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Beware of the Echo

The Impending Return of Demographic Pressures in Egypt

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For many years, Egypt experienced substantial demographic pressures on its education system and labor market.

These pressures have eased somewhat in recent years as fertility rates fell, but, as this policy perspective shows, the respite was only temporary and demographic pressures are now resuming in earnest. Births are increasing due to the changing age structure of the population and an increase in fertility rates.

This Policy Perspective discusses potential reasons for these increasing demographic pressures, with a focus on the growing young adult population, a reversal in the trend of increasing age at marriage, trends in contraceptive use and family planning, and reduced economic opportunities for women.

Egypt must prepare for the rising demographic tide and its inevitable pressure on the education system, food supplies, and labor and housing markets. Additionally, the reasons for rising demographic pressures must be assessed, and long-term strategies to reduce them must be implemented.

1. The Population of Egypt

When infant and child mortality declines, there is often a lag before fertility declines. This tends to lead to a stage in the demographic transition characterized by rapid population growth, which eventually slows when fertility begins to decline. In Egypt, this process led to a demographic phenomenon known as the "youth bulge," a period characterized by the rapid rise and then eventual decline of the share of youth in the population. Figure 1 shows the evolution of the age structure of the population over the past several decades.[1] Back in 1988, the peak of the bulge was among the youngest age group, those 0-4 years of age, who were now surviving at higher rates due to the introduction of medical advances, such as oral rehydration therapy, that led to rapidly falling early childhood mortality (Miller and Hirschhorn 1995).

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A decade later, in 1998, the peak of the youth bulge was centered around 10-14 years of age. Because declining fertility had caught up with declines in mortality, there were fewer 5-9 year olds than 10-14 year olds in 1998.

At the same time, the leading edge of the youth bulge, in the 15-19 age group, was entering the labor force, beginning to put pressure on labor supply. Almost a decade later, in 2006, the peak of the youth bulge was centered around the 15-24 age group and continued to exert substantial pressure on the labor market. By 2012, the peak of the youth bulge was in the 25-29 age range.

By then the youth bulge had more or less successfully integrated into the labor market. Following the youth bulge was a "trough" especially among those 15-19 years old in 2012, a group which was substantially smaller than the preceding youth bulge cohorts. The relatively smaller size of this group is currently exerting lower pressure on the labor market and education systems than was the case earlier.

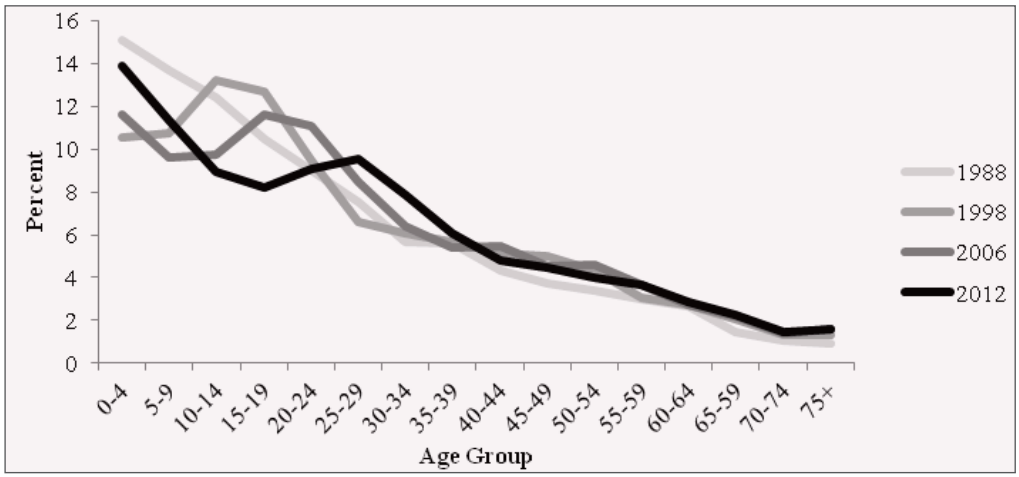
Besides being integrated into the labor market, the youth bulge generation is taking on other adult roles, including parenthood. This is apparent in the "echo" of the youth bulge, which had already begun in 2006 when the leading edge of the youth bulge became of age to be parents. As of 2012, the echo had grown substantially, with a cohort of 0-9 year-olds that was much larger than the cohorts of 10-19 year-olds that preceded them. The echo of the youth bulge is the result of several demographic forces, including the unprecedented number of mothers of prime childbearing age, but also, as this brief will argue, rising fertility rates among these mothers. We will examine in this brief the nature of the echo, its causes, and its implications for Egypt's future.

2. Upcoming and Unprecedented Demographic Pressures

The number of children, especially young children, is unprecedented in Egypt's history. The generation that formed the peak of the youth bulge, those who were 25-29 in 2012, comprised around 8 million individuals. In contrast, there are more than 9 million 5-9 year olds and more than 11 million 0-4 year olds as of 2012. As Figure 2 shows, the increase in births has yet to level off, and all signs indicate that even greater numbers of children will be born, at least for the next several years. Egypt needs to prepare and plan for this influx of young people. The 2.1 million children born in 2008 are now, in 2014, turning six and will be entering primary school. These already represent an unprecedented number of primary school entrants, with more to follow. The 2.6 million children born in 2012, just four years later, will represent a 28% increase in the number of potential

[1] All statistics, unless otherwise noted, are authors' calculations based on the Egypt Labor Market (Panel) Surveys (ELM(P)Ss) of 1998, 2006, and 2012. See Assaad and Krafft (2013a,b,c) for information on the surveys and state of the Egyptian labor market.

Figure 1: Population of Egypt in 1988, 1998, 2006, 2012



Source: Authors' calculations using LFSS 1988, ELMS 1998, ELMPS 2006, ELMPS 2012

primary school entrants, assuming enrollment rates do not increase further. In addition, starting within a decade, there will be an unprecedented number of labor market entrants. Egypt needs to be ready for these entrants, and to take advantage of the temporary lull of decreased labor market pressures currently in effect to reform the labor market.

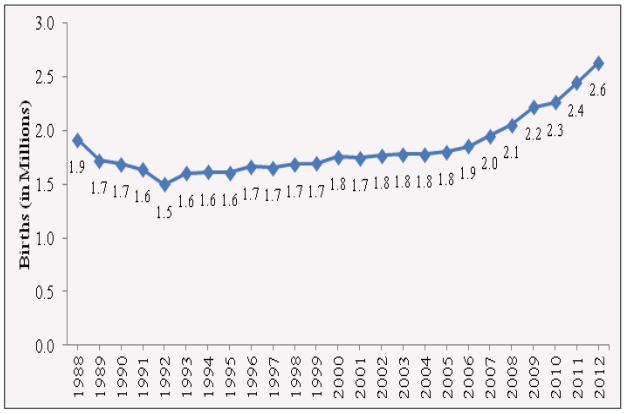
3. The Role of Fertility in the Echo

One of the factors contributing to the unprecedented size of the child population in Egypt is the youth bulge entering adult roles, including parenthood. However, Egypt's fertility rate has also risen as of 2012. Box 1 discusses the different ways that fertility can be measured. This section examines these different measures of fertility using the most recent available data for Egypt.

There has been concern in Egypt in recent years that crude birth rates (CBRs, births per thousand of population) were rising rapidly. Figure 3 presents the CBRs for Egypt over the period 1988-2011. Starting in 1988, the CBR was 38 births per thousand of population. It declined rapidly through the early 1990s, being fairly stable at around 28 births per thousand from 1993-1998, dropping to around 27 births per thousand in 1998-2002, and 26 births per thousand over the period 2003-2006.

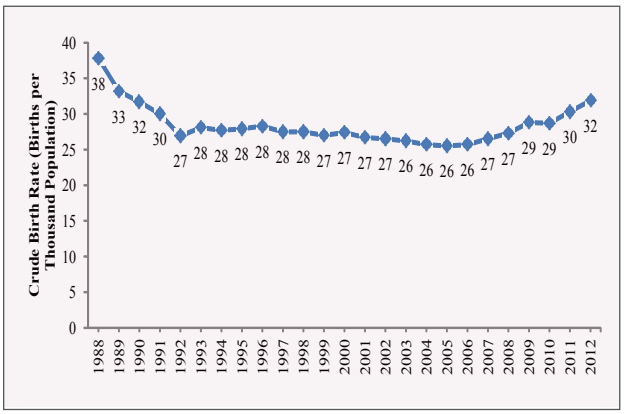
The low point of the CBR was in 2005, when it was 25.5 births per thousand. Starting in 2007, the CBR

Figure 2: Births, in Millions, 1988-2012



Notes: 2012 is preliminary data.
Source: Central Agency for Public Mobilization and Statistics (2014)

Figure 3: Crude Birth Rates, 1988-2012



Note: 2012 is preliminary data.
Source: Central Agency for Public Mobilization and Statistics (2014).

began to rise substantially, reaching 29 in 2009 and 32 in 2012. However, until now it had been unclear whether this was due to the age structure of the population or a true rise in fertility.

Total fertility rates have in fact risen substantially from 3.0 in 2008 to 3.5 in 2012. Figure 4 presents fertility trends in Egypt. In 1980, the TFR was quite high, at 5.3, and declined rapidly, falling to 3.3 by 1997. Since 1997, there have been moderate fluctuations in the TFR, but over the period 2000-2008 it declined from 3.5 to 3.0.

The 2006 round of the Egypt Labor Market Panel Survey (ELMPS) found a TFR of 3.0, consistent with the 2005 Demographic and Health Survey (DHS) (TFR of 3.1) and 2008 DHS (TFR of 3.0). However, the 2012 ELMPS indicates a substantial rise in fertility, to a TFR of 3.5.

The increase in fertility from 2008 to 2012 has occurred primarily among women aged 20-39, and has brought age specific fertility rates back up to 2000 levels. Figure 5 shows age specific fertility rates (ASFRs) over time.

Box 1: Measuring Fertility

There are a number of different measures that are used to assess fertility.

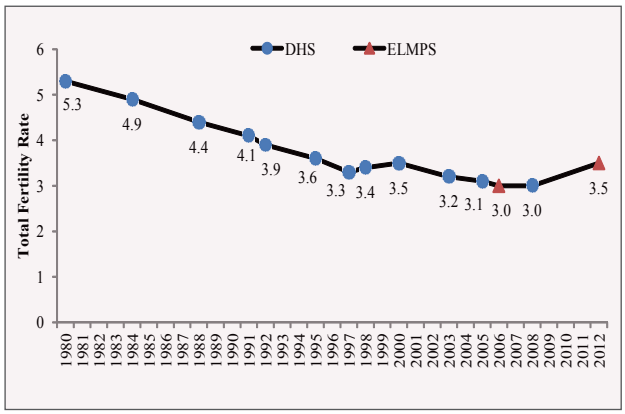
Completed fertility rates (CFRs) are the number of births to women who have completed their childbearing, and represent the key idea of fertility, the number of children a woman will have over her lifetime. However, these rates can only be calculated for women past their childbearing years, and therefore are essentially decades out of date from current patterns of childbearing.

Crude birth rates (CBRs) are calculated as the (annual) number of live births per 1,000 population. They can be calculated either from survey data or based on national reporting and registration of births. CBRs have the advantage of being available in the interim between surveys, based on vital statistics systems. However, they are also sensitive to the distribution of the population, especially if there were differential population growth rates across fertile and other ages, as is the case in Egypt with the youth bulge.

Age-specific fertility rates (ASFRs) are calculated with a numerator of the number of births that occurred in X years or months preceding a survey for mothers falling into a specific age group (El-Zanaty and Way 2009). The denominator of the ASFR is the number of woman-years lived in each age bracket in the period X preceding the survey (El-Zanaty and Way 2009). ASFRs therefore represent the annual probability of childbearing at a specific age, or when multiplied by 1,000, the annual births per thousand women of that age. The disadvantage of ASFRs is that they do not directly indicate the number of children a woman will bear over her lifetime, an essential fact about fertility.

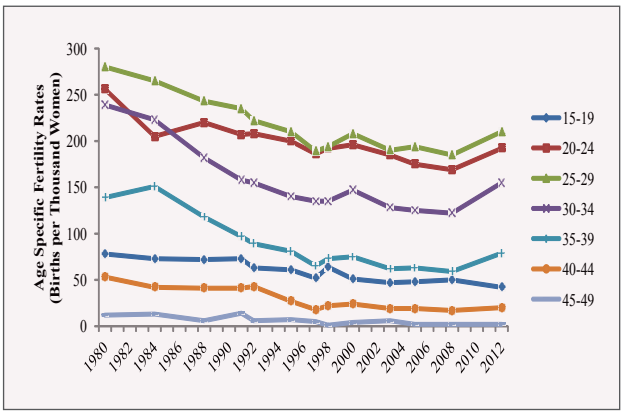
Total fertility rates (TFRs) can be calculated from ASFRs. The TFR is the sum of the ASFRs, multiplied by the number of years a woman spends in each age bracket (El-Zanaty and Way 2009). This measure is helpful for describing overall fertility, as it represents the number of children a woman would have during her childbearing years if she bore children at the ASFRs during those years (El-Zanaty and Way 2009). However, the TFR can mis-estimate the true CFR a cohort will ultimately attain if there are changes in timing of childbirth across cohorts (Bongaarts and Feeney 2005).

Figure 4: Total Fertility Rates, 1980-2012



Note: TFRs for 1980, 1984, and 1991 are 12 months preceding the survey. TFRs for 2012 and 2006 are the three years preceding the survey, remainder are 1-36 months preceding the survey.
Source: 1980-2008 are from El-Zanaty & Way (2009) and are primarily Demographic and Health Survey statistics, 2006 and 2012 are based on authors' calculations from the ELMPSs.

Figure 5: Age Specific Fertility Rates, 1980-2012



Note: ASFRs for 1980, 1984, and 1991 are 12 months preceding the survey. ASFR for 2012 is three years preceding the survey, remainder are 1-36 months preceding the survey.
Source: 1980-2008 are from El-Zanaty & Way (2009) and are primarily Demographic and Health Survey statistics, 2012 is based on authors' calculations from the ELMPS 2012.

The fertility decline in Egypt had been driven by falling ASFRs for women 20-39. As of 2012, the teenage (15-19) ASFR continued to fall in comparison to previous years, and the 40-49 year old ASFRs remained flat. However, ASFRs for 20-39 year olds all rose from their lows in 2008 as of 2012, returning to levels very similar to those observed in 2000.

4. Why is Fertility Increasing?

Fertility is increasing, and Egypt needs to prepare for the substantial population pressures created by a simultaneous rise in fertility and the population momentum created by the members of the youth bulge generation becoming parents. Policymakers and researchers may also want to investigate why fertility is on the rise, to both understand what the drivers of the increase are and whether they are likely to continue or dissipate, and also to consider policies that might shift fertility choices.

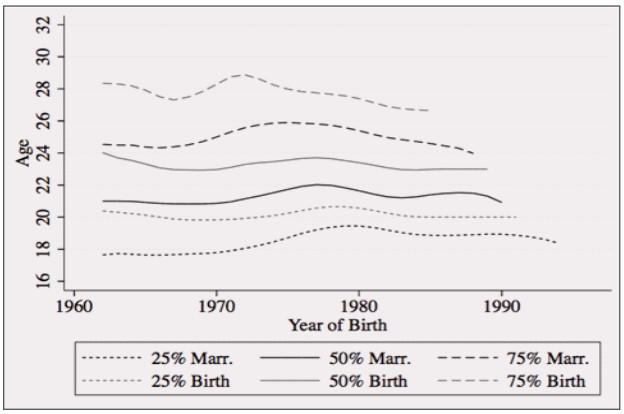
This section investigates three possible contributing factors to the rise in fertility, specifically the reduction in the age at marriage, stagnating rates of contraceptive prevalence, and the falling value of women's time outside the home due to reduced employment opportunities for educated women.

Recent Decreases in the Age at Marriage

The timing of marriage is the key determinant of the start of childbearing for women in Egypt. First births follow quite closely after marriages. Figure 6 shows the 25th, 50th, and 75th percentiles for age at marriage and age at first birth over time, and the patterns in age at first birth closely track those of age at marriage. The median (50th percentile) age at marriage was around 21 for women born in the 1960s, but rose to 22 for women born in the late 1970s.

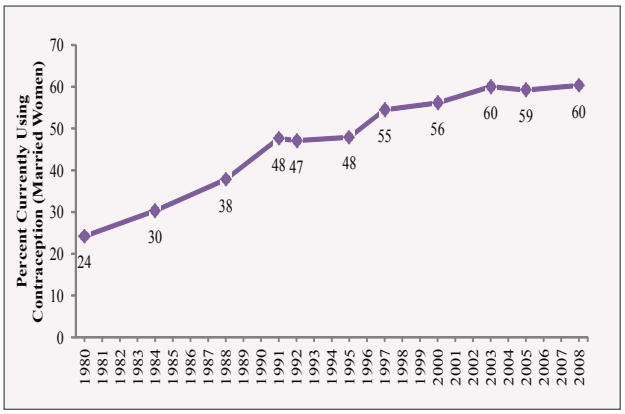
However, for women born after 1980, ages at marriage have been decreasing. Women are marrying, and subsequently having children, at earlier ages. Although there has been only a slight downtick in

Figure 6: 25th, 50th, and 75th Percentiles for Age at Marriage and Age at First Birth over Time



Note: Lowess smoothed.
Source: Author's calculations based on ELMPS 2012.

Figure 7: Percentage of Currently Married Women Using Contraceptives, Ages 15-49, 1980-2008



Source: DHS for Egypt (El-Zanaty and Way 2009).

the 25th percentile of age at marriage, at the median and especially at the 75th percentile of the distribution, women are marrying earlier. This decrease in the age at marriage is certainly one factor contributing to increases in the TFR. All else being equal, if the age at childbearing is falling then the TFR will always over-estimate the true completed fertility rate (CFR) a cohort will ultimately attain (Bongaarts and Feeney 2005).

Contraceptive Coverage Remains Stable

Another key factor that intersects with fertility is the trend in the use of family planning methods. The ELMPS, the primary data source for this study, does not enquire about contraceptive use. However, Egypt has Demographic and Health Surveys (DHSs) with detailed information on this topic, albeit information that is only as recent as 2008. Figure 7 presents the percentage of currently married women (ages 15-49) using contraceptives over time in Egypt based on the DHSs.

Since 2003, the rate of contraceptive use has changed very little, with 59% of women using contraceptives in the 2005 DHS and 60% as of the 2008 DHS. This plateauing may be in part due to policy changes. USAID was a substantial supplier of contraceptives in Egypt for many years. In 2004, USAID began shifting responsibility for contraceptive supply onto the Egyptian government, with the government taking full responsibility by 2007 (USAID 2011). The plateauing is also related to desired fertility in Egypt. As of the 2008 DHS, desired fertility averaged 2.9, very close to the TFR of 3.0 (El-Zanaty and Way 2009). Although more recent evidence could show changes in contraceptive prevalence, rates appear to be relatively stable and are unlikely to be driving the recent increase in fertility.

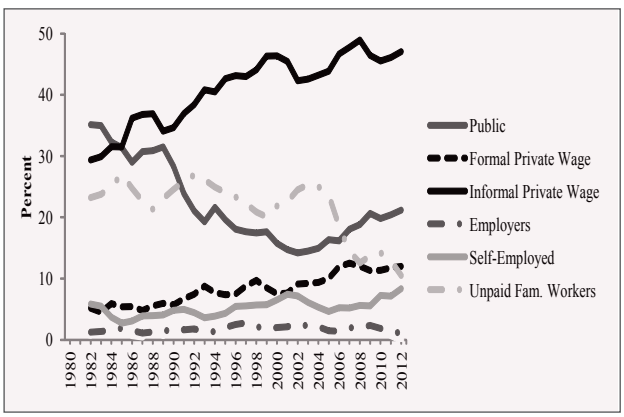
The Role of Reduced Economic Opportunities for Women

The division of labor in Egyptian households is that men are the primary breadwinners, meaning that their primary responsibility is engaging in some type of employment. In contrast, women's primary responsibilities are as homemakers attending to husband, children, and home (Hoodfar 1997). Any work women engage in must be compatible with these primary responsibilities. Public sector jobs are

much easier to reconcile with marriage and childbearing than private sector employment (Assaad and El-Hamidi 2009). Young women, in particular, value the benefits and job attributes that come with public sector jobs, such as high levels of job security and pensions, as well as the shorter hours and lighter workload associated with public sector employment (Barsoum 2004/2014). Because public sector jobs can be reconciled with childrearing, but also raise the value of women's time, economic opportunities for women may reduce their childbearing. For instance, a woman with a public sector job may decide to have two children instead of the three she would have had if she were not employed.

Structural adjustment programs and economic reforms have changed the employment opportunities available to women in Egypt (Nassar 2003). Figure 8 presents the sector of first jobs over time, and demonstrates that public sector employment opportunities have declined substantially. Informal private wage work has become the primary form of first employment for young people. This type of work is less appealing to women, and difficult to reconcile with family responsibilities.

Figure 8: First Jobs by Status (%), 3 Period Moving Average, 1980-2011

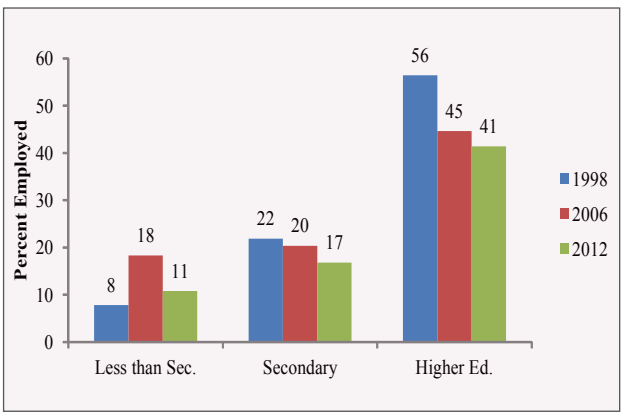


Source: Authors' calculations based on ELMPS 2006 (1980-2005), ELMPS 2012 (2006-2011).

Women are disproportionately dependent on the public sector for employment, with more than half (52%) of employed females working in the public sector in 2012, in contrast to less than a quarter (24%) of employed males (Assaad and Krafft 2013a). Rather than shifting to employment in the private sector, in the face of declines in public sector employment, women, especially educated women, have withdrawn from the labor force and employment.

Figure 9 shows female employment by education over time for women ages 15-64. The employment rate for less educated women has fluctuated with economic conditions, rising from 1998 to 2006 and falling in 2012. However, for women with secondary and especially higher education, employment has fallen over time. While in 1998, 22% of secondary-educated women were employed, by 2012 this had fallen to 17%. For women with higher education, 56% were employed in 1998 and just 41% in 2012. In the absence of opportunities outside the

Figure 9: Female Employment[2] by Education, Ages 15-64, 1998-2012



Source: Authors' calculations based on ELMS 1998, ELMPS 2006, and ELMPS 2012.

[2] Using the market definition of employment. Women in subsistence work only are not considered employed.

home, women may undertake more domestic labor, including childbearing.

5. What to Do about the Demographic Boom?

What can be done about the upcoming demographic boom? Unprecedented numbers of children are already being born, and in the short run there is unlikely to be any decrease in population growth. Preparing for and anticipating the increased pressure on public services, especially the health and education systems, and later in the labor market is critically important.

The additional births will place further pressures on the health system for antenatal and delivery care, as well as early childhood health care such as immunizations. The health ministry needs to prepare for the additional needs of the echo. Construction of additional classrooms and hiring of more teachers needs to start now and continue for some time throughout the school system in order to meet the education needs of the echo.

There is a crucial window of opportunity in the labor market during this lull in demographic pressures, as the youth bulge has been absorbed into the workforce and while the echo has yet to arrive.

Now is the time to enact labor market reforms, such as increasing the ease of hiring and firing, reducing the payroll tax burden and increasing its coverage, making it easier for small businesses to hire workers formally and removing female-specific mandates that discourage employers from hiring women.

This is necessary in order to make the labor market more dynamic and capable of the job creation necessary to absorb the echo generation.

In the long run, it is important to think about policies that might reduce fertility, particularly increasing the value of women's time outside the home. The public sector alone cannot and should not provide enough employment opportunities for women. Policies that increase the size of the formal private sector will help, but the growth of this sector has been slow (Assaad and Krafft 2013a).

The high number of hours worked in most informal wage jobs (Assaad and Krafft 2013a) are a major barrier to women's employment in this type of work, as these hours cannot be reconciled with women's domestic roles. Encouraging and facilitating employment in part-time work could increase the value of women's time outside the home without preventing domestic activities.

Shifting the burden of policies that promote and protect maternity leaves from employers onto the social insurance system would encourage more employers to hire women and would allow women to better reconcile childbearing and employment. Childcare is a challenge for working women, particularly women in informal work, who primarily rely on unpaid care and relatives (Assaad and El-Hamidi 2009).

Providing free, high quality kindergarten to all as well as expanding and subsidizing nursery services could facilitate combining employment with adult roles for women. Other policies to make employment more women-friendly should be encouraged.

6. Conclusion

After many years of pressure on the education system and the labor market, the demographic boom of the youth bulge has been absorbed into the workforce. This generation of youth is now taking on adult roles, including childbearing. Already this is causing a demographic echo, with a rapidly rising number of children putting pressure on the health system and the early stages of the education system,

and soon to create a new wave of pressure in the labor market.

The demographic pressures of the echo are exacerbated by a recent increase in fertility in Egypt; total fertility has increased substantially comparing 2008 (TFR of 3.0) and 2012 (TFR of 3.5). This increase in fertility is already contributing to millions more children born in Egypt, and policymakers need to beware of these emerging demographic pressures.

Decreasing age at marriage is one factor that is contributing to the rise in fertility, and a factor that may or may not increase women's final, completed childbearing, depending on whether earlier marriages merely alter the timing of childbearing or increase the ultimate number of children.

Reduced economic opportunities for women, particularly the decline of public sector employment and the difficulty of reconciling the most prevalent form of employment, informal wage work, with women's domestic responsibilities are also an important factor in rising fertility.

The echo, the children of the youth bulge generation and the product of increased fertility, shows no sign of abating. The echo generation, like the youth bulge generation of their parents, will place unprecedented pressures on the health and education system and ultimately on the labor market.

Policymakers in Egypt must prepare for the incoming demographic pressures by expanding health and education resources, and also by reforming the labor market while there is a temporary lull in demographic pressures. In the long term, policymakers must consider how to address, and potentially reduce, the rise in demographic pressures, especially the increase in fertility. Increasing the value of women's time outside the home is just one potential avenue for reducing demographic pressures. Much more needs to be understood about the causes of the echo and rise in fertility, and policy attention must be dedicated to addressing its needs as well as reducing demographic pressures in the long run.

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