also tracked in 1998, form a panel that can be used for longitudinal analysis. The 2012 sample also includes 20,416 new individuals. Of these new individuals, 5,009 joined original 2006 households, 6,900 joined split households, and 8,507 were members of the refresher sample of households.

The original sample of the ELMS 1998 was selected from 200 primary sampling units (PSUs) across Egypt. The 1998 sample was a two-stage stratified random sample selected from a master sample prepared by CAPMAS and over-sampled urban areas. In 1998, the PSUs were selected according to the probability proportional to size (PPS) method. In 2006, the refresher sample of households was selected from an additional 100 PSUs randomly selected from a new master sample prepared by CAPMAS. In 2012, the refresher sample of 2,000 households was selected from an additional 200 PSUs randomly selected from a new master sample prepared by CAPMAS. By design, the 2012 refresher sample over-sampled areas with high migration rates.

The attrition that occurred from the original 1998 sample to 2006 was mostly random in nature, due to the loss of records containing identifying information for 1998 households (Assaad and Roushdy 2009). The attrition that occurred from the 2006 sample to the 2012 sample was due to a variety of processes. Of the 1,599 households in the ELMPS 2006 who were not located for the 2012 survey, 204 left the country, died out in their entirety, or refused to be interviewed, while 1,395 households could not be located. Another source of attrition is due to the inability to locate some of the individuals who split from the 2006 households. For an analysis of attrition and discussion of sampling weights see Assaad and Krafft (2013).

¹ See Assaad and Krafft (2013) for more information about attrition, sample weights, and the 2012 survey.

² See Assaad (2009) and Assaad (2002) for more information on the 2006, 1998, and 1988 surveys.

3. The Evolution of the Age and Educational Composition of the Working Age Population

The overall average population growth rate in the 2006-2012 period was around 2 percent per annum (Table 1a), very similar to the growth rates during the 1988-98 and 1998-2006 periods. However, growth in the working age population (15-64) slowed substantially in the 2006-12 period, from around 3 percent per annum in the 1988-2006 periods to around 1.2 percent per annum. This decreasing growth of the working age population is typical of later stages of the demographic transition, when the ‘youth bulge’ has been fully absorbed into the working age population. While in the 1988-98 period the youth (15-24) population grew by 3.4 percent per annum and in 1998-2006 grew by 2.3 percent per annum, this population actually contracted by 2.3 percent per annum over the 2006-2012 period (Table 1b). In earlier periods, the growth in the working-age population driven by the growth in the youth population led to severe demographic pressures on the labor market.

Some of the pressure on the labor market remains among the young adult (25-29) population, which grew at 0.8 percent per annum in 1988-98, before rising to 5.3 percent per annum in 1998-2006, and continuing a high rate of growth at 4.2 percent per annum in the 2006-2012 period. Another important demographic trend is also beginning in Egypt: the ‘echo’ of the youth bulge. While the child population (0-14) grew at rates below 1 percent per annum in 1998-2006, as of 2006-2012 it grew 3.8 percent per annum, as the growing young adult population visible in 1998-2006 and 2006-2012 formed families and transitioned into parenthood.

Consistent with fertility declines occurring later in rural areas, the working age population continues to grow slightly faster in rural areas than urban ones in 2006-12, after having grown at more or less the same rate in previous periods (Table 1a). While there are limited differences in the rural/urban growth rates for the youth population in 2006-2012, over the 2006-2012 period, the young adult population was growing much faster in rural areas, at 5.3 percent per annum, than the urban young adult population, which grew at 2.8 percent per annum.

The changing patterns of growth in 2006-2012 as compared to earlier periods, specifically the shifting from rapid growth in the youth population to rapid growth in the young adult and child population, have important implications for the age composition of the population and, thus, for labor supply. The 1988 and 1998 populations were unimodal in both rural and urban areas (Figures 1a and 1b) with the mode around age 5 in 1988 and age 15 in 1998, the latter being when participation in the labor force increases. The ‘bulge’ in the youth population was more pronounced in urban than rural areas. As of 2006, the population was becoming bimodal, with the original youth mode around age 22 and a new mode emerging among young children as members of the original youth bulge transitioned into parenthood.³

By 2012, the bimodal distribution was pronounced with a mode around 28 for the original youth population, and a sizeable ‘echo’ among young children. As of 2012, the members of the original youth bulge had almost all transitioned into young adulthood, and into the labor market. The decreasing numbers of labor market entrants are an important component of developments in the labor market, and should be kept in mind as we examine labor market indicators. The relatively brief nature of this respite in labor market pressures should also be kept in mind. While the ‘echo’ is currently relatively young, soon they too will begin entering the labor market, once again increasing labor supply pressures.

³ The ELMPS 2012 and earlier rounds sample age distributions that are consistent with the findings of the Egyptian Census. See Assaad and Krafft (2013) for a comparison.

Besides the important shifts in the age profile of the working-age population, there have been ongoing changes in its educational composition (Figures 2a and 2b). Although educational attainment has improved in Egypt over time, illiteracy remains a problem. While in 1988 the illiteracy rate of the working age population was 47.6 percent, in 1998 it was 31.6 percent, in 2006 it was 28.1 percent, and in 2012 it was 23.8 percent. As illiteracy has continued to decline, increasing proportions of the working age population have attained formal education. The changes have been particularly dramatic for rural females, 80 percent of whom were illiterate in 1988 and 40 percent of whom were illiterate in 2012.

The shares of the working-age population attaining elementary, middle, or general high school degrees have remained relatively stable over time. While the proportion of vocational high school graduates increased rapidly over 1988-2006, this has remained relatively stable in 2012 as compared to 2006, with between 24-30 percent of rural and urban male and female subgroups holding this degree. The greatest growth in 2012 as compared to 2006 has been in the proportion of university graduates. Both urban and rural males and females saw substantial growth in the share of university graduates. Rural males and females continue to lag their urban counterparts in attaining a university education, despite comparable levels of vocational high school.

While in 1988 urban males had a substantial advantage over urban females in terms of educational attainment, by 2012, working age urban females had almost caught up to males. While urban females have a slightly higher illiteracy rate (19 percent) compared to urban males (11 percent), otherwise elementary, middle, and high school rates are quite similar, and working age urban females lag urban males by only one percentage point in university attainment (21 percent vs. 22 percent). Rural females have not been as successful at catching up to rural males; rural females have a 40 percent illiteracy rate as compared to 21 percent among rural males, and have correspondingly lower levels of educational attainment across the board. One degree where rural females are approaching parity with rural males is in the share of vocational high school graduates, 30 percent of all rural males and 24 percent of rural females in 2012.

Both the educational composition of the working age population and the changes in educational attainment from 2006 to 2012 have important implications for the labor market. The rising share of university graduates and the rising educational attainment of women are particularly notable. While female participation rates increase substantially once women have a vocational high school degree, as we will see below, there has also been rapid growth in the educated labor supply, placing pressures on the labor market to absorb increasingly educated entrants.

4. Trends in the Labor Force and Labor Force Participation

The labor force can be identified and defined in a variety of ways. We use two definitions of the labor force, the market labor force and the extended labor force. The market labor force consists of everyone who is either engaged in economic activity for the purposes of market exchange or who is seeking such work. The extended labor force consists of everyone who is engaged in “the production and processing of primary products, whether for the market, for barter, or for their own consumption; the production of all other goods and services for the market; and, in the case of households that produce such goods and services for the market, the corresponding production for their own consumption” (ILO 1982). The difference between these two definitions is particularly important for women in Egypt. Many women engage in animal husbandry and the processing of dairy products for household consumption. Under the market labor force definition these women are not considered to be employed or in the market labor force while under the extended labor force definition such women are considered to be employed and in the extended labor force.

There is also an important distinction to be made in terms of individuals who are seeking work. Individuals who want to work and are ready and willing to work are unemployed under the broad definition of unemployment. Individuals who are also searching for work are considered unemployed under the standard, search required definition of unemployment. These distinctions affect who is included in the labor force as well.

The 1998, 2006, and 2012 surveys permit the application of both the market and extended definitions of the labor force, but the 1988 survey only allows for the use of the extended definition. All comparisons including 1988 perforce are based on the extended definition, while comparisons using the market definition include only 1998, 2006, and 2012 surveys. This paper focuses primarily on the market definition, and therefore primarily draws on the 1998, 2006, and 2012 surveys. For additional comparisons with 1988 using the extended labor force definition, see Assaad (2009). We also use the labor force definition of working age, 15-64 years old. Individuals who are not working because they are permanently disabled are excluded from the base used in calculating both labor market statistics.

4.1 Trends in labor force participation

The working age population in Egypt grew from 45.0 million in 2006 to 48.5 million in 2012 (Figure 3). While the market labor force was 23.2 million in 2006, it grew to 24.5 million in 2012, a rate of 1.0 percent per annum (Table 2a). Growth in the market labor force is slightly slower than growth in the working age population, which was 1.2 percent per annum over 2006-2012. While in 1998-2006 labor force growth in fact exceeded working age population growth, in 2012 the opposite was true. In 2012, relatively fewer working age individuals, primarily fewer women, are participating in the market labor force. The extended labor force in 2012 was 27.4 million, around 2.9 million larger than the market labor force. The extended labor force has in fact contracted slightly since 2006, from 27.6 million to 27.4 million. While for males the extended and market labor forces are nearly identical, for females the size of the extended labor force is much higher than the size of the market labor force.

Despite an increase in the female population from 22.7 million to 24.5 million, the female labor force has in fact contracted under both definitions, from 6.2 million in 2006 to 5.6 million in 2012 under the market labor force definition and from 10.5 million to 8.4 million under the extended labor force definition. This is a notable reversal of past trends, namely the expansion of the female labor force over 1988-2006.

While over 1988-2006 the rural labor force grew more rapidly than the urban labor force (Table 2a), in the 2006-2012 period the urban market labor force grew slightly faster (1.2 percent per annum compared to 0.8 percent per annum). Under the extended labor force definition, the urban labor force grew while the rural labor force in fact contracted. This is despite slightly faster growth in the working age population in rural areas (Table 1a). Urban and rural males had similar growth rates in the market labor force, around 1.7-1.8 percent per annum. Overall the female market labor force in fact contracted by 1.5 percent per annum. The urban female market labor force contracted at 0.4 percent per annum, while the rural female market labor force contracted at 2.5 percent per annum. Even more dramatic contractions are observable in the female extended labor force. The trends in female labor force participation in rural areas must be interpreted with some caution, particularly in contrast with the explosive growth in the rural female market labor force in the 1998-2006 period. The difficulties in distinguishing between market and subsistence work, as well as participation and non-participation for rural women are well known (Anker 1990; Assaad 1997; Langsten and Salem 2008). Despite some caution in

interpreting the trend in rural females' labor force participation, it is clear that overall the female labor force has contracted, despite growth in the working age population.

The decrease in the female labor force is primarily due to decreasing participation among female youth (Table 2b). The youth market labor force, after growing 3.1 percent per annum over the 1998-2006 period, in fact contracted 4.2 percent per annum in the 2006-2012 period. This contraction was more rapid than the overall contraction in the youth population of 2.3 percent per annum. For both males and females decreases were slightly larger in rural than urban areas under both the extended and market definitions. While the youth male market labor force decreased 2.7 percent per annum, relatively consistent with the decrease in the youth population, the youth female market labor force decreased 8.6 percent per annum. This means that the female youth labor force has been contracting quite dramatically. While in 1998-2006 the growth in the female labor force was only slightly slower than the male labor force, suggesting that participation rates were falling slightly among female youth, the 2012 trend indicates that female participation has been falling at a much more rapid rate.

While the youth market labor force has contracted dramatically, due to both the aging of the youth bulge and the decreasing participation of female youth, the young adult labor force has continued to grow (Table 2c), commensurate with the youth bulge aging into this group. While the young adult population grew 4.2 percent per annum over the 2006-2012 period, the male young adult population grew more slowly, 2.1 percent per annum, than the female young adult population at 6.1 percent per annum, likely due to migration of 25-29 year old males. The growth in the young adult market labor force over 2006-2012 was 2.1 percent per annum, much slower than the 6.5 percent per annum growth in 1998-2006, but still positive growth. Male and female young adult market labor force growth rates are relatively similar, 2.2 and 2.1 percent per annum respectively. While this means young adult male market labor force participation is consistent with young adult male population growth, young adult females had market labor force growth of 2.1 percent per annum over this period but 6.1 percent per annum population growth, indicating that the trend of decreasing female labor force participation extends to the young adult group as well as youth, a fact we confirm below when examining participation rates directly.

Examining labor force participation rates directly confirms that, while male labor force participation has grown slightly from 2006 to 2012, female labor force participation has declined substantially (Table 3a). Overall participation in the market labor force decreased slightly from 51.9 percent in 2006 to 51.1 percent in 2012. Over the same period, overall participation in the extended labor force fell from 61.8 percent to 57.2 percent. While males actually increased their participation in the market labor force, from 77.2 in 2006 to 80.2 in 2012, females decreased their participation, from 27.3 in 2006 to 23.1 in 2012. Especially given increases in female educational attainment, which are usually commensurate with increased female labor force participation, this is a dramatic reversal. The 2012 female market labor force participation rate is much closer to the 1998 rate than the 2006 rate, and the extended female labor force participation rate in fact falls below the 1988 rate. While the increasing male labor force participation rates are driven in part by the aging up of the youth bulge, a similar effect has not occurred for females as the youth bulge has aged. In fact, females appear to be leaving the labor force as the youth bulge ages.

Comparing urban and rural areas, males' increase in labor force participation was slightly higher in urban than rural areas. While females decreased their market labor force participation in urban areas from 27.9 percent in 2006 to 25.6 percent in 2012, decreases were more dramatic in rural areas, from 26.7 percent in 2006 to 21.1 percent in 2012.

As was indicated in examining the growth rates in the labor force, above, declining female labor force participation rates are driven by declining participation among female youth and young adults (Tables 3b and 3c). From 2006 to 2012, the youth market labor force participation rate declined from 33.8 percent to 30.4 percent while the young adult market labor force participation rate declined from 65.5 percent to 59.1 percent, in both cases falling below the 1998 rate. While male youth and male young adult participation remained relatively stable, female youth market labor force participation declined from 19.1 percent in 2006 to 13.2 percent in 2012 and female young adult market labor force participation declined from 32.9 percent in 2006 to 27.7 percent in 2012. Both urban and rural females had declining participation, although rural females had greater declines.

4.2 Employment-to-population ratios

Declining labor force participation could be driven by declining employment and increasing numbers of the unemployed dropping out of the labor force and ceasing to seek work. The employment to population ratios (Table 4) indicate that declining employment is, at least, one factor in declining labor force participation. The market labor force employment to population ratio fell from 47.5 percent in 2006 to 46.7 percent in 2012, while the extended ratio fell from 57.9 percent to 53.2 percent. Males and females again exhibit opposite trends. While male market definition employment to population ratios increased from 73.3 percent to 76.8 percent over 2006 to 2012, female employment to population ratios fell from 22.3 percent to 17.6 percent over the same period. While the market female employment to population ratio is still higher in 2012 than it was in 1998 when it was 15.5 percent, using the extended labor force definition, female employment to population ratios have fallen below even the 1988 levels. The trends for males and females hold in both rural and urban areas, but changes are more dramatic for females in rural areas than urban areas under both definitions of labor force participation.

4.3 The age profile of participation in the labor force and employment

Male labor force participation by age is relatively similar comparing 2012 and earlier years (Figure 4). Males enter the labor force slightly earlier in 2006 and 2012 as compared to 1998. Male employment to population ratios are nearly identical to male labor force participation patterns, and are therefore not shown.

Female market labor force participation by age has undergone substantial changes (Figure 5). In urban areas as of 2012, labor force participation has contracted for all women under the age of 50 relative to 1998 and 2006. Youth participation has fallen substantially. While in 1998 the mode was at younger ages, and in 2006 there was a mode in the mid-40s, now participation is relatively flat from age 30 to 50. In rural areas, market labor force participation has also contracted substantially for females since 2006, and female youth participation is lower than in 1998, although older female participation remains higher than 1998 despite contracting since 2006. As well as a decrease in labor force participation overall, labor force participation among young females has contracted substantially.

The age profile of employed females has also shifted dramatically. Figure 6 presents female employment rates by age and urban rural location using the market labor force definition. For urban females, the highest employment rate in 1998 was in the mid-30s, by 2006 it was in the mid-40s, and by 2012 it was around age 50. A similar pattern is observed in rural areas. Employment rates have decreased among younger females, with the highest employment rates among women around age 50. Trends in civil service employment play an important role in these trends. Female civil servants in the 1990s kept their jobs after marriage, especially as such jobs

became increasingly difficult to get. However, as government hiring has slowed, women have been decreasingly likely to participate or be employed.

4.4 The educational profile of labor force participation

The pattern of labor force participation by educational attainment has been predictable and stable over time for males (Figure 7). Participation is high for illiterate and literate males with no educational credentials, then falls for elementary, middle school, and general high school graduates. Some elementary and many middle school graduates are still in school even after age 15 and the vast majority of general high school graduates are in fact enrolled in higher education, seeking an additional degree before they join the labor force. Participation rates for vocational high school, post-secondary institutes, and university degrees, all of which are usually terminal degrees, are very similar for males in 2012.

Comparing 2012 to earlier years, using the market labor force definition, male participation has fallen slightly among elementary school graduates in urban areas, and among those literate without a diploma and elementary school graduates in rural areas. In contrast, in both urban and rural areas labor force participation has risen slightly for vocational high school graduates. Male university graduates continue to almost universally participate in the labor force.

In contrast to males, who participate nearly universally regardless of education level, females participate at very low levels until the vocational high school level. Female participation then increases further with post-secondary institute and university degrees. This overall pattern is true for both rural and urban females.

Over time, the female pattern of labor force participation by education has undergone significant changes. Female participation for vocational high school and higher education has contracted from 1998 to 2006 and again from 2006 to 2012. In rural areas there has also been some contraction in female labor force participation from 2006 to 2012 at lower levels of education, although this may be related to measurement issues in identifying participation among rural females. While the contraction in participation from 1998 to 2012 has been most dramatic for female vocational high school graduates and post-secondary graduates, there has still been a sizeable decrease in university educated females' labor force participation, especially in urban areas. Two important trends contribute to this pattern. One is the dramatic increase in the supply of vocational high school and university graduates (Figures 2a & 2b) and the other is the large decrease in the opportunities for government employment. Female graduates of vocational high school, post-secondary institutes, and universities relied on government employment, and this employment drove the high participation rates at these education levels in 1998 and earlier. As opportunities for government employment have diminished, especially for new entrants and young women, women have withdrawn from the labor force.

Comparing female labor force participation rates (Figure 8) and female employment rates (Figure 9) by educational attainment shows that for urban females, employment rates have contracted relatively in step with labor force participation. However, for rural women, vocational high school and university employment rates were similar in 1998, 2006, and 2012, but labor force participation was much higher in 1998 than 2006 or 2012. In 1998, many more educated rural women, especially those with vocational high school degrees, were in the labor force seeking employment. However, employment rates by education remained relatively static; these women have since withdrawn from the labor force.

5. The Evolution of Unemployment in the Egyptian Economy

As was true for labor force participation, unemployment can be measured in a variety of ways. As well as distinctions between the market and extended labor force, which will alter the size of the employed labor force and therefore the denominator of the unemployment rate, there are different definitions of unemployment. The standard definition of unemployment requires that an individual had not worked at all in the week prior to the interview, was not attached to a job but wanted to work and was available to do so, and had actively searched for work during the three months prior to the survey.⁴ This is the standard, search required definition of unemployment. In the broad definition of unemployment, the discouraged unemployed, who are not actively searching, are included in addition to those searching.

Under the market definition of economic activity, only market work counts as work, so that subsistence workers can be considered unemployed if the rest of the definition applies to them. Under the extended definition, any subsistence work counts as work and subsistence workers are not considered unemployed even if they are searching for market work, which thus reduces the numerator of the unemployment rate. Moreover, the denominator now includes subsistence workers, most of whom are counted as out of the labor force in the market definition. As a result, the unemployment rate estimates under the extended definition are much lower than those counted within the scope of the market definition (Assaad 2009).

5.1 Trends in unemployment

Regardless of the definition of unemployment used, the number of unemployed has risen from 2006 to 2012 (Figure 10). Under the standard (search required) market labor force definition of unemployment, there were 2,007,000 unemployed in 1998, 1,970,000 unemployed individuals in 2006, and 2,134,000 unemployed individuals in 2012. Using the broad, market labor force definition of unemployment, there were 2,391,000 individuals unemployed in 2012. The rise in the number of unemployed in 2006 to 2012 contrasts sharply with the 1998 to 2006 period, when under the different definitions unemployment either stayed nearly the same or fell slightly.

Focusing on the unemployment rate, which compares the number of unemployed to the size of the labor force, under the standard market definition of unemployment, the unemployment rate has increased slightly, from 8.5 percent in 2006 to 8.7 percent in 2012. The 2012 unemployment rate remains substantially below the 1998 rate of 11.7 percent under this definition. The broad, market unemployment rate has in fact declined very slightly, which suggests that many of those who would formerly have been discouraged unemployed may have given up entirely. Unemployment has shown slightly larger increases using the extended labor force definition and comparing 2006 and 2012.

Males and females have very different levels of unemployment and have also experienced different trends in unemployment (Figure 12). Focusing on standard, market unemployment, males have seen a decline in unemployment over time, from 7.0 percent in 1998 to 5.1 percent in 2006 and 4.2 percent in 2012. Rural males have experienced greater declines in unemployment than urban males. Starting with similar unemployment rates in 1998, urban males now have a 6.3 percent unemployment rate while rural males have only a 2.7 percent unemployment rate in 2012.

⁴ Any registration with a government employment office or agency is counted as having searched even if it pre-dates the three months period. The data allows for limiting this search criterion to three months if necessary.

Female standard market unemployment rates are much higher than male unemployment rates. In 1998 the female unemployment rate was 27.6 percent, before falling to 18.0 percent in 2006 and then rising to 23.7 percent in 2012. The ratio of the female to male unemployment has experienced a particularly dramatic change. While the female unemployment rate was 3.9 times the male rate in 1998, and 3.2 times the male rate in 2006, in 2012 it had climbed to 5.6 times the male unemployment rate. Rural females in particular have experienced a large increase in unemployment rates, rising from 16.7 percent in 2006 to 26.6 in 2012, compared with a change from 19.5 percent in 2006 to 20.8 percent in 2012 for urban females.

Overall, while the urban unemployment rate has declined slightly over the entire 1998-2012 period, from 11.0 percent in 1998 to 10.4 percent in 2006 and 10.0 percent in 2012, the rural unemployment rate decreased from 12.2 percent in 1998 to 7.0 percent in 2006 before increasing to 7.7 percent in 2012. The combination of all these trends culminated in the slight uptick in unemployment from 2006 to 2012, as the rate increased from 8.5 percent to 8.7 percent.

The regional trends in unemployment, using the standard, market definition, generally follow the urban/rural disparities (Figure 13). Comparing 2012 to 2006, while unemployment rates have decreased in Greater Cairo, Alexandria and the Suez Canal cities, and urban Lower Egypt, unemployment rates have increased in urban Upper Egypt, rural Lower Egypt, and rural Upper Egypt. Comparing regional rates to the national average, Greater Cairo's unemployment rate was just slightly lower than the national average, as was rural Upper Egypt's. Alexandria and the Suez Canal Cities, urban Lower Egypt, urban Upper Egypt, and rural Lower Egypt all had above-average unemployment rates. While no region has returned to the high unemployment rates of 1998, there have been reversals in urban Upper Egypt and rural areas.

Examining standard market unemployment rates by region and gender (Figure 13) shows unemployment decreasing for males in every region. The decreases in Greater Cairo and Alexandria and the Suez Canal cities are relatively slight, as is the decrease in rural Upper Egypt. Males in urban Lower Egypt, urban Upper Egypt, and rural Lower Egypt all experienced a percentage point or more decline in unemployment rates over 2006-2012. Only Greater Cairo's 2012 unemployment rate is higher than its 1998 rate, indicating a nearly universal trend of decreasing unemployment for males. While the standard market unemployment rate for females decreased in greater Cairo and Alexandria and Suez Canal cities, in both urban and rural Upper and Lower Egypt, as well as overall, the unemployment rate for females increased. Urban Upper Egypt and the rural areas all experienced more than five percentage point increases in the female unemployment rate.

5.2 The age profile of the unemployment rate

Unemployment in Egypt is primarily a labor market insertion problem, affecting new entrants to the labor market, essentially young people. The expectation has been that as the youth bulge ages, unemployment rates will decline, unless age patterns of unemployment change or rates increase overall. For males, this has generally held true (Figure 14a). Male standard market unemployment has declined, especially among young males, in both rural and urban areas. In urban areas, unemployment rates in the 25-35 age range have remained relatively similar over 1998-2012. There has been a very slight increase in unemployment rates for older urban males in 2012.

Females have experienced a rather different pattern of unemployment (Figure 14b). For female youth under 25, standard market unemployment rates decreased from 1998 to 2006 and rose from 2006 to 2012, especially for rural females. Additionally, the unemployment rates for older

women, especially older rural women, have increased from 2006 to 2012 and are well above 1998 rates. For young females, unemployment continues to be a persistent issue in 2012, and additionally, older women in their 30s and 40s are facing rising unemployment rates.

5.3 The educational profile of the unemployment rate

Standard market unemployment rates by education have shifted from 2006 to 2012, especially for individuals in rural areas and women. As Figure 15a shows, for rural males with low levels of education, unemployment rates have been, and continue to be, quite low. For urban males, vocational high school unemployment rates have declined slightly over time, and university unemployment rates are lower in 2012 than 2006. For rural males, general and vocational high school unemployment rates, as well as post-secondary institute and university unemployment rates, are much lower in 2012 than 1998. Educated rural males experienced declining unemployment from 1998 to 2006 and 2006 to 2012.

For females, standard market unemployment rates have generally increased from 2006 to 2012, reversing the decrease observed from 1998 to 2006. Additionally, fewer females are participating in the labor force, especially fewer educated females, and many educated women may have given up on gaining employment and exited the labor force. Females with lower levels of education have experienced an increase in unemployment from 1998 to 2012, with rural middle school educated females in fact being worse off in 2012 than 1998. Unemployment rates for female vocational high school graduates are slightly higher in 2012 than 2006, but below 1998 rates in both rural and urban areas. Unemployment rates have remained stable for both rural and urban university educated females, although the unemployment rates for educated females in rural areas are higher than for their urban counterparts. In both urban and rural areas, vocational high school graduate females have the highest unemployment rates in 2012, as in previous years.

5.4 The shifting age and educational composition of the unemployed

The unemployed have been and continue to be primarily young, educated individuals, but there have been shifts in the composition of the unemployed over time. Focusing on males (Figure 16a), the age mode of the unemployed is substantially older in 2012 than in 1998 or 2006, consistent with the aging of the youth bulge. There is also an increase in the share of the male unemployed who are older, in their 30s and 40s. Especially in rural areas, unemployment in 1998 and 2006 was very concentrated among the youth population, and has now become more dispersed. The median age of unemployed males has increased from 23 in 1998 to 24 in 2006 to 25 in 2012. However, the 75th percentile has shifted from 27 in both 1998 and 2006 to 31 in 2012.

The composition of the female unemployed has also consistently shifted to older ages as the youth bulge has aged (Figure 16b). Especially in rural areas, the age composition of unemployed females has become more dispersed. The group of 25-35 year old females are a greater share of the unemployed in 2012 as compared to previous years, in both urban and rural areas. The median age of unemployed females, after rising at the same rate as that of males from 1998 to 2006, rose more rapidly in the 2006-2012 period. It went from 23 in 1998 to 24 in 2006 to 27 in 2012. The 75th percentile has shifted in a similar way as for males, going from 26 in 1998 to 28 in 2006 to 31 in 2012.

The changing age composition of the unemployed population was also accompanied by a change in its educational composition. Although it is a well-established by now that unemployment in Egypt is concentrated among educated new entrants (see Assaad 2008), this is somewhat less true in 2012 than it was in 2006. The proportion of the unemployed with secondary education or

above, although still very high, declined from 92 percent in 2006 to 89 percent in 2012. The decline was more pronounced for males, where it went from 85 percent to 78 percent. There is therefore an increasing share of males with lower levels of education among the unemployed, despite the increasing levels of education in the labor force as a whole. This demonstrates that less educated (and presumably poorer) males have experienced deteriorating economic conditions over the 2006 to 2012 period.

The most common education level among the unemployed in both urban and rural areas is vocational high school, with 35 percent of unemployed urban males having a vocational education and 41 percent of unemployed rural males. Nonetheless, these percentages have declined substantially since 1998 and 2006 (Figure 17a). In urban areas in 2006, 40 percent of unemployed males were university educated. While this percentage decreased to 32 percent of unemployed males in 2012, it is still substantially higher than it was in 1998. In contrast, the share of unemployed males with university education in rural areas has continued to increase from 2006 to 2012, going from 26 to 29 percent (Figure 17a).

Among unemployed females, almost all are educated at the secondary level or above. A decreasing share of the female unemployed are vocational high school graduates in both rural and urban areas from 1998 to 2012 (Figure 17b). This category still dominates in rural areas, being 62 percent of unemployed rural women in 2012. In urban areas, while 41 percent of unemployed females are vocational high school graduates, 46 percent are university and above graduates in 2012. The share of unemployed females with a university degree has risen in both rural and urban areas over 1998 to 2012. Since unemployment rates at these education levels have been relatively flat or increased only slightly over 2006 to 2012, this is primarily driven by rising educational attainment.

5.5 Trends in the jobless rate (neither in education nor employment)

Shifting patterns in unemployment and labor force participation can counteract each other, especially in terms of females who exit the labor force. When working age individuals who are not in school are not employed—whether they are unemployed or outside the labor force—they are ‘jobless,’ a measure that captures untapped human resources. Table 5 presents the trends in jobless rates. While the jobless rate, using the market definition of economic activity, was 51.0 percent in 1998, it had fallen to 45.2 percent in 2006 before rising again in 2012 to 47.7 percent. Using the extended definition, after the jobless rate declined from 36.6 in 1988 to 35.9 percent in 1998 and 33.9 percent in 2006, it rose to 40.9 percent in 2012. Increases in jobless rates have been particularly acute in rural areas and among females. While in 1998 82.3 percent of females were jobless under the market definition, in 2006 74.5 percent were, and by 2012 this had risen again to 80.4 percent. This means in 2012 over four-fifths of women who are not in school were not employed. It also demonstrates that the reversals in employment and participation for women are not due to additional time in school. In contrast, male market joblessness declined from 17.9 percent in 1998 to 14.3 percent in 2006 before falling slightly further to 13.2 percent in 2012.

For males, jobless rates rise early, with one mode around age 20, before falling very low through the working years and rising starting around 50 as individuals become jobless through retirement (Figure 18a). Comparing 2012 to previous years, there is a discernable uptick in young male joblessness compared to 2006 in rural areas, and in joblessness at age 50 and older for the adult years for both urban and rural populations.

For females, youth joblessness is higher in both rural and urban areas in 2012 as compared to previous years. In urban areas, in 2012 there are fewer women age 50 and older who are jobless

as compared to 1998 and 2006. In the 30 to 50 age range, in 2012 more urban women are jobless than in previous years, while in rural areas there are more jobless women than 2006 but fewer than in 1998.

Looking at jobless rates by education, male joblessness has only increased substantially for illiterate individuals in 2012 as compared to 2006 in urban areas, and for less educated males in rural areas. Jobless rates in urban areas for women with lower levels of education have remained relatively flat over time, with around 90 percent of women jobless. Jobless rates have increased for less educated women in rural areas from 2006 to 2012, although remaining lower than or comparable to 1998 levels. In both urban and rural areas, joblessness has increased for educated women. Fewer educated women are working in both rural and urban areas.

Given rising educational attainments, youth (15-24) jobless rates are particularly helpful for identifying, among young people not in school, the proportion of young people without a job. As Figure 20a shows, male youth have generally experienced decreasing rates of joblessness. In urban areas only illiterate young males have higher jobless rates in 2012 than in previous years. Vocational high school through university jobless rates have dropped for urban male youth. For rural male youth, jobless rates for those with an elementary education or less have remained relatively stable, while rural male youth with only a middle school education have higher joblessness in 2012 than in 2006 or 1998, and vocational male rural youth have higher joblessness in 2012 than 2006.

Female youth jobless rates have almost universally increased over time. In rural areas, female youth jobless rates have increased between ten and twenty percentage points from 1998 or 2006 to 2012 for every education level except university, where they increased from 1998 to 2006 but were only slightly higher in 2012 than 2006. In urban areas, illiterate females have had a relatively stable jobless rate, although young females with other low educational attainments have seen higher jobless rates in 2012 than 2006, often rising above 1998 rates. The jobless rate for female youth who are vocational high school graduates has risen over time, with a large increase from 2006 to 2012. While urban post-secondary institute jobless rates have in fact declined, university jobless rates for urban females have risen from 1998 to 2006 and slightly more from 2006 to 2012. Overall, young females who have completed their education remain persistently jobless. Notably, female youth joblessness is high across the board; education does not substantially decrease youth joblessness except slightly at the university level.

Examining the share of the jobless who are unemployed can illustrate how much of the jobless rate is driven by unemployment and how much by being out of the labor force. Among the jobless, most prime-age jobless males are unemployed (Figure 21a). This is particularly true in urban areas. Comparing 2012 to earlier years, the unemployment rate among the jobless has increased for young males at almost every age in urban areas, with a particularly high peak around 30, and much higher rates above age 40. The jobless rate has almost universally declined in rural areas, increasing slightly for males 30-40 comparing 2012 to 2006, but still below 1998. In sharp contrast to the male trend, the unemployment rate among jobless females is very low. Among female youth (Figure 21b), decreasing shares of the jobless are unemployed under the standard market labor force definition, especially in urban areas. There has been a slight uptick in the share of female jobless who are unemployed in the 30-50 age group, especially in rural areas.

The percent of the jobless who are unemployed increases with education (Figures 26a and 26b), consistent with increasing unemployment by education. While male unemployment rates among

the jobless are low and generally similar to 2006 rates in 2012 for less educated males, there is an interesting urban/rural contrast in 2012. While educated jobless males in urban areas are often unemployed, between 40-50 percent, especially at the vocational high school level in rural areas, many jobless males are not in fact unemployed, and there has been a large drop in unemployment among the jobless with vocational high school degrees over the 1998-2006-2012 period, as well as a slight contraction among rural university educated jobless.

For jobless females, very few less educated jobless females are unemployed. For more educated jobless females in urban areas, unemployment has been declining over time, as these females have given up on job searches. In rural areas, while there was a large 1998-2006 decline, the unemployment rate among educated jobless females has been relatively constant in the 2006-2012 period.

6. Under-employment

Visible under-employment occurs when an individual works less than full time (operationalized here as less than 40 hours per week) because of insufficient employment opportunities. As shown in Table 6, the visible under-employment rate in 2012, at 9.3 percent of the labor force, is substantially higher than it was in either 2006 (2.6 percent) or 1998 (4.3 percent). From 2006 to 2012, visible under-employment more than tripled, a 6.7 percentage point increase. Visible under-employment increased across the board, for males, females, and in both urban and rural areas. The male visible under-employment rate was 9.6 percent, while the rate for females was 7.9 percent. In 2012, as in past years, rural areas had higher visible under-employment rates for both males and females. The 2012 rural visible under-employment rate was 11.7 percent while that in urban areas was 6.2 percent.

Under-employment is strongly related to the pattern of employment, with those in precarious forms of employment being the most vulnerable to it. Casual and unattached workers who frequently move from one employer to another could be working full-time when the economy is good, but could easily suffer from visible underemployment when the economy slows. This is especially true in industries that are characterized by a predominance of casual employment arrangements, such as agriculture and construction, and to a lesser extent transport. The sharp increase in visible under-employment in 2012 is one of the clearest labor market indicators of the slowdown in labor demand resulting from the economic crisis that accompanied the January 25th revolution.

7. Comparison of Unemployment Rates in ELMPS 2012 and the Official Labor Force Survey

A comparison of unemployment rates as measured by ELMPS 2012 and those obtained from proximate rounds of the official quarterly Labor Force Survey (LFS) conducted by CAPMAS reveals some important differences. While ELMPS 2012, which was carried out in the first quarter of 2012, reports an overall unemployment rate of 8.7 percent, the rate reported by the LFS in the same quarter is 12.6 percent. As shown in Table 7, the discrepancy is almost entirely confined to the male unemployment rate, which is estimated in the ELMPS 12 at 4.2 percent compared to 9.3 percent in LFS 2012 Q1. The female unemployment rates are quite similar in the two surveys at 23.7 and 24.1 percent respectively. It is worth noting that the male unemployment rate as reported by the LFS nearly doubled from the fourth quarter of 2010 to the first quarter in 2011 (from 4.9 to 8.9 percent), a difference that was attributed to the economic slowdown caused by January 25th revolution. It then remained at roughly that level for the

subsequent five quarters. In contrast, the female unemployment rate was hardly affected by the revolution.

In an attempt to elucidate the cause of this discrepancy, Assaad and Krafft (2013) attribute it to the differences in data collection methodology between the two surveys. While the LFS collects information from any adult member of the household who happens to be present, the enumerators for the ELMPS are instructed to interview the individual him or herself. Although both surveys use the international definition of employment, which stipulates that a worker who has worked even one hour in the reference week is considered employed (see ILO 1982), that definition is often difficult to apply when the information is collected from another member of the household. A casual worker who is having trouble finding regular work might be reported by another family member as being unemployed, but when asked detailed questions about their employment, they often turn out to have found some work during the reference week, albeit not enough to keep them fully occupied. The ELMPS would report such a worker as visibly underemployed, but the LFS, using information from another member of the household, is likely to report him as unemployed. These workers are often older and poorer and can generally not afford to be openly unemployed, in the sense of not working a single hour for an entire week.

Both surveys show a deterioration in labor market conditions after the January 25th 2011 revolution, but capture this deterioration differently. The ELMPS 2012, which strictly applies the international definition of employment and unemployment, captures the underutilization of casual workers after the revolution as underemployment, whereas the LFS, which is less able to apply this definition because it gathers data from any member of the household, captures it as open unemployment.

8. Conclusion

The focus of this paper was on the evolution of labor supply and unemployment in the Egyptian economy over the past 25 years. In discussing the evolution of labor supply, we have highlighted the roles of changes in the age and educational composition of the working age population and of changes in labor force participation behavior, especially among women. In terms of the age composition of the working age population, the most important development has been the slowing of the growth, if not the decline, of the youth population, an age group that makes up most labor market entrants. Because this is the result of the aging of the “youth bulge” cohorts, a concomitant phenomenon is the rapid increase in the proportion of young adults, most of whom were already in the labor market if they were going to enter at all. While this has meant reduced pressures on labor supply in recent years, it also meant heightened competition over jobs and labor market opportunities among young adults. The reprieve in terms of the number of new entrants that the labor market must accommodate is only temporary, however. The large cohort of sons and daughters of the youth bulge generation, the so-called “echo,” is currently under the age of 10, but will soon be coming of age to enter the labor market. In the meantime, it was fortuitous that the growth of labor supply had slowed at a time when the economic crisis had sharply curtailed labor demand. Policy makers need to take advantage of this short window of opportunity where labor supply pressures are attenuated to focus on policies that aim to improve the skills of labor market entrants and at creating quality jobs.

The other major trend in Egypt is the continued improvement in the educational composition of the working age population. Normally, this would be expected to have a large positive impact on labor force growth, as women have historically tended to participate at much higher rates once they reach the secondary level of education. However, the increase in female participation has not materialized. It appears instead that the curtailment of employment opportunities in the

government has significantly worsened the opportunity structure for educated women. This was further compounded by the slowdown in employment growth in the private sector during the crisis. In the case of women, a drop off in labor demand often results in overall reductions in participation rather than simply in increases in unemployment. This declining participation trend is clearly noticeable for educated women.

These falling participation rates among educated women are strongly reflected in the increases in joblessness (being neither in education nor in employment) among young women. The increases in joblessness started in the 1998-2006 period, but accelerated in the 2006-2012 period. These trends strongly suggest that labor demand is now much more of a constraint on women's economic inclusion in Egypt than labor supply.

Our examination of unemployment trends reveals that, contrary to conventional wisdom, the unemployment rate has only risen slightly from 8.5 percent in 2006 to 8.7 percent in 2012 despite the dramatic slowdowns in the economy experienced in 2008-09 and in 2011. We attribute this seemingly surprising result to the substantial decline in the growth of the youth population at the same time that employment creation was slowing down. As open unemployment in Egypt has traditionally been a phenomenon that predominantly affects educated new entrants to the workforce, the slower growth of this group substantially reduced entry into the ranks of the unemployed, thus counteracting the impact of a slowing economy. With the aging of the youth bulge generation (whose peak is now centered at age 28), we would expect a similar aging of the unemployed population. Although we document that such aging has occurred, it is not enough to counteract the strong tendency for unemployment rates to fall as individuals either find work or drop out of the labor force as they age. The overall impact of the aging of the youth bulge generation is to put downward pressure on the overall unemployment rate.

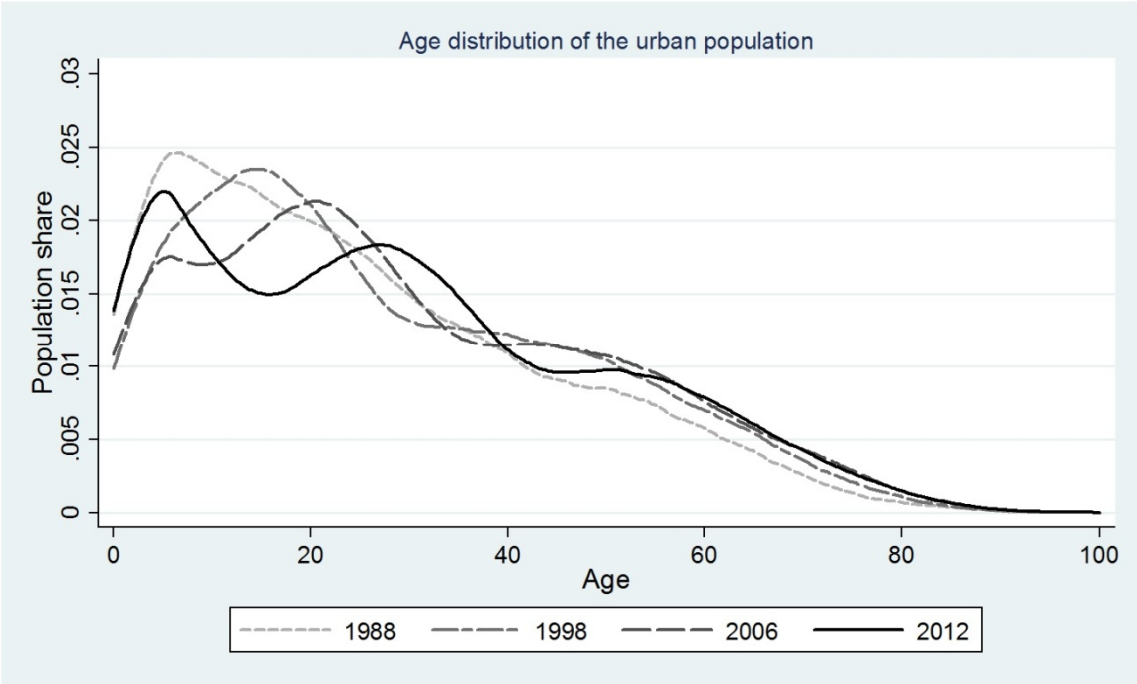
Unemployment continues to be strongly concentrated among the educated, with nearly three quarters of unemployed males and over 90 percent of unemployed females having a secondary education or above. However, it is now less concentrated in this group than it was in 2006, suggesting that some less educated males, in particular, are openly unemployed. This is a worrisome trend associated with the economic crisis. These less educated men tend to be older and thus more likely to be the main breadwinners in their households. They are also likely to be poorer. We argue, however, that despite these small increases in unemployment among less educated males, this group is unlikely to experience open unemployment as the main sign of its labor market distress in times of crisis. We document a dramatic increase in visible underemployment (or involuntary part-time work), from 2.6 percent of the labor force in 2006 to 9.3 percent in 2012. This phenomenon is much more likely to affect less educated males in precarious manual employment because they are less able than their educated counterparts to afford to remain out of work for extended periods of time while searching for work. We argue, therefore, that signs of labor market distress during economic crisis must be sought beyond the unemployment rate.

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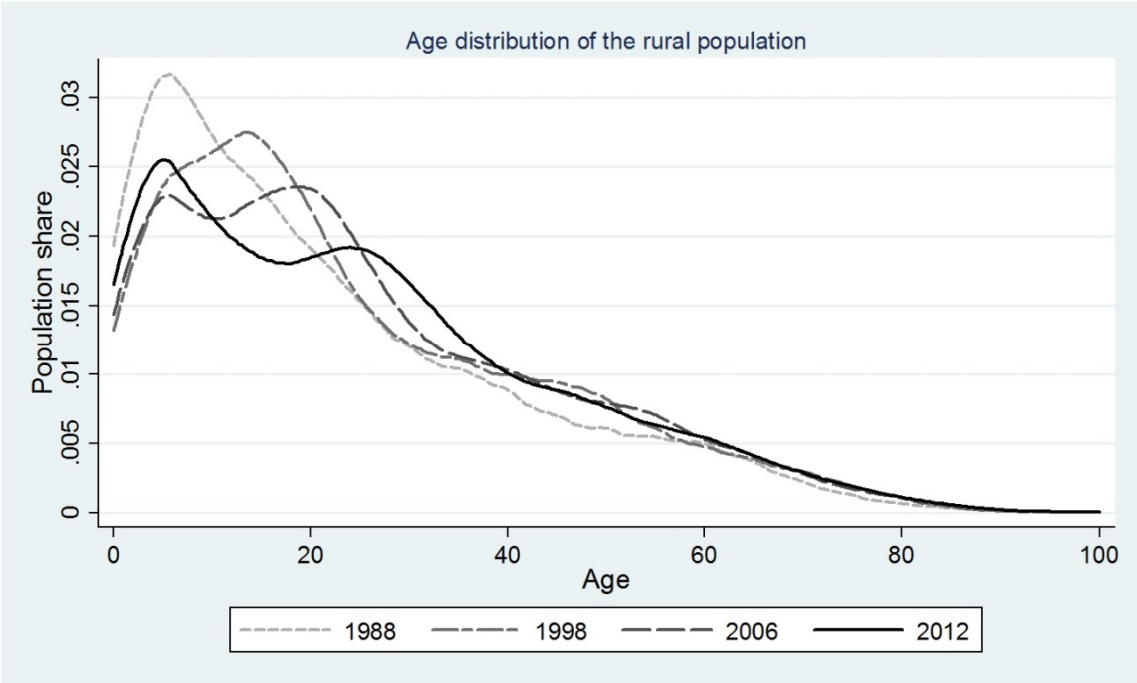
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Figure 1a: Age Distribution of the Urban Population, 1988-2012



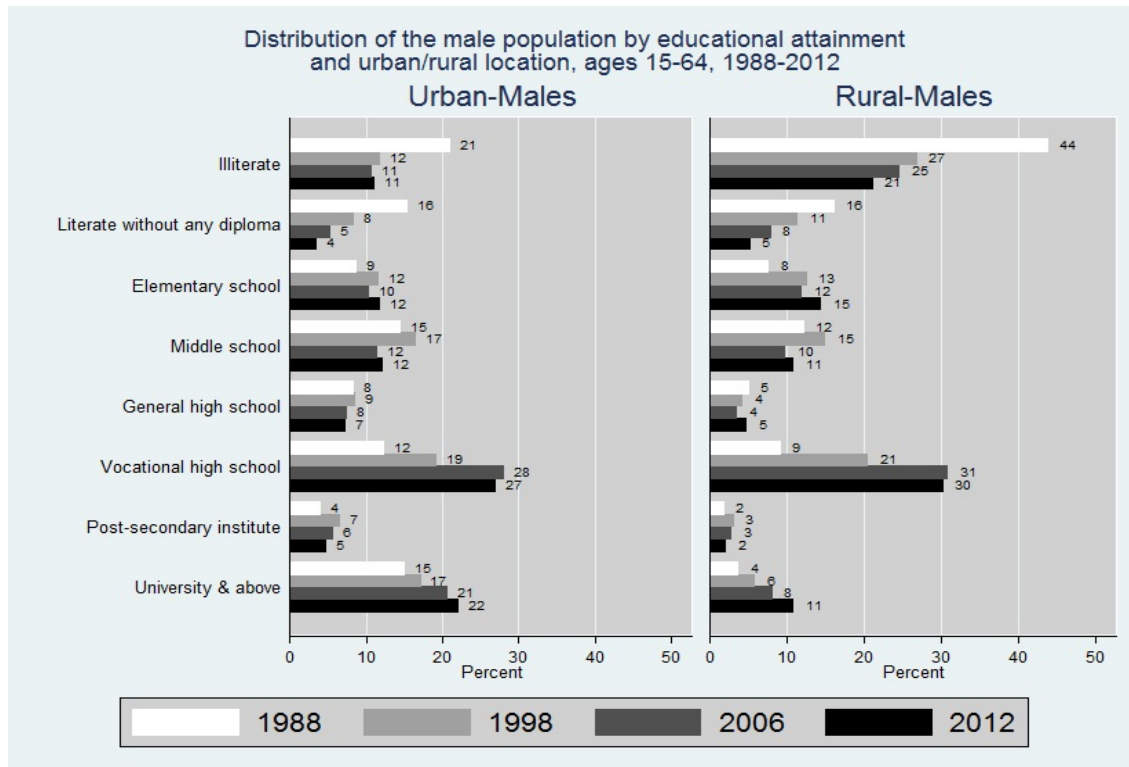
Source: LFSS 1988, ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 1b: Age Distribution of the Rural Population, 1988-2012



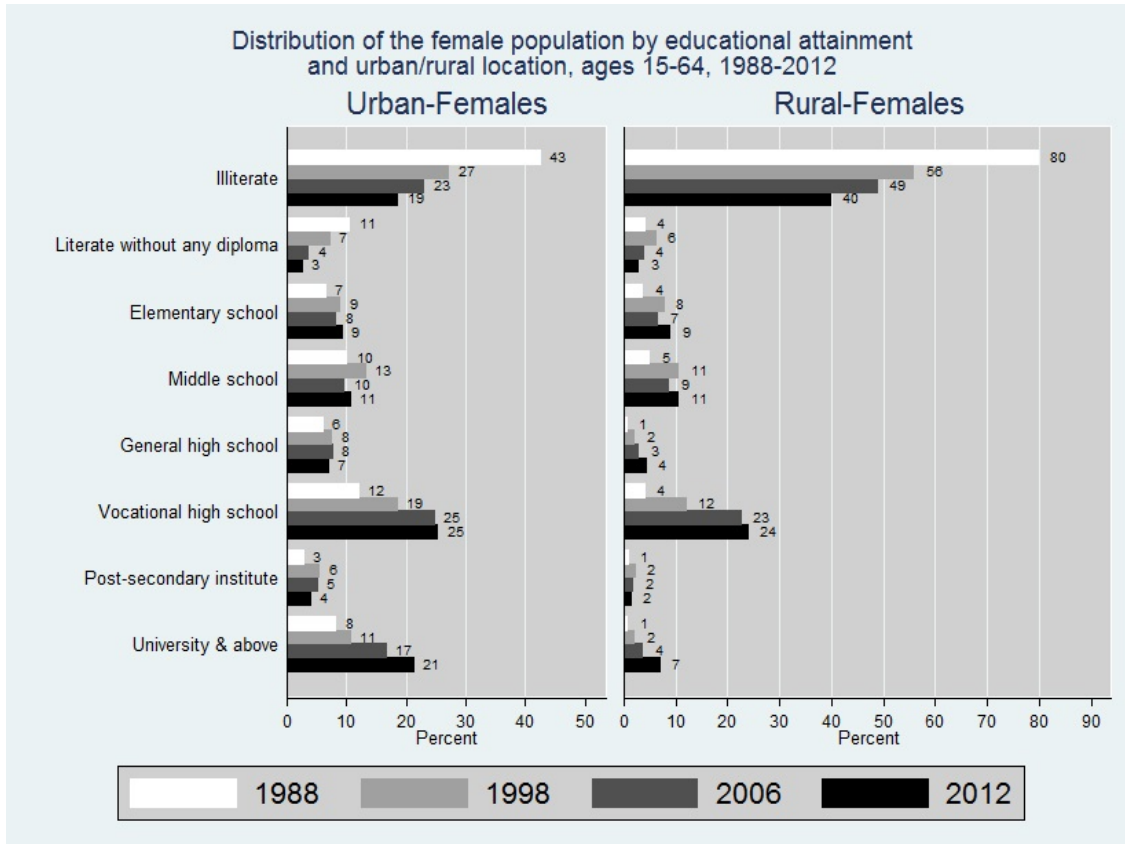
Source: LFSS 1988, ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 2a: Distribution of the Male Population by Educational Attainment and Urban/Rural Location, Ages 15-64, 1988-2012



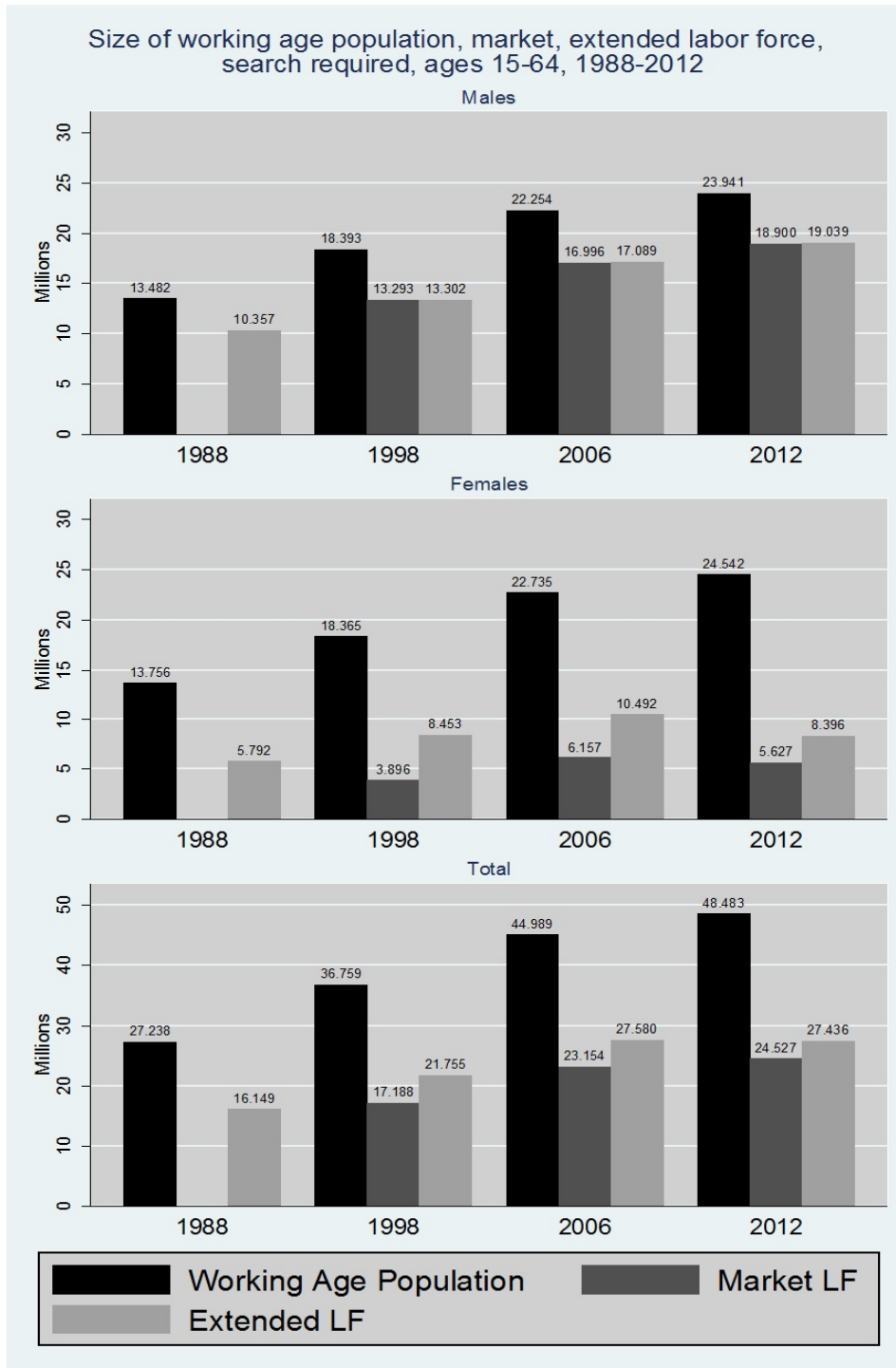
Source: LFSS 1988, ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 2b: Distribution of the Female Population by Educational Attainment and Urban/Rural Location, Ages 15-64, 1988-2012



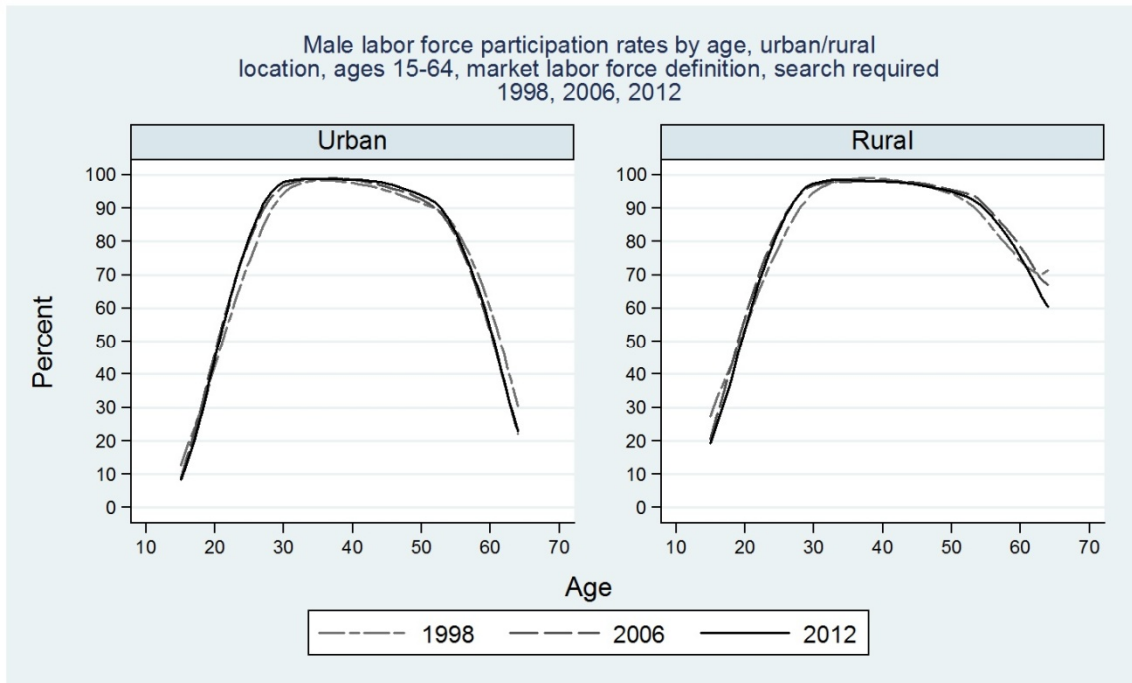
Source: LFSS 1988, ELMS 1998, ELMPs 2006, ELMPs 2012.

Figure 3: Size and Growth of Working Age Population, Market and Extended Labor Force, Search Required, by Sex, Ages 15-64, 1988-2012



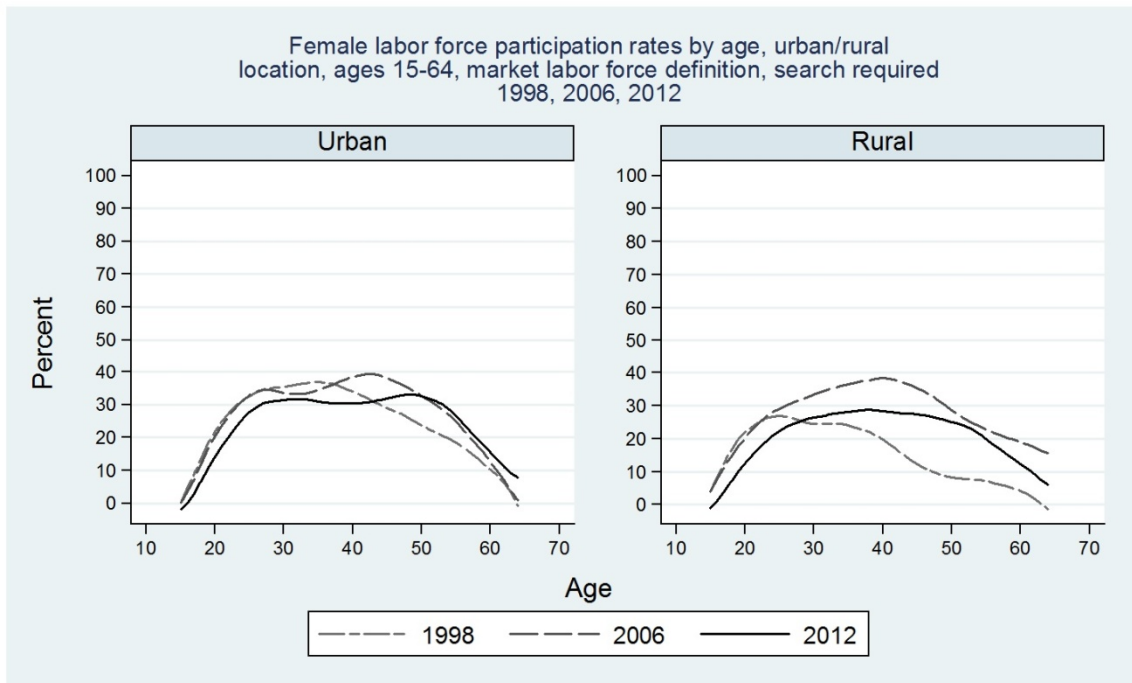
Source: LFSS 1988, ELMS 1998, ELMPs 2006, ELMPs 2012.

Figure 4: Male Labor Force Participation Rates by Age, Urban/Rural Location, Market Labor Force Definition, Search Required, Ages 15-64, 1998-2012



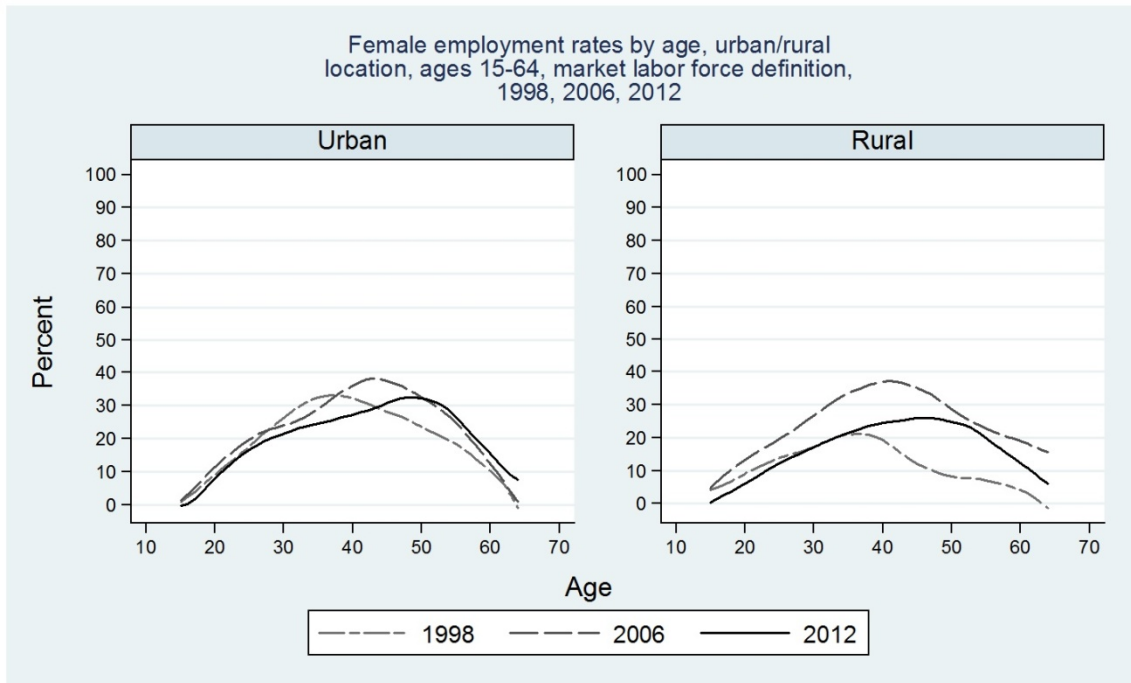
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 5: Female Labor Force Participation Rates by Age, Urban/Rural Location, Market Labor Force Definition, Search Required, Ages 15-64, 1998-2012



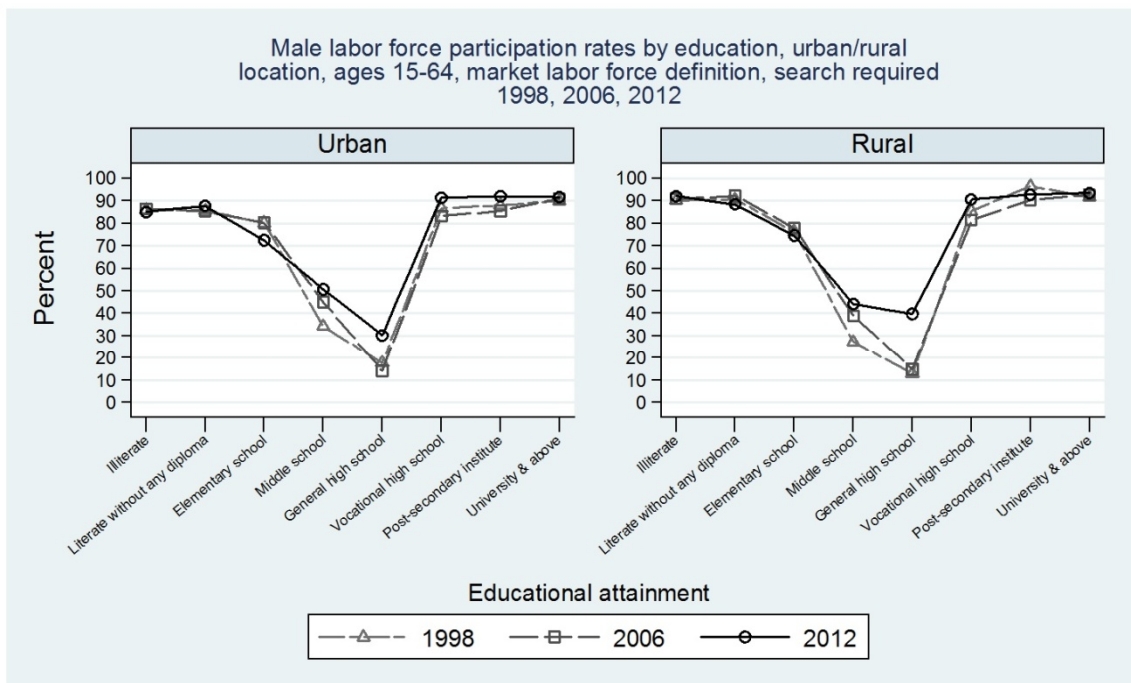
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 6: Female Employment Rates by Age, Urban/Rural Location, Market Labor Force Definition, Ages 15-64, 1998-2012



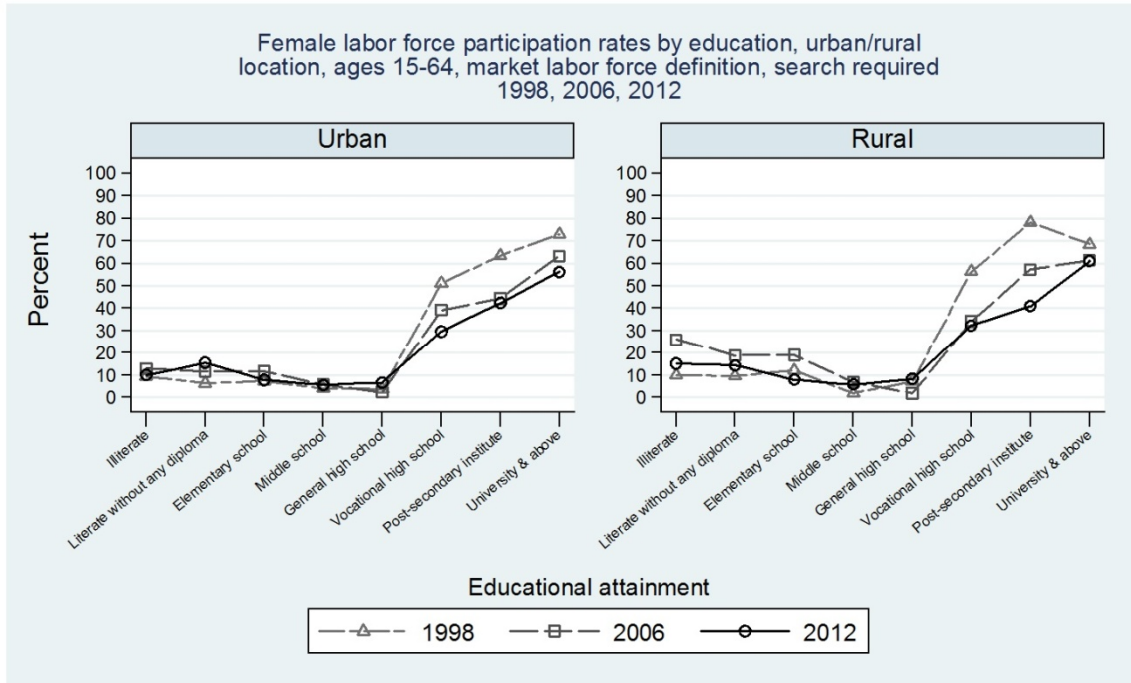
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 7: Male Labor Force Participation Rates by Educational Attainment, Urban/Rural Location, Market Labor Force Definition, Search Required, Ages 15-64, 1998-2012



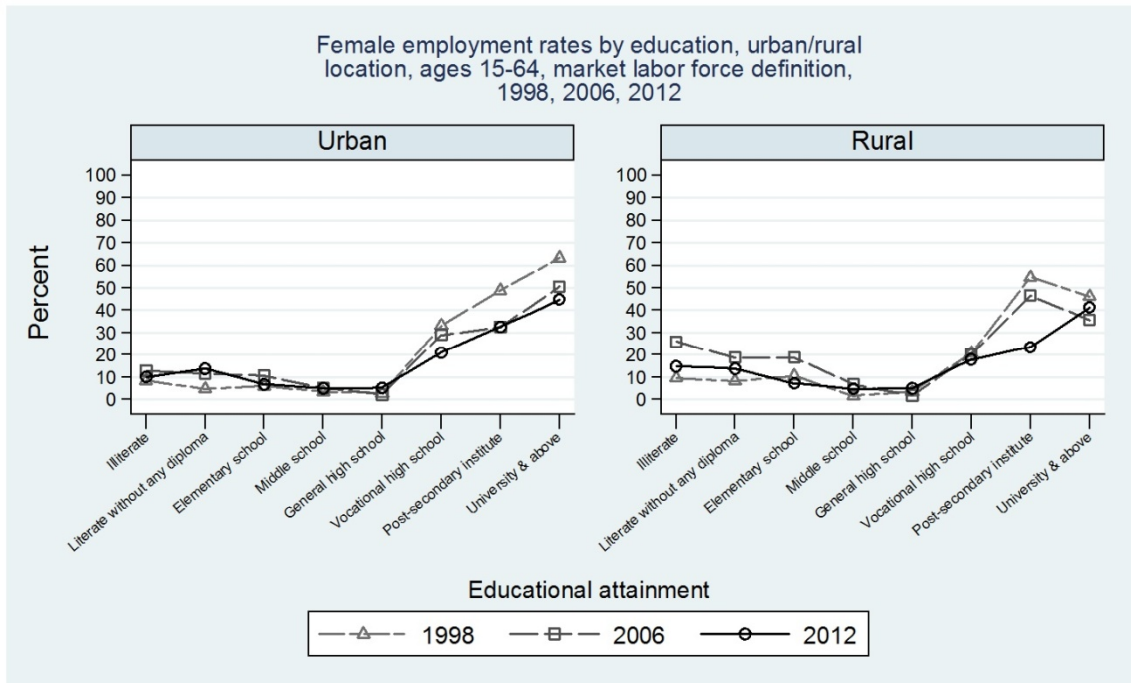
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 8: Female Labor Force Participation Rates by Educational Attainment, Urban/Rural Location, Market Labor Force Definition, Search Required, Ages 15-64, 1998-2012



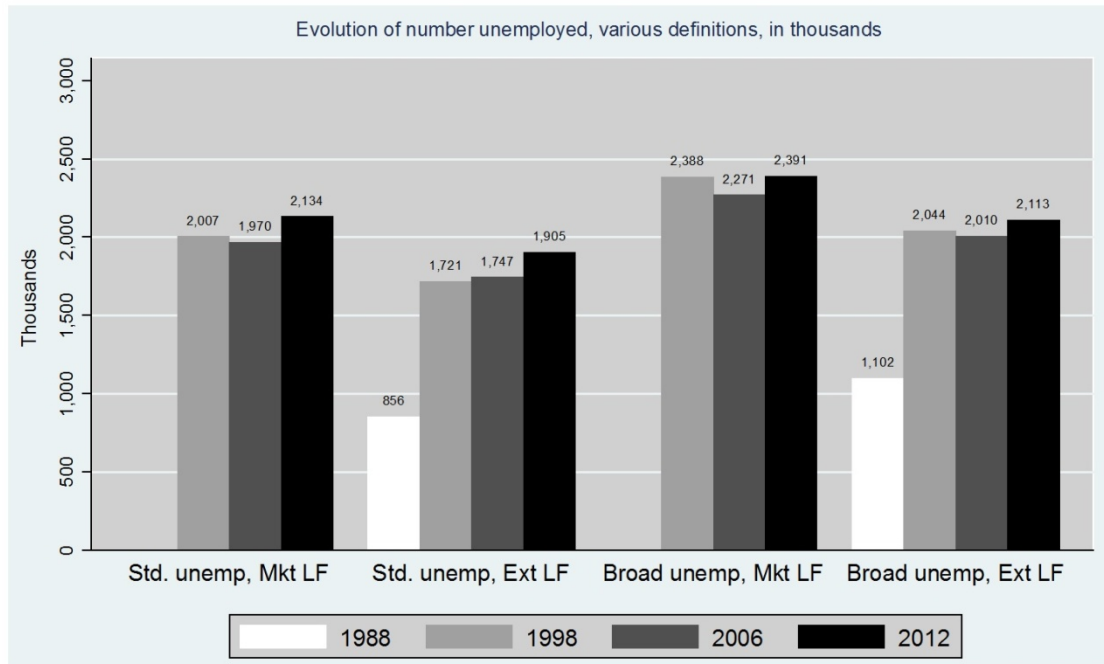
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 9: Female Employment Rates by Educational Attainment, Urban/Rural Location, Market Labor Force Definition, Ages 15-64, 1998-2012



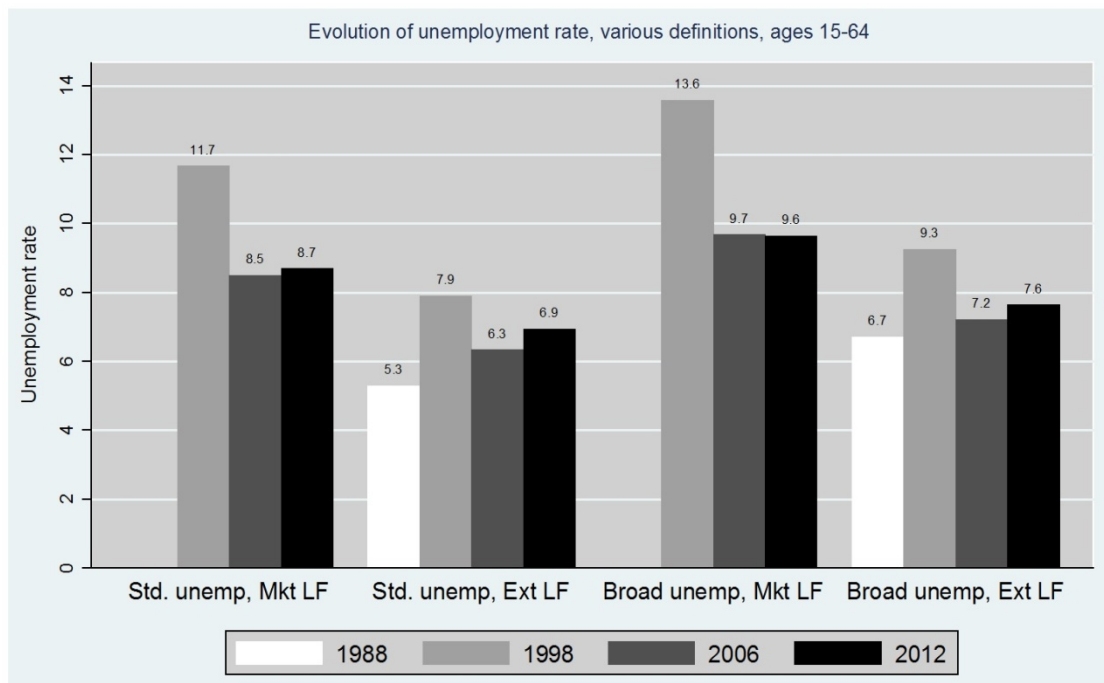
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 10: Evolution of Number of Unemployed under Various Definitions, Ages 15-64, 1988-2012



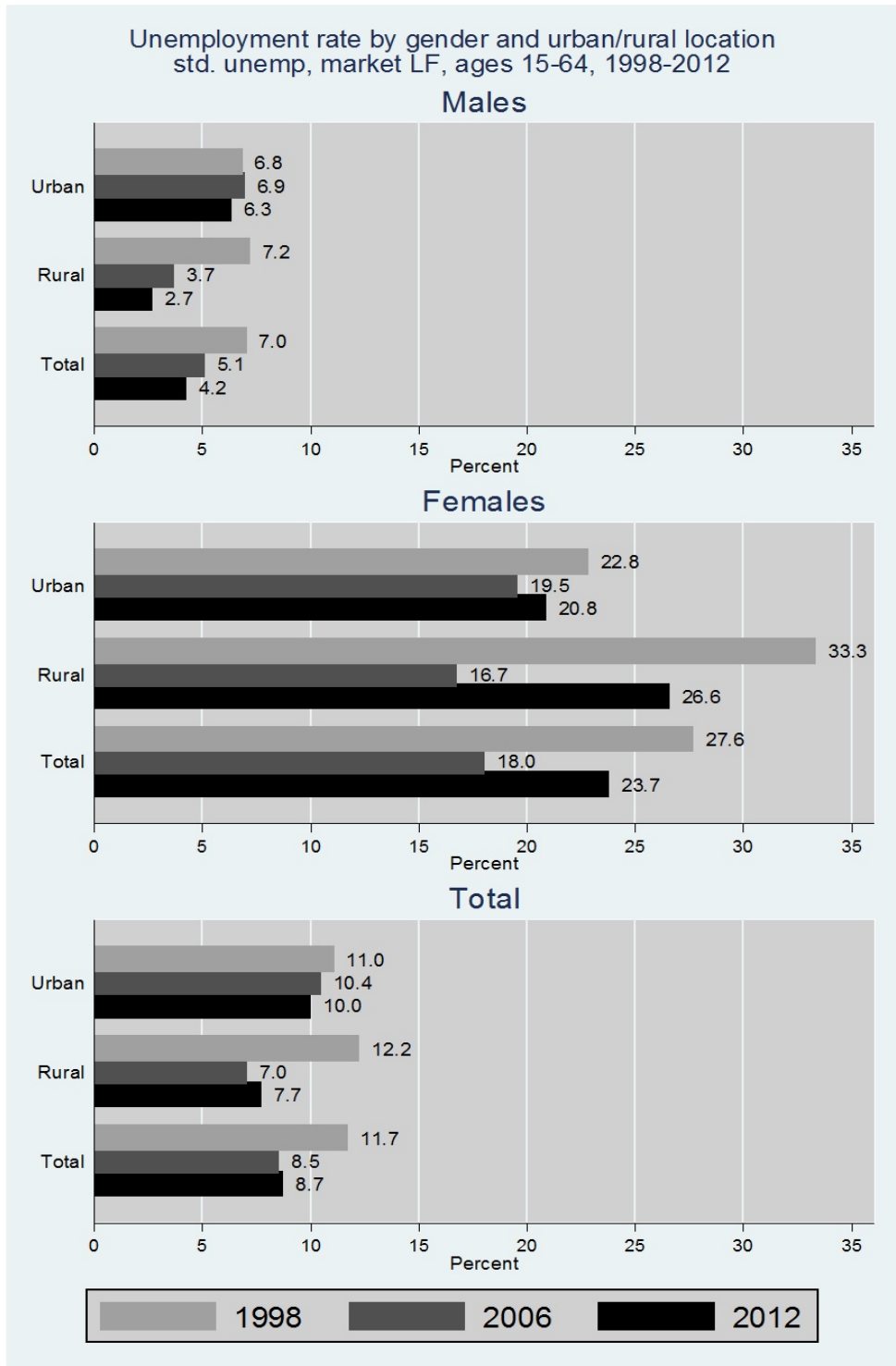
Source: LFSS 1988, ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 11: Evolution of Unemployment Rates under Various Definitions, Ages 15-64, 1988-2012



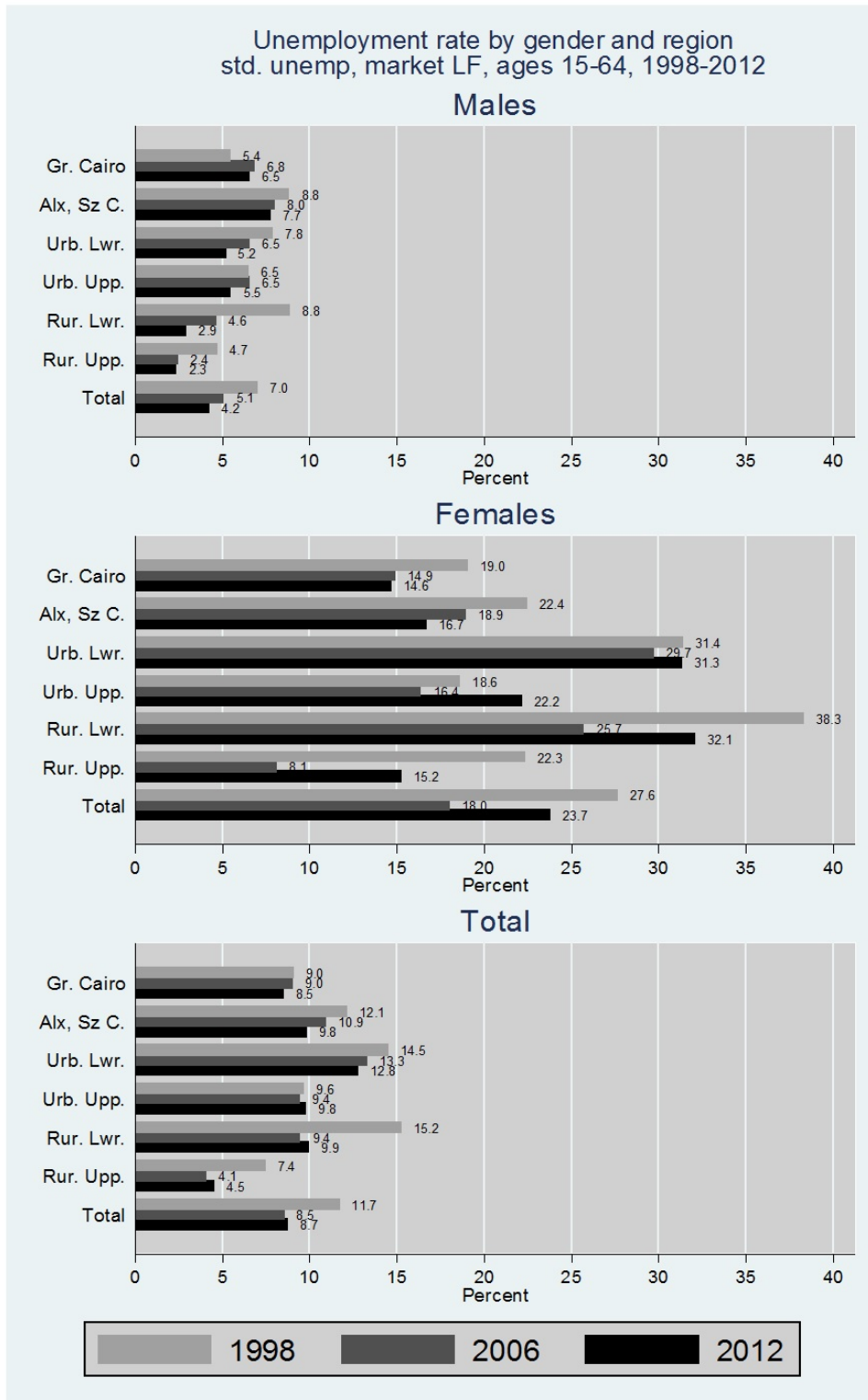
Source: LFSS 1988, ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 12: Unemployment Rate by Gender and Urban/Rural Location, Standard Unemployment Definition and Market Labor Force Definition, Ages 15-64, 1998-2012



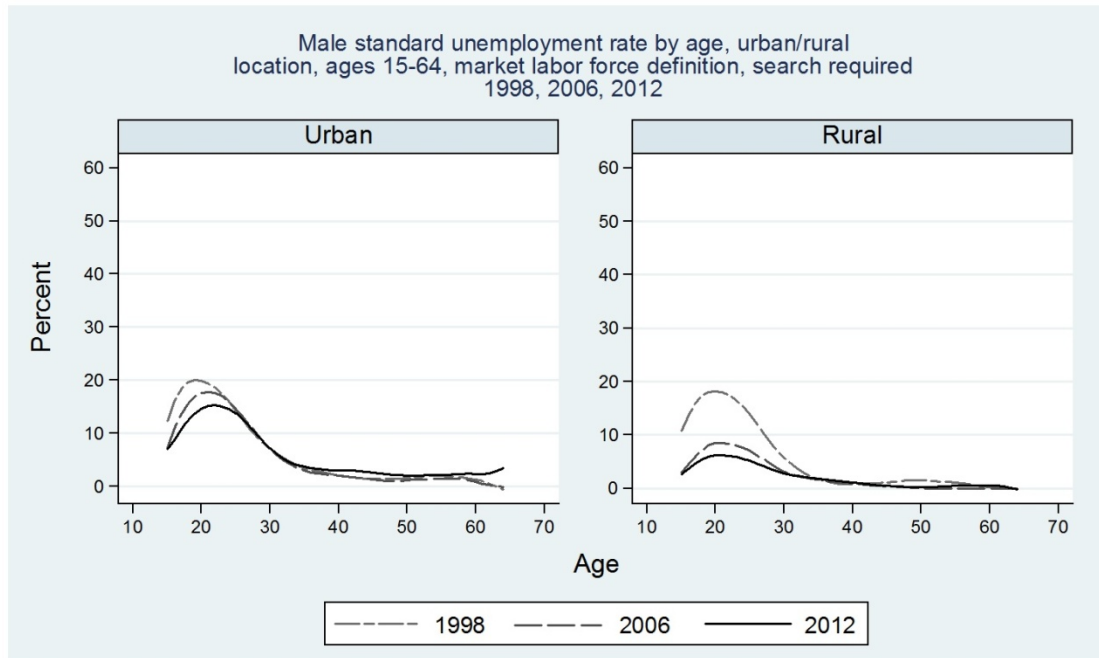
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 13: Unemployment Rate by Gender and Region, Standard Unemployment Definition and Market Labor Force Definition, Ages 15-64, 1998-2012



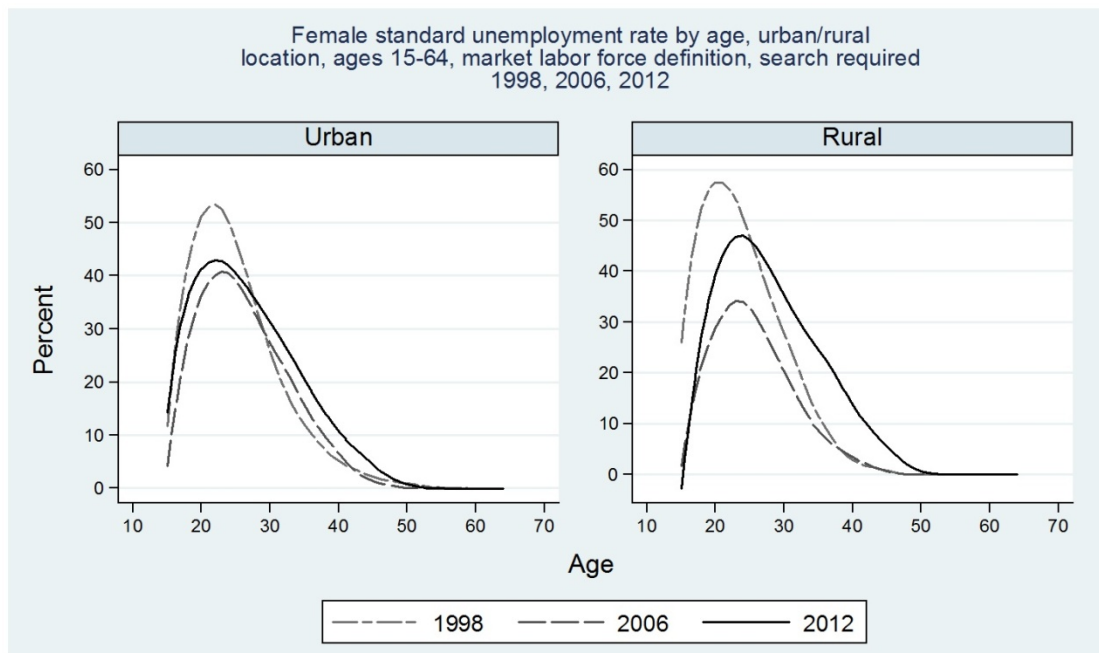
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 14a : Male Unemployment Rates by Age and Urban/Rural Location, Standard Unemployment Definition and Market Labor Force Definition, Ages 15-64, 1998-2012



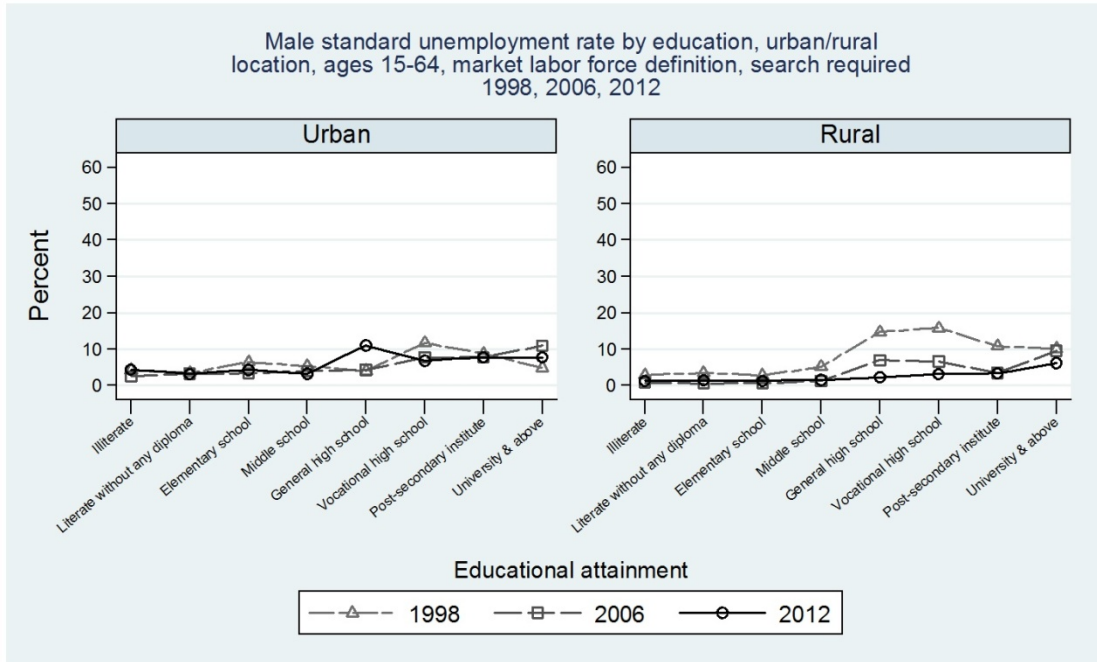
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 14b : Female Unemployment Rates by Age and Urban/Rural Location, Standard Unemployment Definition and Market Labor Force Definition, Ages 15-64, 1998-2012



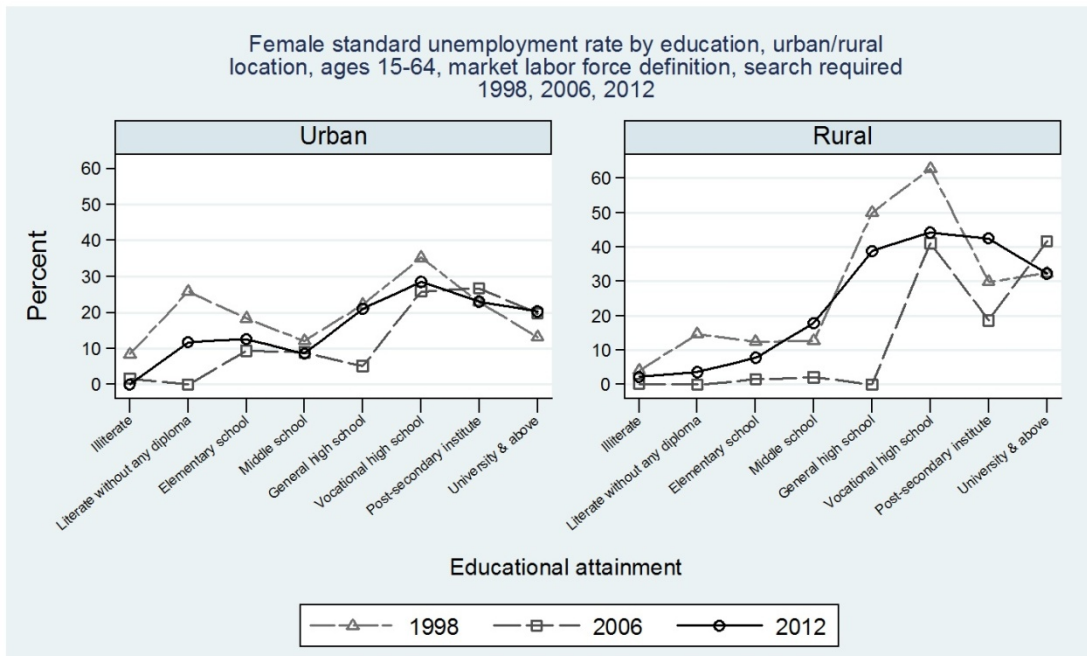
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 15a: Male Unemployment Rates by Educational Attainment and Urban/Rural Location, Standard Unemployment Definition and Market Labor Force Definition, Ages 15-64, 1998-2012



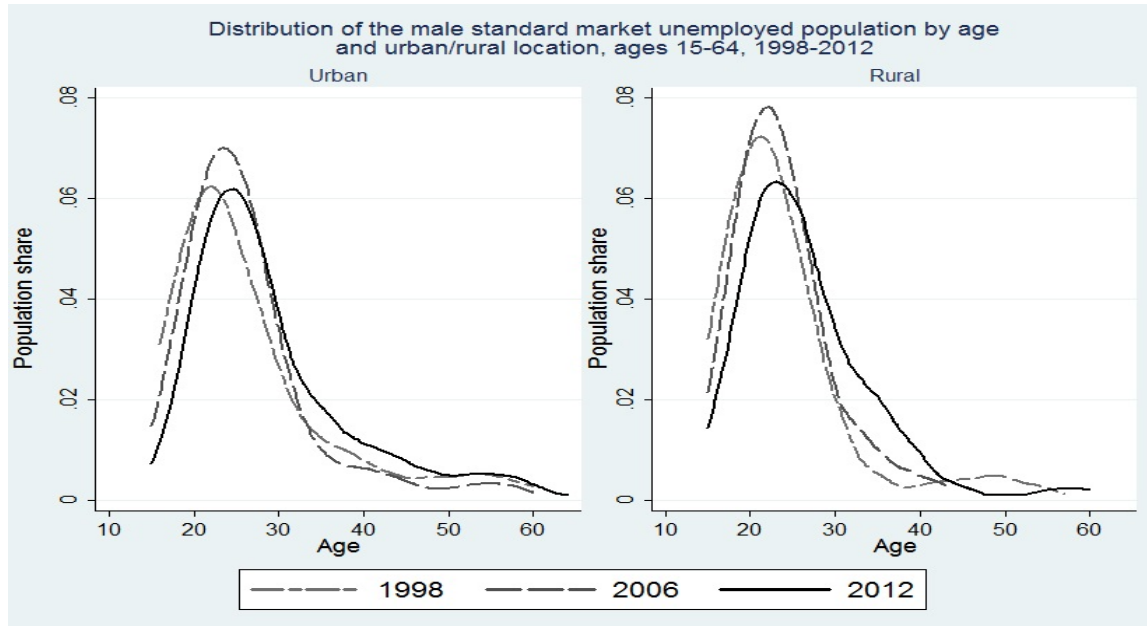
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 15b. Female Unemployment Rates by Educational Attainment and Urban/Rural Location, Standard Unemployment Definition and Market Labor Force Definition, Ages 15-64, 1998-2012



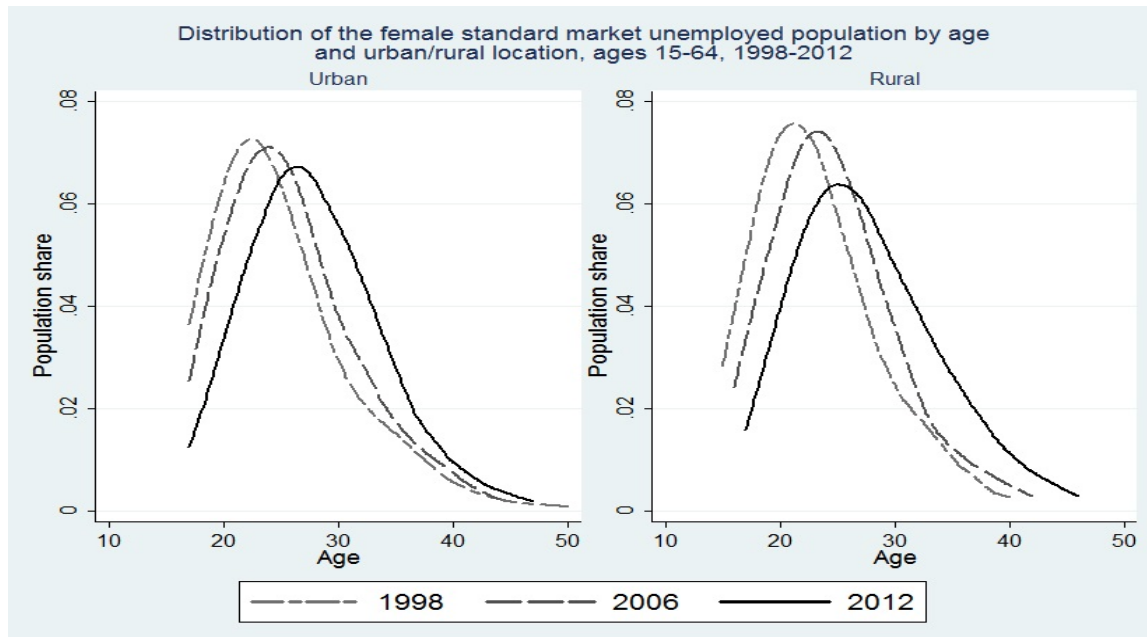
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 16a : Distribution of the Male Unemployed Population by Age and Urban/Rural Location, Standard Unemployment Definition and Market Labor Force Definition, Ages 15-64, 1998-2012



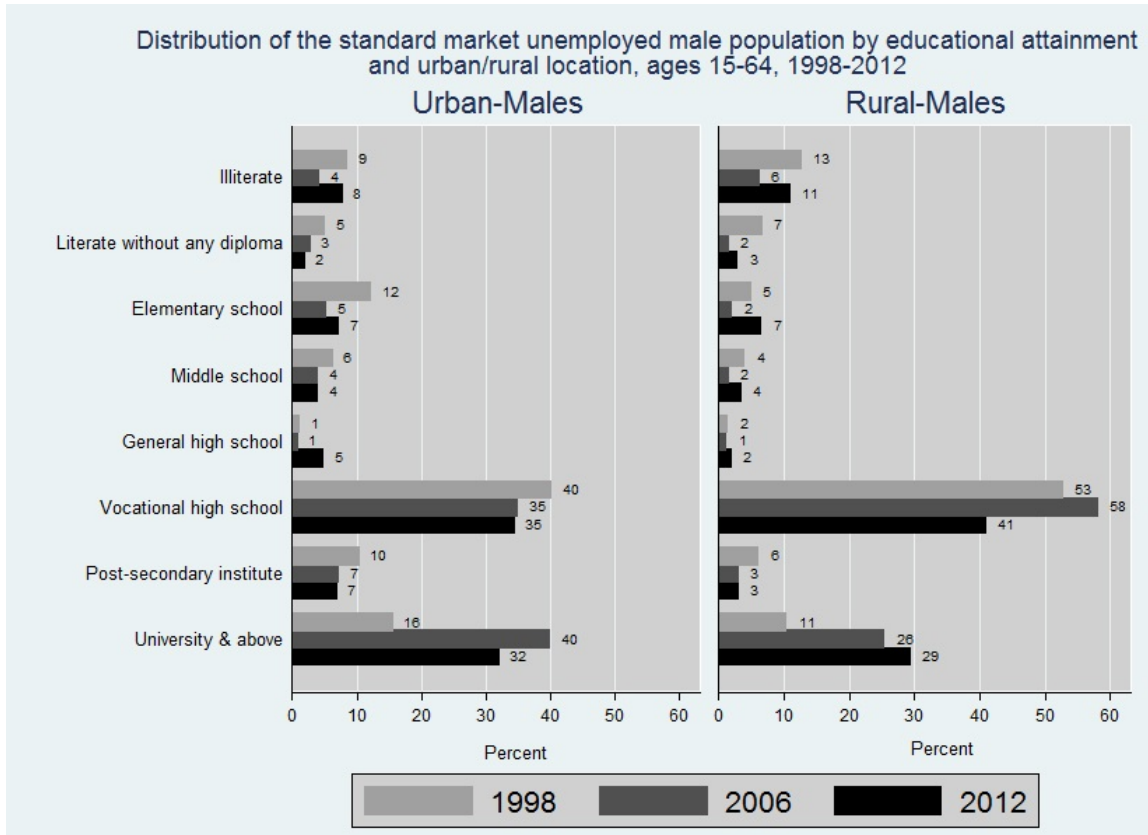
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 16b : Distribution of the Female Unemployed Population by Age and Urban/Rural Location, Standard Unemployment Definition and Market Labor Force Definition, Ages 15-64, 1998-2012



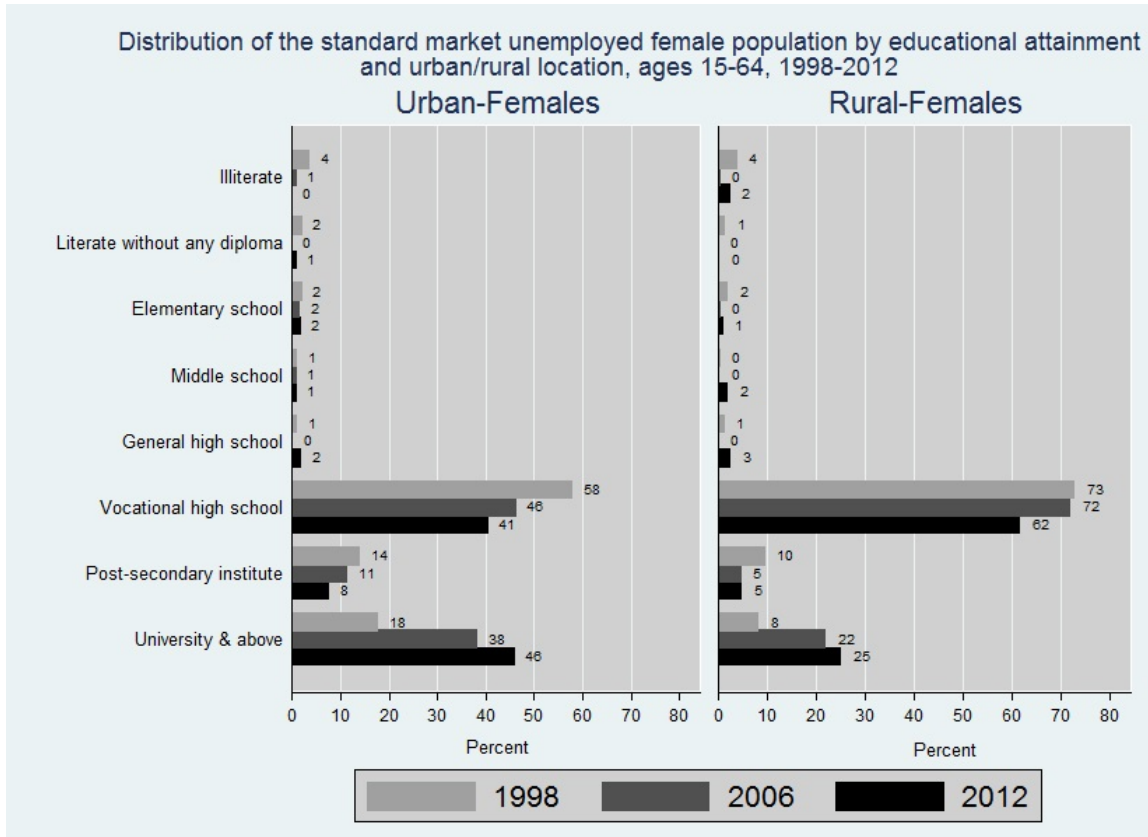
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 17a: Distribution of the Male Unemployed Population by Educational Attainment and Urban/Rural Location, Standard Unemployment Definition and Market Labor Force Definition, Ages 15-64, 1998-2012



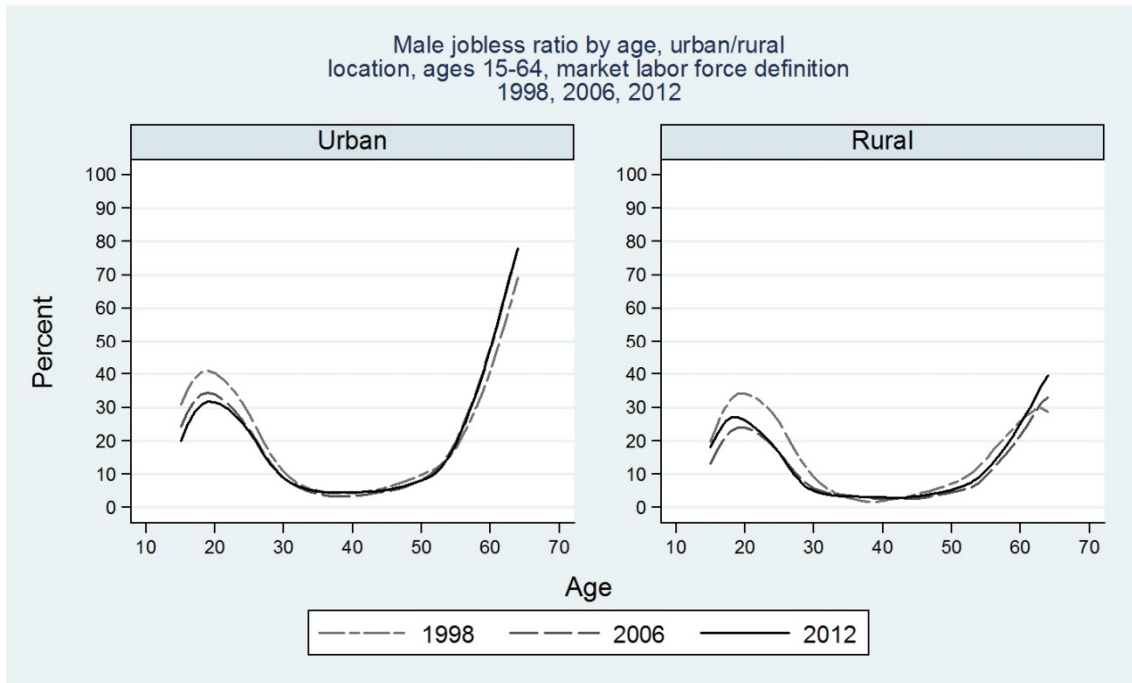
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 17b: Distribution of the Female Unemployed Population by Educational Attainment and Urban/Rural Location, Standard Unemployment Definition and Market Labor Force Definition, Ages 15-64, 1998-2012



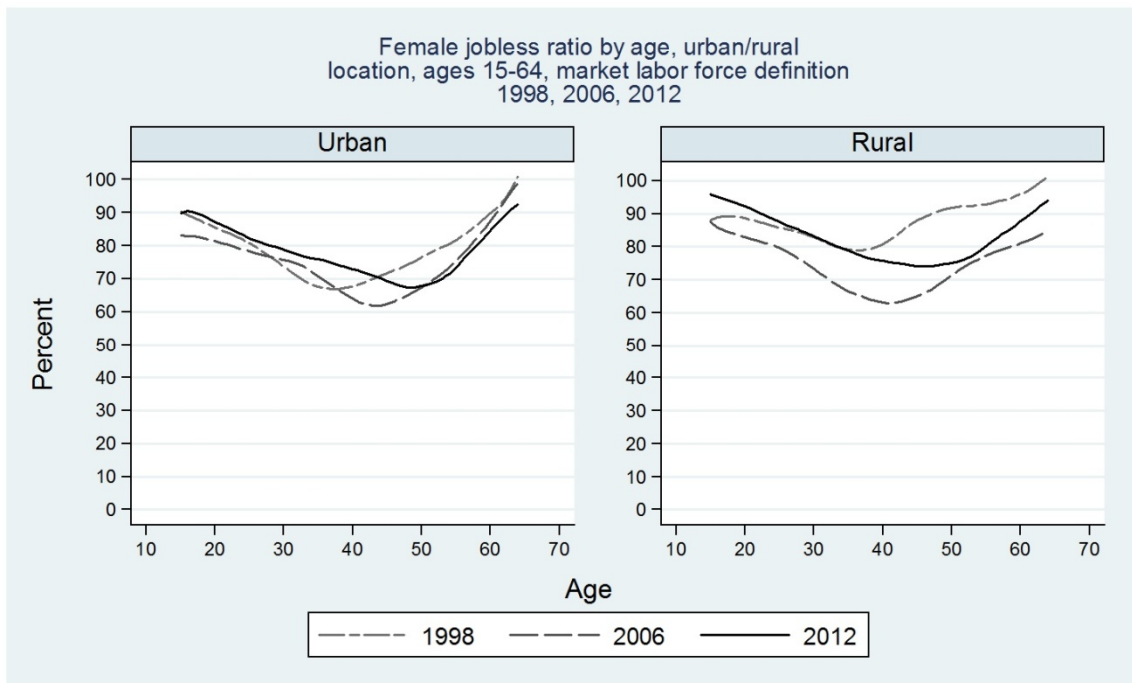
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 18a: Male Jobless Rates by Urban/Rural Location and Age, Market Definition of Economic Activity, Not a Student, Ages 15-64, 1998-2012



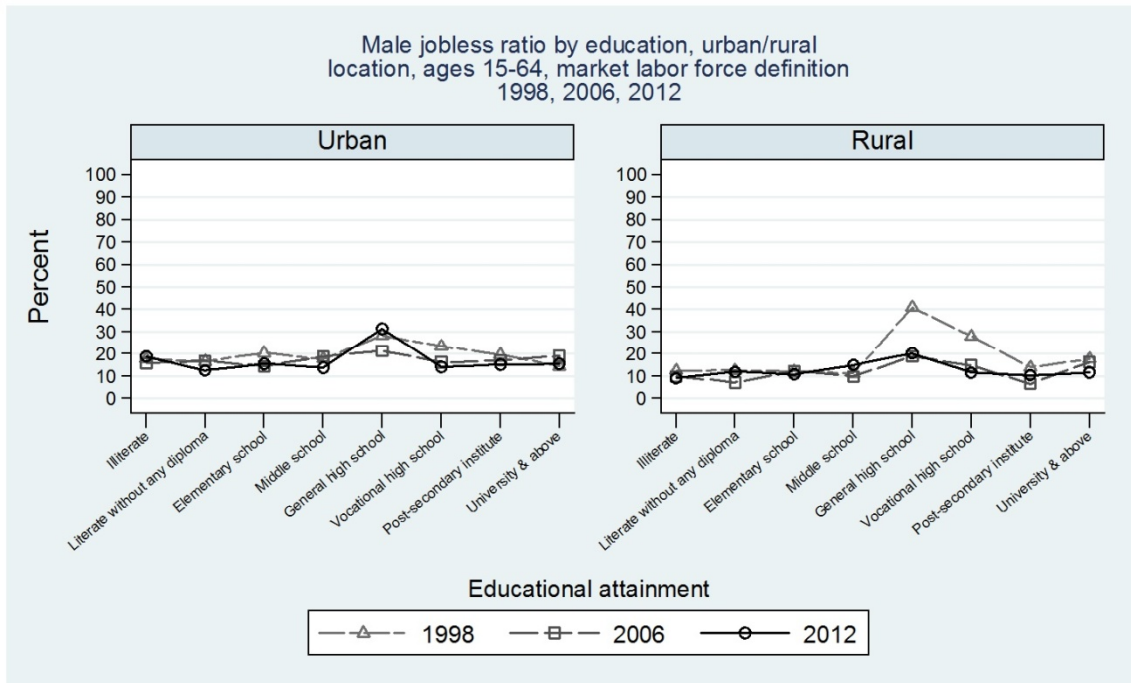
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 18b: Female Jobless Rates by Urban/Rural Location and Age, Market Definition of Economic Activity, Not a Student, Ages 15-64, 1998-2012



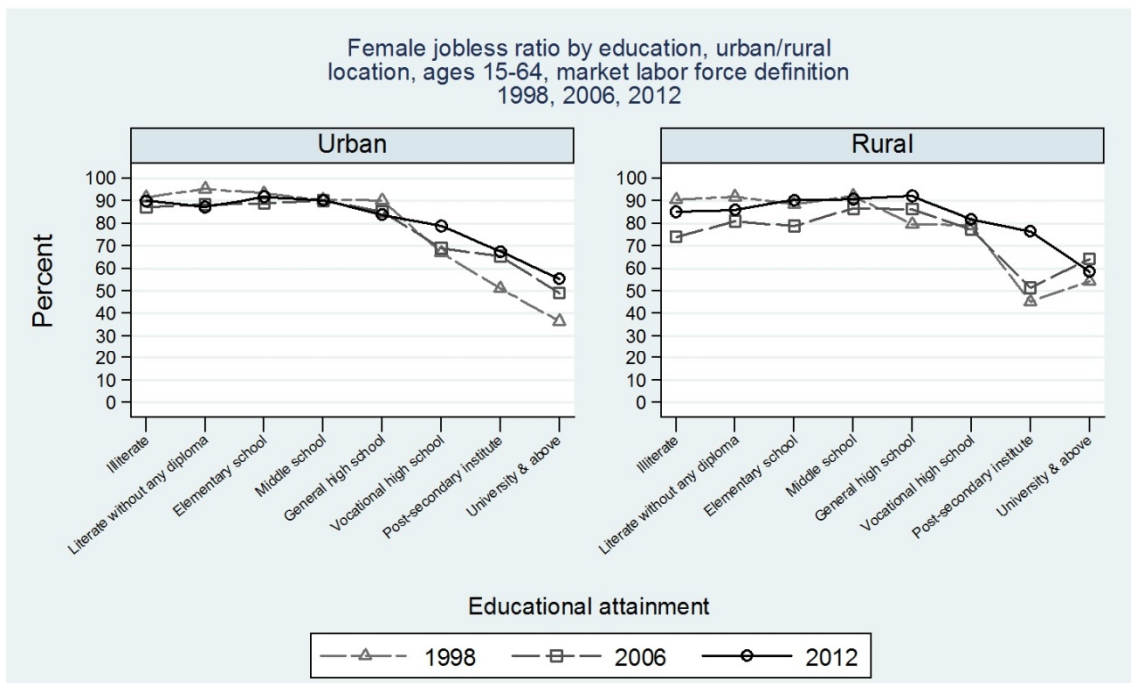
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 19a: Male Jobless Rates by Urban/Rural Location and Education, Market Definition of Economic Activity, Not a Student, Ages 15-64, 1998-2012



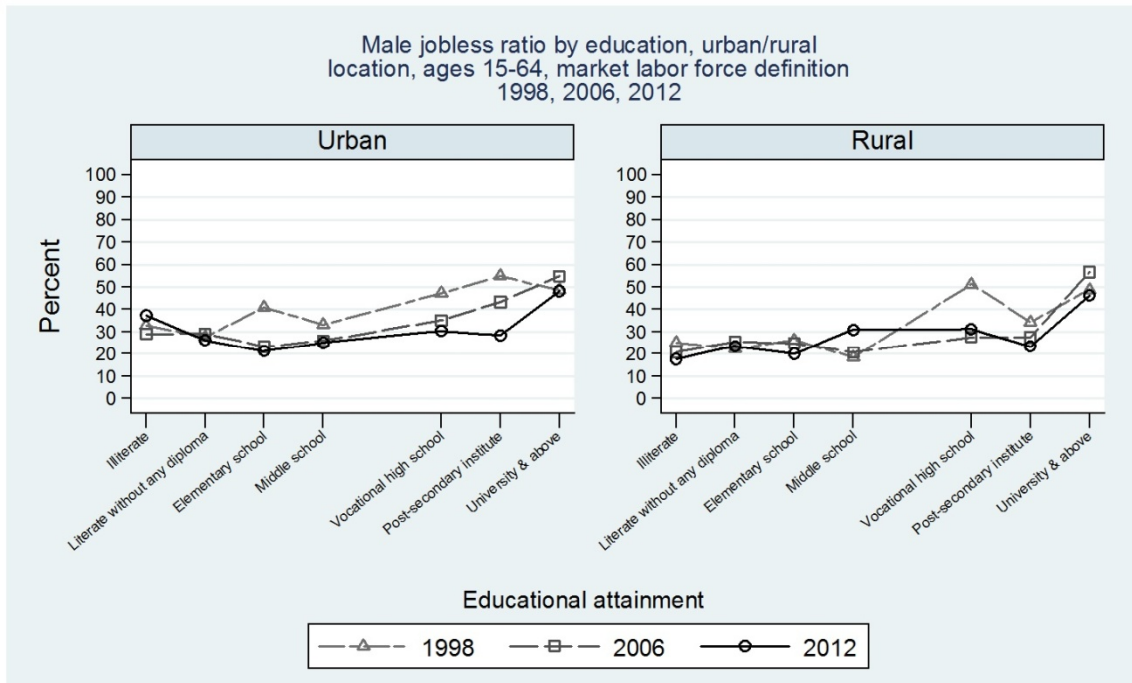
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 19b: Female Jobless Rates by Urban/Rural Location and Education, Market Definition of Economic Activity, Not a Student, Ages 15-64, 1998-2012



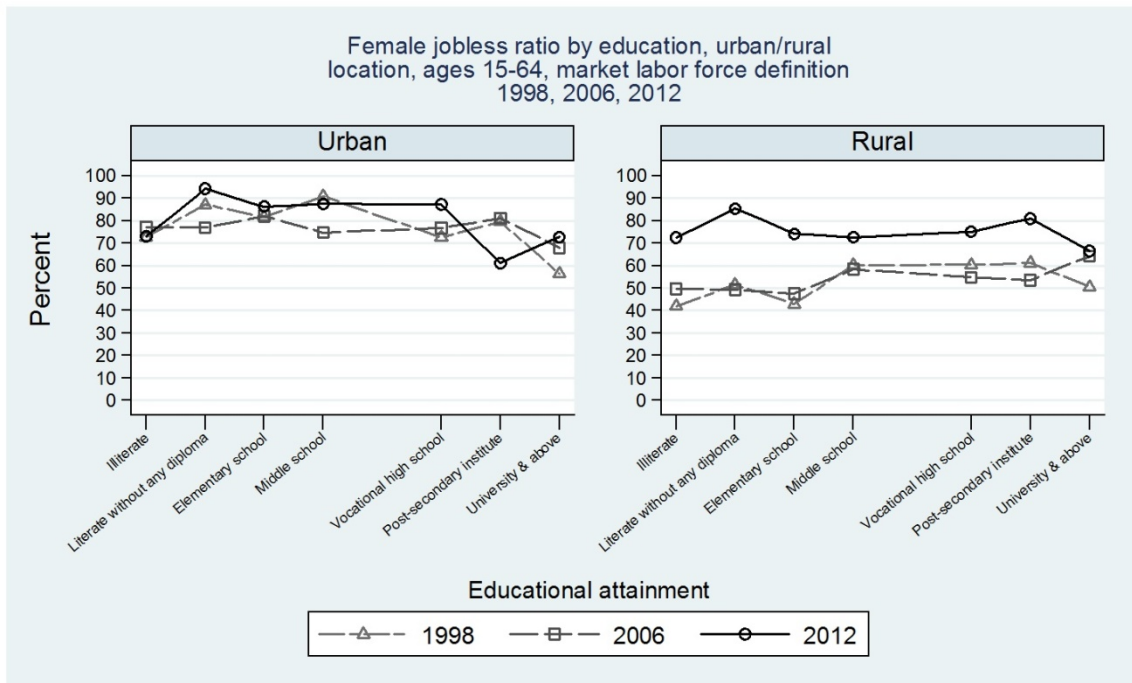
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 20a: Male Youth Jobless Rates by Urban/Rural Location and Education, Market Definitions of Economic Activity, Not a Student, Ages 15-24, 1998-2012



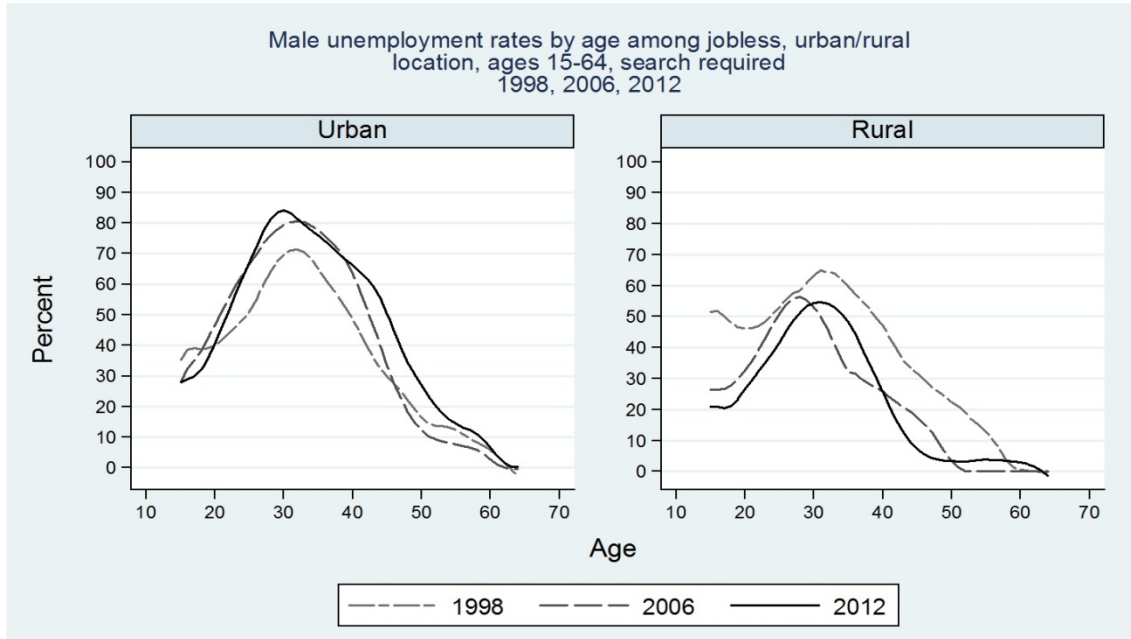
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 20b : Female Youth Jobless Rates by Urban/Rural Location and Education, Market Definition of Economic Activity, Not a Student, Ages 15-24, 1998-2012



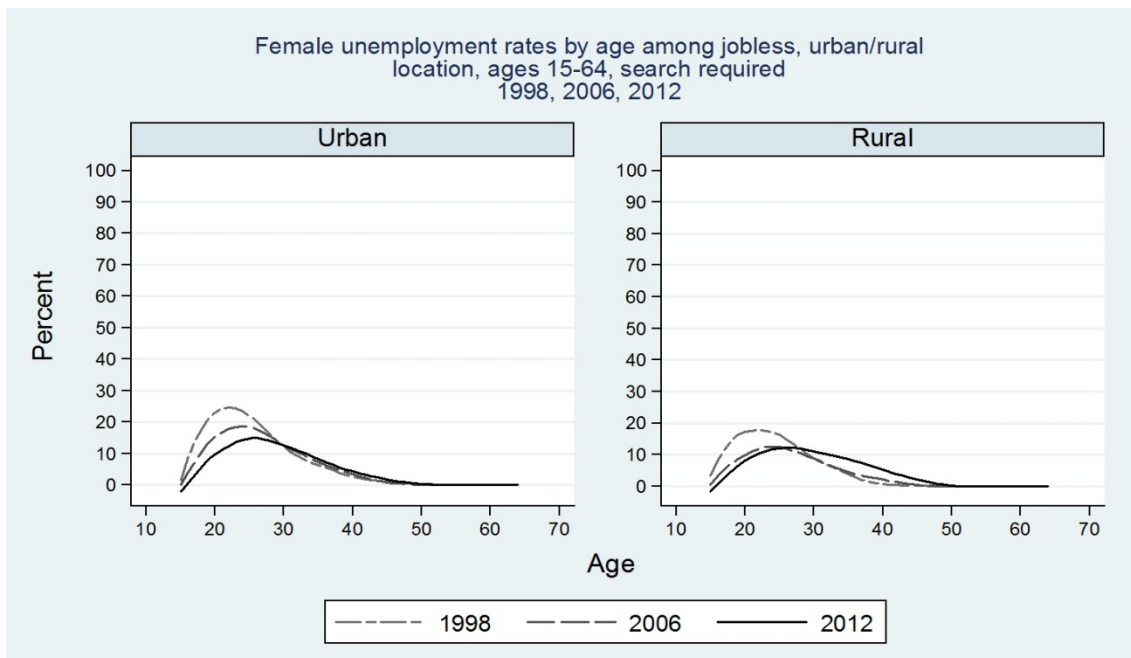
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 21a: Male Unemployment Rate among Jobless by Age and Urban/Rural Location, Standard Unemployment Definition and Market Labor Force Definition, Not a Student, Ages 15-64, 1998-2012



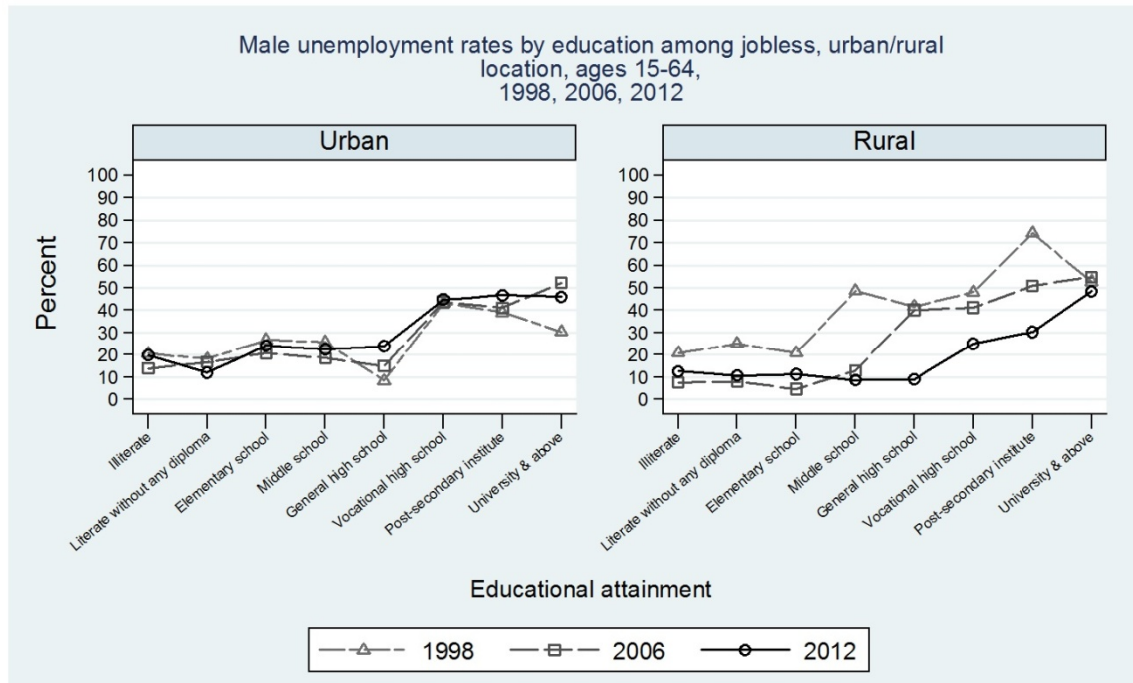
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 21b: Female Unemployment Rate among Jobless by Age and Urban/Rural Location, Standard Unemployment Definition and Market Labor Force Definition, Not a Student, Ages 15-64, 1998-2012



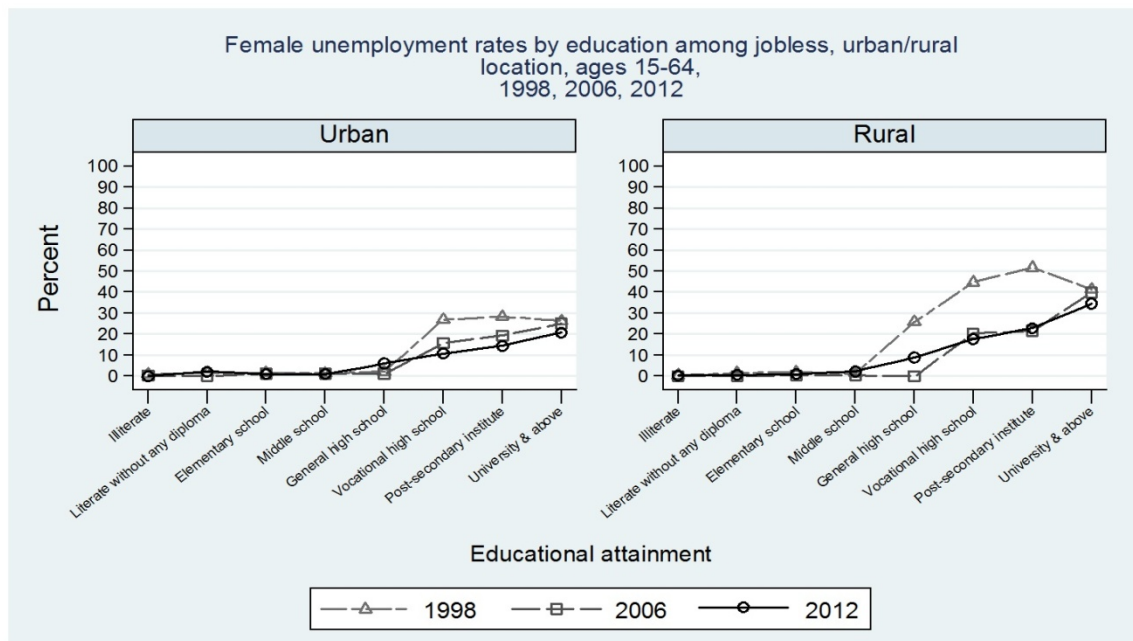
Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 22a: Male Unemployment Rate among Jobless by Educational Attainment and Urban/Rural Location, Standard Unemployment Definition and Market Labor Force Definition, Not a Student, Ages 15-64, 1998-2012



Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Figure 22b: Female Unemployment Rate among Jobless by Educational Attainment and Urban/Rural Location, Standard Unemployment Definition and Market Labor Force Definition, Not a Student, Ages 15-64, 1998-2012



Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Table 1a: Total and Working Age Average Annual Population Growth Rates by Urban/Rural Location and Sex, 1988-98, 1998-2006, 2006-12 (percentage)

	Total Population			Working Age Population (15-64)		
	1988-98	1998-2006	2006-12	1988-98	1998-2006	2006-12
Male						
Urban	1.7	1.9	2.1	2.4	2.3	1.0
Rural	2.4	1.9	2.1	3.7	2.7	1.4
Total	2.1	1.9	2.1	3.1	2.5	1.2
Female						
Urban	1.8	2.1	2.3	2.2	2.8	1.1
Rural	2.2	2.1	2.2	3.5	2.9	1.4
Total	2.0	2.1	2.3	2.9	2.8	1.3
All						
Urban	1.7	2.0	2.2	2.3	2.6	1.1
Rural	2.3	2.0	2.2	3.6	2.8	1.4
Total	2.1	2.0	2.2	3.0	2.7	1.2

Source: LFSS 1988, ELMS 1998, ELMPS 2006, ELMPS 2012.

Table 1b: Child, Youth, and Young Adult Average Annual Population Growth Rates by Urban/Rural Location and Sex, 1988-1998, 1998-2006, 2006-2012 (percentage)

	Child Population (0-14)			Youth Population (15-24)			Young Adult Population (25-29)		
	1988-98	1998-2006	2006-12	1988-98	1998-2006	2006-12	1988-98	1998-06	2006-12
Male									
Urban	-0.2	0.6	4.4	2.6	1.1	-2.3	-0.2	6.2	-0.4
Rural	0.6	0.7	3.4	4.1	1.9	-2.3	2.4	5.1	4.1
Total	0.3	0.7	3.8	3.5	1.6	-2.3	1.2	5.6	2.1
Female									
Urban	0.4	-0.2	4.7	2.0	2.8	-2.9	-0.4	5.2	5.8
Rural	0.2	0.9	3.5	4.1	3.3	-2.0	1.1	4.8	6.4
Total	0.3	0.5	3.9	3.2	3.1	-2.4	0.4	5.0	6.1
All									
Urban	0.1	0.2	4.5	2.4	2.0	-2.6	-0.3	5.7	2.8
Rural	0.4	0.8	3.4	4.1	2.6	-2.2	1.7	5.0	5.3
Total	0.3	0.6	3.8	3.4	2.3	-2.3	0.8	5.3	4.2

Source: LFSS 1988, ELMS 1998, ELMPS 2006, ELMPS 2012.

Table 2a: Average Annual Growth Rates of the Labor Force, Search Required, by Urban/Rural Location and Sex, 1988-98, 1998-2006, 2006-12 (percentage)

	Market Labor Force (15-64)			Extended Labor Force (15-64)		
	1988-98	1998-2006	2006-12	1988-98	1998-2006	2006-12
Male						
Urban	n.a.	3.0	1.7	1.9	3.0	1.8
Rural	n.a.	3.5	1.8	3.0	3.6	1.8
Total	n.a.	3.3	1.8	2.5	3.3	1.8
Female						
Urban	n.a.	3.9	-0.4	3.7	2.7	-1.2
Rural	n.a.	8.3	-2.5	3.8	3.0	-5.0
Total	n.a.	6.1	-1.5	3.8	2.9	-3.7
All						
Urban	n.a.	3.3	1.2	2.5	2.9	0.9
Rural	n.a.	4.5	0.8	3.3	3.3	-0.7
Total	n.a.	4.0	1.0	3.0	3.2	-0.1

Source: LFSS 1988, ELMS 1998, ELMPS 2006, ELMPS 2012.

Table 2b: Average Annual Growth Rates of the Youth Labor Force, Search Required, by Urban/Rural Location and Sex, 1988-98, 1998-2006, 2006-12 (percentage)

	Youth Market Labor Force (15-24)			Youth Extended Labor Force (15-24)		
	1988-98	1998-2006	2006-12	1988-98	1998-2006	2006-12
Male						
Urban	n.a.	2.9	-2.3	1.9	3.0	-2.1
Rural	n.a.	3.3	-2.9	3.0	3.7	-2.7
Total	n.a.	3.2	-2.7	2.6	3.5	-2.5
Female						
Urban	n.a.	2.9	-8.1	1.4	2.3	-9.0
Rural	n.a.	3.0	-8.9	3.9	1.8	-9.4
Total	n.a.	2.9	-8.6	3.2	1.9	-9.3
All						
Urban	n.a.	2.9	-3.9	1.7	2.7	-4.3
Rural	n.a.	3.2	-4.3	3.4	2.8	-5.3
Total	n.a.	3.1	-4.2	2.9	2.8	-5.0

Source: LFSS 1988, ELMS 1998, ELMPS 2006, ELMPS 2012.

Table 2c: Average Annual Growth Rates of the Young Adult Labor Force, Search Required, by Urban/Rural Location and Sex, 1988-98, 1998-2006, 2006-12 (percentage)

	Young Adult Market Labor Force (24-29)			Young Adult Extended Labor Force (25-29)		
	1988-98	1998-2006	2006-12	1988-98	1998-2006	2006-12
Male						
Urban	n.a.	6.8	0.3	0.1	6.8	0.3
Rural	n.a.	6.1	3.6	2.5	6.1	3.6
Total	n.a.	6.4	2.2	1.4	6.4	2.2
Female						
Urban	n.a.	6.3	2.2	-1.0	5.2	2.2
Rural	n.a.	7.2	2.0	1.7	5.3	-0.9
Total	n.a.	6.8	2.1	0.7	5.3	0.2
All						
Urban	n.a.	6.7	0.8	-0.2	6.4	0.8
Rural	n.a.	6.3	3.2	2.1	5.8	2.0
Total	n.a.	6.5	2.1	1.1	6.0	1.5

Source: LFSS 1988, ELMS 1998, ELMPS 2006, ELMPS 2012.

Table 3a: Labor Force Participation Rates for Working-Age Population (15-64), Market and Extended Definitions, Search Required, by Sex and Urban/Rural Location (percentage)

		Male				Female				Total			
		1988	1998	2006	2012	1988	1998	2006	2012	1988	1998	2006	2012
Urban	Mkt. LF	n.a.	71.5	75.4	78.9	n.a.	25.7	27.9	25.6	n.a.	48.6	51.2	51.6
	Ext. LF	74.5	71.5	75.4	79.1	28.4	33.3	33.0	28.7	51.2	52.4	53.8	53.3
Rural	Mkt. LF	n.a.	74.7	78.7	81.2	n.a.	17.8	26.7	21.1	n.a.	46.1	52.5	50.7
	Ext. LF	79.0	74.8	79.4	82.1	54.7	56.9	57.3	39.0	66.7	65.8	68.3	60.2
Total	Mkt. LF	n.a.	73.2	77.2	80.2	n.a.	21.4	27.3	23.1	n.a.	47.2	51.9	51.1
	Ext. LF	76.8	73.3	77.7	80.8	42.1	46.3	46.4	34.4	59.3	59.8	61.8	57.2

Source: LFSS 1988, ELMS 1998, ELMPS 2006, ELMPS 2012.

Table 3b: Labor Force Participation Rates for Youth Population (15-24), Market and Extended Definitions, Search Required, by Sex and Urban/Rural Location (percentage)

		Male				Female				Total			
		1988	1998	2006	2012	1988	1998	2006	2012	1988	1998	2006	2012
Urban	Mkt. LF	n.a.	37.2	42.7	43.0	n.a.	19.7	19.7	14.5	n.a.	28.9	31.1	28.8
	Ext. LF	39.8	37.2	42.8	43.5	25.6	24.2	23.2	16.1	32.9	31.1	32.9	29.9
Rural	Mkt. LF	n.a.	47.7	52.8	50.8	n.a.	19.2	18.7	12.4	n.a.	34.1	35.6	31.3
	Ext. LF	53.2	47.9	54.6	53.4	47.5	47.0	41.9	26.9	50.5	47.5	48.2	40.0
Total	Mkt. LF	n.a.	43.4	48.8	47.7	n.a.	19.4	19.1	13.2	n.a.	32.0	33.8	30.4
	Ext. LF	47.2	43.5	49.9	49.5	37.6	37.8	34.5	22.8	42.6	40.8	42.2	36.1

Source: LFSS 1988, ELMS 1998, ELMPS 2006, ELMPS 2012.

Table 3c: Labor Force Participation Rates for Young Adult Population (25-29), Market and Extended Definitions, Search Required, by Sex and Urban/Rural Location (percentage)

		Male				Female				Total			
		1988	1998	2006	2012	1988	1998	2006	2012	1988	1998	2006	2012
Urban	Mkt. LF	n.a.	89.3	95.3	97.5	n.a.	30.7	34.3	31.1	n.a.	61.0	67.0	60.4
	Ext. LF	89.0	89.3	95.3	97.5	41.9	38.4	38.3	34.4	66.0	64.7	68.9	62.3
Rural	Mkt. LF	n.a.	91.0	96.1	96.2	n.a.	26.4	31.9	25.2	n.a.	58.3	64.2	58.2
	Ext. LF	90.9	91.0	96.1	96.2	58.2	60.9	60.7	40.8	73.4	75.8	78.5	66.6
Total	Mkt. LF	n.a.	90.3	95.8	96.7	n.a.	28.2	32.9	27.7	n.a.	59.5	65.5	59.1
	Ext. LF	90.0	90.3	95.8	96.7	50.7	51.3	51.0	38.1	69.8	70.9	74.2	64.8

Source: LFSS 1988, ELMS 1998, ELMPS 2006, ELMPS 2012.

**Table 4: Employment to Population Ratios by Urban/Rural Location and Sex, 1988-2012
Market and Extended Definitions of Economic Activity (Percentage)**

		Male				Female				Total			
		1988	1998	2006	2012	1988	1998	2006	2012	1988	1998	2006	2012
Urban	Mkt. LF	n.a.	66.6	70.2	74.0	n.a.	19.8	22.5	20.2	n.a.	43.2	45.8	46.5
	Ext. LF	70.1	66.6	70.2	74.2	23.5	28.0	27.8	23.5	46.6	47.3	48.6	48.2
Rural	Mkt. LF	n.a.	69.3	75.8	79.0	n.a.	11.9	22.2	15.5	n.a.	40.5	48.8	46.8
	Ext. LF	77.2	69.4	76.6	79.9	52.9	53.3	54.4	34.9	64.9	61.4	65.4	57.1
Total	Mkt. LF	n.a.	68.1	73.3	76.8	n.a.	15.5	22.3	17.6	n.a.	41.7	47.5	46.7
	Ext. LF	73.8	68.2	73.8	77.4	38.9	42.0	42.5	29.8	56.1	55.1	57.9	53.2

Source: LFSS 1988, ELMS 1998, ELMPS 2006, ELMPS 2012.

Table 5: Jobless Rates by Urban/Rural Location and Sex, Market and Extended Definitions of Economic Activity, Not a Student, Ages 15-64, 1988-2012

		Male				Female				Total			
		1988	1998	2006	2012	1988	1998	2006	2012	1988	1998	2006	2012
Urban	Mkt. LF	n.a.	19.1	17.1	15.6	n.a.	76.6	73.8	77.2	n.a.	48.3	46.3	47.4
	Ext. LF	14.5	19.0	17.1	15.5	73.6	67.2	67.9	73.5	46.8	43.5	43.2	45.5
Rural	Mkt. LF	n.a.	17.0	12.1	11.3	n.a.	86.6	75.0	82.9	n.a.	53.1	44.4	48.0
	Ext. LF	6.9	16.9	12.1	11.0	43.6	41.8	40.4	62.6	27.7	29.8	26.6	37.5
Total	Mkt. LF	n.a.	17.9	14.3	13.2	n.a.	82.3	74.5	80.4	n.a.	51.0	45.2	47.7
	Ext. LF	10.5	17.9	14.3	13.0	57.3	52.9	52.4	67.4	36.6	35.9	33.9	40.9

Source: LFSS 1988, ELMS 1998, ELMPS 2006, ELMPS 2012.

Table 6: Visible Under-employment as a Share of the Standard Market Labor Force, Ages 15-64, 1998-2012

	1998	2006	2012
Male			
Urban	2.7	1.8	6.6
Rural	6.7	3.6	11.8
Total	5.0	2.8	9.6
Female			
Urban	0.9	1.0	4.7
Rural	3.1	2.6	11.3
Total	1.9	1.9	7.9
All			
Urban	2.3	1.6	6.2
Rural	6.0	3.3	11.7
Total	4.3	2.6	9.3

Source: ELMS 1998, ELMPS 2006, ELMPS 2012.

Table 7: Unemployment Rates by Sex and Survey, Standard Market Labor Force, Ages 15-64

	Male	Female	Total
LFS			
2010 Q1	4.9	20.8	8.7
2010 Q2	4.9	22.0	8.9
2010 Q3	4.6	23.0	8.8
2010 Q4	4.8	22.4	8.8
2011 Q1	8.9	21.5	11.8
2011 Q2	8.7	22.3	11.8
2011 Q3	8.7	22.7	11.9
2011 Q4	9.2	23.2	12.4
2012 Q1	9.3	23.8	12.6
2012 Q2	9.2	24.1	12.6
2012 Q3	9.1	24.0	12.5
2012 Q4	9.6	24.7	13.0
ELMPS			
2012	4.2	23.7	8.7

Source: LFSS 2010, 2011, and 2012 and ELMPS 2012

Table A1: Unemployment Rate by Urban and Rural Location and Sex, Standard (Search Required) and Broad (Search not Required) Definitions, Extended and Market Labor Force Definitions, Ages 15-64, 1988-2012

		Male				Female				Total			
		1988	1998	2006	2012	1988	1998	2006	2012	1988	1998	2006	2012
Urban	Std. Mkt. LF def.	n.a.	6.8	6.9	6.3	n.a.	22.8	19.5	20.8	n.a.	11.0	10.4	10.0
	Std. Ext. LF def.	5.9	6.8	6.9	6.3	17.2	15.8	15.7	18.0	9.0	9.7	9.7	9.5
	Brd. Mkt. LF def.	n.a.	8.2	7.6	6.6	n.a.	25.7	22.4	22.2	n.a.	12.9	11.8	10.6
	Brd. Ext. LF def.	7.3	8.2	7.6	6.6	20.0	18.0	18.1	19.2	10.9	11.3	10.9	10.1
Rural	Std. Mkt. LF def.	n.a.	7.2	3.7	2.7	n.a.	33.3	16.7	26.6	n.a.	12.2	7.0	7.7
	Std. Ext. LF def.	2.3	7.1	3.6	2.6	3.2	6.3	5.1	10.5	2.7	6.8	4.2	5.2
	Brd. Mkt. LF def.	n.a.	8.5	4.1	3.3	n.a.	36.9	19.2	29.2	n.a.	14.2	8.0	8.9
	Brd. Ext. LF def.	3.2	8.4	4.0	3.1	4.5	7.3	6.1	11.6	3.7	7.9	4.9	5.9
Total	Std. Mkt. LF def.	n.a.	7.0	5.1	4.2	n.a.	27.6	18.0	23.7	n.a.	11.7	8.5	8.7
	Std. Ext. LF def.	4.0	7.0	5.0	4.2	7.7	9.4	8.5	13.2	5.3	7.9	6.3	6.9
	Brd. Mkt. LF def.	n.a.	8.4	5.6	4.7	n.a.	30.9	20.7	25.8	n.a.	13.6	9.7	9.6
	Brd. Ext. LF def.	5.1	8.3	5.5	4.6	9.6	10.7	9.9	14.4	6.7	9.3	7.2	7.6

Source: LFSS 1988, ELMS 1998, ELMPS 2006, ELMPS 2012.

Table A2: Unemployment Rate by Region and Sex, Standard (Search Required) and Broad (Search not Required) Definitions, Extended and Market Labor Force Definitions, Ages 15-64, 1988-2012

		Male				Female				Total			
		1988	1998	2006	2012	1988	1998	2006	2012	1988	1998	2006	2012
Gr. Cairo	Std. Mkt. LF def.	n.a.	5.4	6.8	6.5	n.a.	19.0	14.9	14.6	n.a.	9.0	9.0	8.5
	Std. Ext. LF def.	5.9	5.4	6.8	6.5	20.3	17.1	14.4	13.9	9.8	8.7	8.9	8.3
	Brd. Mkt. LF def.	n.a.	6.4	7.1	6.9	n.a.	21.8	18.8	16.0	n.a.	10.6	10.3	9.1
	Brd. Ext. LF def.	7.1	6.4	7.1	6.8	21.9	19.8	18.1	15.2	11.1	10.2	10.2	8.9
Alx, Sz C.	Std. Mkt. LF def.	n.a.	8.8	8.0	7.7	n.a.	22.4	18.9	16.7	n.a.	12.1	10.9	9.8
	Std. Ext. LF def.	6.3	8.8	8.0	7.7	12.9	20.8	17.4	14.7	8.1	11.9	10.6	9.4
	Brd. Mkt. LF def.	n.a.	10.4	8.4	7.7	n.a.	23.6	18.9	17.9	n.a.	13.6	11.2	10.1
	Brd. Ext. LF def.	7.0	10.4	8.4	7.7	16.8	21.9	17.4	15.9	9.7	13.3	10.9	9.8
Urb. Lwr.	Std. Mkt. LF def.	n.a.	7.8	6.5	5.2	n.a.	31.4	29.7	31.3	n.a.	14.5	13.3	12.8
	Std. Ext. LF def.	6.0	7.8	6.5	5.2	12.3	18.4	18.6	25.6	7.9	11.7	11.0	11.8
	Brd. Mkt. LF def.	n.a.	9.2	7.5	5.7	n.a.	34.2	32.5	32.6	n.a.	16.4	14.9	13.6
	Brd. Ext. LF def.	8.6	9.2	7.5	5.7	17.9	20.3	20.5	26.6	11.5	13.3	12.3	12.5
Urb. Upp.	Std. Mkt. LF def.	n.a.	6.5	6.5	5.5	n.a.	18.6	16.4	22.2	n.a.	9.6	9.4	9.8
	Std. Ext. LF def.	4.6	6.3	6.5	5.4	18.5	7.7	12.2	17.3	8.9	6.8	8.5	8.9
	Brd. Mkt. LF def.	n.a.	8.6	7.9	5.9	n.a.	23.9	19.8	23.9	n.a.	12.7	11.5	10.6
	Brd. Ext. LF def.	6.8	8.5	7.9	5.9	21.1	9.9	14.9	18.8	11.1	9.0	10.3	9.7
Rur. Lwr.	Std. Mkt. LF def.	n.a.	8.8	4.6	2.9	n.a.	38.3	25.7	32.1	n.a.	15.2	9.4	9.9
	Std. Ext. LF def.	1.8	8.8	4.5	2.9	3.8	9.7	6.0	12.6	2.6	9.2	5.2	6.4
	Brd. Mkt. LF def.	n.a.	9.9	4.9	3.4	n.a.	40.9	28.3	34.7	n.a.	16.8	10.4	11.2
	Brd. Ext. LF def.	2.6	9.8	4.8	3.3	5.1	10.5	6.8	13.6	3.7	10.1	5.7	7.1
Rur. Upp.	Std. Mkt. LF def.	n.a.	4.7	2.4	2.3	n.a.	22.3	8.1	15.2	n.a.	7.4	4.1	4.5
	Std. Ext. LF def.	2.8	4.7	2.4	2.2	2.4	1.4	3.9	6.2	2.7	3.2	3.0	3.3
	Brd. Mkt. LF def.	n.a.	6.4	3.0	3.1	n.a.	28.1	10.4	17.9	n.a.	10.0	5.1	5.6
	Brd. Ext. LF def.	3.9	6.4	2.9	2.9	3.7	2.6	5.1	7.6	3.8	4.8	3.8	4.2
Total	Std. Mkt. LF def.	n.a.	7.0	5.1	4.2	n.a.	27.6	18.0	23.7	n.a.	11.7	8.5	8.7
	Std. Ext. LF def.	4.0	7.0	5.0	4.2	7.7	9.4	8.5	13.2	5.3	7.9	6.3	6.9
	Brd. Mkt. LF def.	n.a.	8.4	5.6	4.7	n.a.	30.9	20.7	25.8	n.a.	13.6	9.7	9.6
	Brd. Ext. LF def.	5.1	8.3	5.5	4.6	9.6	10.7	9.9	14.4	6.7	9.3	7.2	7.6

Source: LFSS 1988, ELMS 1998, ELMPS 2006, ELMPS 2012.

Table A3: Unemployment Rate by Educational Attainment, Urban/Rural and Sex, Standard Unemployment Market Labor Force, Ages 15-64, 1998-2012

	Male									Female								
	Urban			Rural			Total			Urban			Rural			Total		
	1998	2006	2012	1998	2006	2012	1998	2006	2012	1998	2006	2012	1998	2006	2012	1998	2006	2012
Illiterate	4.2	2.6	4.4	2.9	0.8	1.3	3.3	1.2	2.1	8.5	1.7	0.0	4.1	0.1	2.2	5.3	0.4	1.8
Reads & Writes	3.5	3.3	3.2	3.5	0.6	1.4	3.5	1.5	2.0	25.8	0.0	11.8	14.7	0.0	3.7	19	0.0	7.2
Elementary	6.4	3.4	4.3	2.8	0.7	1.3	4.4	1.8	2.5	18.4	9.4	12.6	12.5	1.5	7.8	14.6	4.5	10.0
Middle School	5.4	4.1	3.3	5.2	1.2	1.6	5.3	2.7	2.4	12.1	9.0	8.6	12.7	2.1	17.9	12.3	5.0	13.9
General HS	4.0	4.3	11	14.8	7.0	2.3	7.4	5.4	6.4	22.2	5.2	21.1	50.0	0.0	38.9	33.8	3.7	29.8
Vocational HS	11.7	7.8	6.9	15.8	6.6	3.2	14.1	7.1	4.7	35.3	25.8	28.5	62.8	41.1	44.2	48.2	33.4	37.4
Post-Sec. Inst.	8.8	7.8	7.8	10.8	3.5	3.4	9.6	6.1	6.2	22.9	26.7	23.0	29.9	18.6	42.6	25.6	23.7	29.1
University & Above	4.9	11.0	7.7	10.2	9.6	6.2	6.5	10.5	7.1	13.1	19.8	20.3	32.4	41.7	32.3	16.8	24.5	24.1
Total	6.8	6.9	6.3	7.2	3.7	2.7	7	5.1	4.2	22.8	19.6	20.8	33.3	16.7	26.6	27.6	18	23.8

	Total									
	Urban			Rural			Total			
	1998	2006	2012	1998	2006	2012	1998	2006	2012	2012
Illiterate	5.1	2.3	3.6	3.2	0.6	1.5	3.7	1.0	2.0	
Reads & Writes	4.9	3.0	4.3	4.1	0.6	1.6	4.4	1.4	2.5	
Elementary	7.3	4.1	5.0	3.7	0.8	1.7	5.2	2.1	3.0	
Middle School	6.0	4.5	3.8	5.6	1.4	3.5	5.8	3.0	3.6	
General HS	6.9	4.5	12.8	22.8	6.3	8.2	12.1	5.1	10.4	
Vocational HS	20.4	13.2	12.1	29.0	14.9	12.4	25.0	14.1	12.3	
Post-Sec. Inst.	14.2	14.1	12.3	18.2	8.1	13.0	15.7	11.8	12.6	
University & Above	7.7	14.2	12.5	15.1	17.2	14.0	9.7	15.1	13.1	
Total	11.0	10.4	10.0	12.2	7.0	7.7	11.7	8.5	8.7	

Source: LFSS 1988, ELMS 1998, ELMPS 2006, ELMPS 2012.