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**DETERMINANTS OF LABOR FORCE PARTICIPATION  
IN SYRIA (2001 – 2010)**

**Rabie Nasser and Zaki Mehchy**

**Working Paper No. 698**

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## Abstract

This paper highlights the Syrian labor market challenges by analyzing the determinants of labor force participation rate between 2001 and 2010, and investigating the decrease in this rate, which was unexpected since Syria witnessed high population and economic growth rates during the last decade. The study assesses the gap between the actual and simulated volume of labor force in 2009 building on the assumption that the labor force participation rates in 2009 was equal to 2001. The simulation results show that at the actual job creation level, the unemployment rate would be 25.3% instead of the actual rates 8.6%, as 1,174 thousand individuals should have entered the labor force instead of being out of it. These individuals live mainly in rural areas and they are mostly categorized as unable, housewives, and students. The paper uses a parametric logistic regression to identify the main factors that are associated with the probability of participating in the labor force. The regression has been applied on each annual data and then on a pool data from all years. The results indicate that being a female, youth, married woman, unmarried man, living in urban areas, and having a middle level of education are all factors that have a negative impact on the probability for being in the labor market. Based on the empirical results, the paper suggests policy options to overcome the main challenges facing the labor market. These policies focus on developing a sustainable strategy for the agriculture sector; empowering females in rural areas; improving working conditions, particularly for disabled people; reviewing the early retirement policy; improving education quality and encouraging enrolment in higher education, and adopting balance development policies among regions.

**JEL Classification:** J21

**Keywords:** Labor Force Participation Determinants, Simulated Gap, Labor Supply, Labor Policy Options, Syria.

## ملخص

تسلط هذه الورقة الضوء على تحديات سوق العمل السورية من خلال تحليل العوامل المحددة لنسبة المشاركة في قوة العمل بين عامي 2001 و 2010، وتحقق في معدل هذا الانخفاض، والذي كان غير متوقع حيث أن سوريا قد شهدت ارتفاع في عدد السكان و معدلات النمو الاقتصادي خلال العقد الماضي. وتقيم الدراسة الفجوة بين الحجم الفعلي ومحاكاة قوة العمل في عام 2009 بناء على افتراض أن معدلات مشاركة القوى العاملة في عام 2009 تساوي مثلتها في 2001. نتائج المحاكاة تبين أنه على مستوى خلق فرص العمل الفعلية فإن معدل البطالة سيكون 25.3٪ بدلا من المعدلات الفعلية بنسبة 8.6٪، حيث أن ينبغي أن 1174 ألف شخص يكونوا قد دخلوا سوق العمل بدلا من أن يكونوا خرجوا منه. هؤلاء الأفراد يعيش معظمهم في المناطق الريفية، وتصنف على أنها في الغالب ربوات البيوت، وغير قادرين، وطلاب. تستخدم الورقة الانحدار الحدودي اللوجستي لتحديد العوامل الرئيسية التي ترتبط مع احتمال المشاركة في القوى العاملة. وقد تم تطبيق هذا الانحدار في كل البيانات السنوية ومن ثم على بيانات تجمع من كل سنة. وتشير النتائج إلى أن كون الشخص أنثى، أو شباب، أو امرأة متزوجة، أو رجل غير متزوج، يعيش في المناطق الحضرية، مع وجود مستوى من التعليم المتوسط هي كلها عوامل لها تأثير سلبي على احتمال وجودها في سوق العمل. استنادا إلى نتائج تجريبية، تقترح الورقة بعض الخيارات السياسية للتغلب على التحديات الرئيسية التي تواجه سوق العمل. هذه السياسات تركز على تطوير استراتيجية مستدامة لقطاع الزراعة، وتمكين الإناث في المناطق الريفية، وتحسين ظروف العمل، لا سيما لذوي الاحتياجات الخاصة، واستعراض سياسة التقاعد المبكر، وتحسين نوعية التعليم والتشجيع على الالتحاق بالمدارس في مجال التعليم العالي، واعتماد سياسات تنموية متوازنة بين المناطق.

## 1. Introduction<sup>1</sup>

During the last decade, the Syrian economy witnessed a healthy and relatively stable GDP growth rate, averaging 5.7% per year in addition to a relative stability in the macroeconomic environment. However, the economic growth was not accompanied by notable increases in the number of people employed; moreover, the labor force growth rate declined sharply and particularly among females.

Usually, development process associates, in its early stages, with an increase in labor force participation for both males and females (Standing 1981) to utilize the human capital potentials, which are key sources for development on the long run (Lucas 1988). This labor force expansion is typically encouraged by the improvement in working conditions, education, and institutions such as labor laws.

This paper uses two different methodologies based on annual data of labor force surveys in Syria from 2001 to 2010; the first methodology diagnoses the unexpected decline of the labor force participation rate in Syria between 2001 and 2010, and the second one identifies the determinants of labor force participation as an attempt to explain the behavior of individuals towards the labor market. This will help in developing and introducing appropriate programs and policies that improve labor force participation in Syria.

In order to come up with a preliminary diagnosis for the decline in the labor force participation rate, the paper conducted a labor force simulation by applying the participation rate of 2001 on the total active population up till 2009. A comparison between the simulated and actual number of labor force in 2009 shows an accumulated gap of 1,174 thousand individuals. These individuals are supposed to participate in the labor force, but actually they are out of it.

As for the determinants of participating in labor force, the study applied a logit model with a binary dependent variable of labor force participation. The results are concluded for each year between 2001 and 2010 and for all years together as well as for both males and females. The independent variables include gender, age, educational level, marital status, rural/urban, and geographical regions. The results reveal the importance of higher education, age group between 30 and 44 years, gender, and marriage as determinants of labor force participation.

The paper begins with a descriptive analysis of the labor force in Syria between 2001 and 2010 including labor force participation rate trends and active population characteristics. Section two diagnoses the labor force participation rate decline using labor force simulation. Section three identifies the determinants of labor force participation using a parametric logit model with individuals' data from labor surveys in Syria (2001 till 2010). Section four concludes policy recommendations based on the empirical findings.

## 2. An overview of labor force in Syria (2001-2010)

On average, the population growth rate in Syria was about 2.45% between 2001 and 2010. Syria witnessed a dramatic decrease in mortality rates over the past half century; the country succeeded to bring infant mortality rates down from 30 (per 1000) in 1990 to 12 (per 1000 live birth) in 2006(WDI, 2009). This decrease was accompanied by a steep decline in fertility rates from an average of 7.6 in the 1970s to 4.4 in the 1990s reaching 3.6 in 2004(UN 2010). There was a time lag of around 20 years between the time that infant mortality rates began their steep decline and the time that fertility rates began to decline. This created a demographic wave that has been moving through the population since the 1980s, resulting in a youth bulge that peaked in 2005. Thus, during the period between 2001 and

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<sup>1</sup>Special thanks are due to the staff of the Central Bureau of Statistics in Syria, and to Majd Haddad for their help in finalizing this paper.

2010, the Syrian population in terms of age group was changing, where the share of the population between 15 and 24 decreased and the share of those aged 25 and above increased.

### ***2.1 Declining labor force participation rates***

The labor force participation rate decreased during the study period from 52% in 2001 to 42.7% in 2010. The female participation rate in the labor force declined even more dramatically, from 21% in 2001 to 12.9% in 2010 to become one of the lowest rates in the world. The male participation rate also decreased from 81% to 72.2% during the same period (Figure 1).

In terms of areas of residence, Figure 2 shows that the labor force participation rate decreased in both rural and urban areas between 2001 and 2010, but the decrease in rural areas was substantially sharper than in urban areas.

### ***2.2 Active population***

As a percentage of the active population, the “out of the labor force” population increased from 48% in 2001 to 57.3% in 2010; and all its categories have increased also during the same period. This implies that the growth rate of the “out of labor force” population was higher than the growth rate of the active population. This led to a decline in the share of labor force of total active population (Table 1).

### ***2.3 Employment Characteristics***

The employment rate in Syria decreased from 46.9% in 2001 to 39% in 2010. The main decrease in employment age group shares occurred among youth aged 15 to 24 and the elderly (aged 60 and above). The majority of employed people (about 60%) have an elementary level of education and below, although this share decreased in the last three years associated with an increase in employment shares among people with preparatory and higher levels of education. It is worth mentioning that working females have, relatively, higher educational levels than their males.

In terms of economic activity, the agriculture sector is still one of the main sectors employing people in Syria; yet, it experienced a dramatic decrease in the number of workers during the period 2001 to 2010. The share of agriculture employment in total employment dropped from 30% to 14% between 2001 and 2010. In contrast, the percentage of employment in the service, construction, manufacturing, trade, transportation, and real estate sectors increased. These sectors benefited from the economic reforms of the past decade.

From public/private perspective, the share of people in Syria who are working in public sector constitutes about 27.1% of employment, and remained almost the same between 2001 and 2010; whereas, the share of employment in the private formal sector increased from 34.3% of the total employed population to 43.2% during the same period, on the account of the informal private sector.

Over the period 2001-2010, it was observed that the share of employees working for wages increased while the shares of those working for non-wages fell. For the wage employment, statistics show that nominal wages have increased notably between 2001 and 2010 for both males and females. However, and when real wages are calculated, the real increase in the monthly average wages was significant between 2001 and 2006, yet it almost stagnated through 2010 (Figure 3).

### ***2.4 Unemployment Characteristics***

In Syria, the unemployment rate declined from 10.3% in 2001 to 8.6% in 2010. The male unemployment rate decreased from 7.3% in 2001 to 6.2% in 2010, whereas the female unemployment rate was relatively stable during this period (around 22%). The unemployment

rates for almost all age groups increased over the studied period, except for young people between 15 and 24 years of age, among whom these rates witnessed relative decline.

In terms of educational level, (Table 2) shows that the share of unemployed with elementary and below level of education almost halved over the period 2001-2010; while the share of unemployed with secondary, intermediate institute and university level of education increased.

The above overview indicates several challenges of the labor supply in Syria including the education levels of employed people, stagnant real wages, and decline in labor force participation, which is the focus of this paper.

In order to explain the decline in labor force participation rates phenomenon between 2001 and 2010, this study applied two methodologies. The first one aims to diagnose the phenomenon through analyzing the characteristics of the relative increase of the “out of labor force” population by gender and urban/rural dimensions. Then, the second methodology is based on building an econometric model to identify the determinants of labor force participation rates in Syria.

### **3. Diagnosis of the Labor Force Participation Rate Decline**

This section decomposes the relative increase of the “out of labor force” by its categories; this relative increase is calculated by the difference between the actual “out of labor force” numbers and the simulated ones. As mentioned before, the data is based on the Labor Market surveys conducted between 2001 and 2010. These surveys adopted the standard definition of employment which includes all persons aged 15 years and above, worked at least one hour during the last week (prior to the interview) in paid or unpaid or self -employment job. Thus, the unemployed person is the one who aged 15 years and above, did not work for one hour last week, and looking for a job.

#### ***3.1 Labor force simulation***

The phenomenon of the declining LFPR began notably in 2003 and continued till 2010. The data shows that the structure of population aged 15 years and above according to their relations with the labor market was almost the same in 2001 and 2002; then, it changed dramatically in 2003 till 2010. Thus, and to capture the changes that happened between 2001/2002 and 2010, this simulation implies that the growth rates of all labor market categories (labor, out of labor) equal to the growth rates of the active population during the studied years; in other words, we keep the structure of active population in terms of its relation to the labor market as it was in 2001 for the period 2002-2010.

Thereafter, the study compares the numbers of the simulated out of labor force with the actual ones. The difference is the unexpected relative increase of out of labor force. The study decomposes this difference by the “out of labor force” categories, taking into consideration gender and rural/urban dimensions. It is worth noting that this simulation is an attempt to avoid the weaknesses of applying the expected values of an econometric model for LFPR since models that have been conducted in the next section will not explain more than 60% of the declining LFPR phenomenon.

The above figure shows that the difference between actual and simulated labor force (the simulated gap) has increased gradually to reach 1,242 thousand individuals representing 9.6% of the active population in 2010. Assuming that these individuals joined the labor force, with the actual level of jobs creation; the unemployment rate would be 25.3% instead of 8.6%.

### 3.2 *The gap between simulated and actual labor force*

By decomposing the simulated gap for the year 2009<sup>2</sup> to the “out of labor force” categories; the results show that “unable”, “housewives”, “students”, “retired”, “sufficient”, accounted for 28%, 20%, 17%, 14%, and 11% of the gap, respectively. Some positive aspects of this gap are related to the relative increase of the students’ numbers in higher education. However, these results indicate also the unexpected high increase in the “retired”, “housewives”, and “sufficient” categories. Further analysis of this gap taking the gender and urban/rural dimensions into account shows the following:

**Gender decomposition:** the gap consists of 55% males; more than half of them are among the “unable” and “retired” categories which explain 17%, 12% of the gap respectively. The “students” category contributes 10% to this gap, and the “sufficient” contribution reaches 6%. In terms of females (45% of the gap), “housewives” comprises 15% of the simulated gap, and the “unable”, “students”, and “sufficient” categories contribute 13%, 7%, and 6% to the gap, respectively (Figure 5).

**Urban/rural decomposition:** 69% of the gap is people living in rural areas; the most important category is “housewives” which contributes 19% to the total gap followed by the “unable” category (16%), then “students” (14%). As for urban areas (31% of the gap), the “unable” and “retired” categories comprise 13% and 7% of the gap, respectively (Figure 6).

The decomposition exercise shows that almost 9.6% of the active population went unexpectedly to the “out of labor force” categories instead of joining the labor force. This gap in the labor force consists mainly of people lives in rural areas particularly “housewives”, “unable” and “students”. Although females contribute 45% to the gap, their contribution is relatively more important than males’ contribution since the female labor force is about 17% of the males’ one.

This simulation aims to identify the out of labor force categories that contribute, in a way or another, to the simulated gap. The results should pave the way for additional in-depth studies to determine and analyze the reasons behind the contribution amount of each category to this gap.

Yet, and based on the general socio-economic situation in Syria between 2001 and 2009, one could say that the relatively high contribution of the “housewives” category to the simulated gap is mainly due to the fact that females in rural areas formerly worked in the agriculture sector, but after the drought and the increase in fuel price, a large number of these low-skilled workers became jobless and returned home as housewives since it was very difficult for them to find a job other than as agriculture workers. As for the contribution of the “student” category, it is mainly affected by easing the entry to universities through parallel and open education since 2003 in addition to the entry of new industries (private banks and insurance companies) who pay relatively high salaries but require high skills. The contribution of “retired” and “unable” categories could be due to applying the early retirement category in addition to the inappropriate working conditions particularly for workers in the informal sector.

It is worth mentioning that migration is one of the factors, which are not included in the simulation analysis but could play a role in the declining LFPR in Syria. Since there is no accurate number on migrants and their jobs, remittances could be used as a proxy. Data shows that remittances between 2001 and 2003 was almost stable (about 480 million US Dollars) and during the same period LFPR decreased dramatically from 52.3% to 48%; also,

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<sup>2</sup>The authors adopted 2009 data to decompose the simulated gap, since the 2010 data contains a substantial unexplained value of the “other” category.



between 2009 and 2010, remittances declined from 1020 to 929 million US Dollars and the LFPR declined about 0.5%. Thus, one could conclude that remittances do not play a major role in LFPR decline since the fluctuated remittances' amounts between 2001 and 2010 accompanied a steady decline in LFPR during the same period. From another side, Syria has received since 2003 about 700,000 Iraqis refugees. This was expected to affect the Syrian labor market and increase the number of unemployed persons among Syrians. However, data shows that the number of unemployed actually decreased between 2003 and 2005. Thus, it could be said that immigrants to Syria did not have a notable impact on the national LFPR.

In general, the simulation results reveal the components of the relative decrease in the labor force participation; however, it is unable to explain the determinants of labor force participation taking into account the inter-relations between different factors that affect the people decisions in joining the labor market.

#### **4. Determinants of Labor Force Participation (2001 – 2010)**

This section aims to identify labor force participation determinants, in order to deepen the understanding of the factors that led to the declining labor force participation rate in Syria. In this regards, a parametric regression using binary outcome model has been used over the study period. An explanatory variable literature review has been conducted in order to choose the labor force participation determinants.

##### **4.1 Literature review**

Economic growth and modernization are usually accompanied with higher demand on labor including female workers (Standing 1981). However, in Syria, the relatively high growth rate during the last decade did not associate with an increasing labor force participation rate. This rate has decreased between 2001 and 2010, particularly among females. Actually, it is not only Syria which suffers from this, but also in many other MENA countries such as Turkey, the female labor force participation rates show a declining trend. In contrast, these rates increased considerably in developed countries in recent years (Tansel 2002).

Although there is no specific model of female labor supply, a number of phenomena such marriage, fertility, and occupational characteristics of labor supply, seem to be more correlated to women's labor supply (Killings worth and Heckman 1980). Moreover, the female participation depends also on non-economic factors such as culture (Psacharopoulos and Tzannatos 1989). Thus, it is reasonable to have models that analyze the impact of such factors on males and females separately.

The distribution of those who are out of labor force by age group shows that most of them are youth and elderly people; and this means that "age" affects the probability of being in the labor force. For elderly people, withdrawal from the labor force could be affected by the rapid expansion of the social security program (Parsons 1980); whereas for youth, the increasing returns on education leads to an increase in enrolment rates which contributes to the declining youth labor participation rate (Aaronson et al. 2006).

Although the rates of return to education in Syria are low by international standards, these rates increase with the level of educational attainment. Moreover, the higher educational level increases the chances of finding a job (Huitfeldt and Kabbani 2005). This indicates the importance of the educational level impact on the labor force participation trend. The education impact is more obvious for females, among whom, the positive impact of higher educational level matters in both rural and urban areas, and it has a significant positive impact on labor market participation (Sackey 2005).

Several studies mention that marital status affects significantly the probability of working where married males are more likely to work and they work more hours than their single counterparts; whereas married women are less likely to work and they work fewer hours than

their single counterparts (Duncan et al.1993; McElroy 1985). It is worth noting that In addition to the general factors that affect women’s decision to participate in the labor force, the choice of married women to work is affected also by several other factors that should be considered. These factors include the number of children, their ages, and husband’s employment status (Ali Khan and Khan 2009).

In terms of urban/rural, Mincer (1985) finds that urbanization level is positively related to female labor force growth. Another study shows that in Turkey young people migrated from a high-participation rural environment (unpaid work) to a low-participation urban one, and this decreased the labor force participation; however, urbanization seems to have better working conditions (Uraz et al. 2010).

Al-Qudsi (1998) shows, based on a sample of females selected from four Arab countries, that there is a significant degree of dependence between fertility and labor participation where fertility produces a negative influence on women’s participation rates. The study proves also that family size effects negatively mothers’ market earning power.

The literature indicates that household income is one of the main determinants of being in the labor force particularly among females (Mincer1962). The same study concludes that an increase in one individual's income may not result in a decrease in her hours of work, but in those of other family members. Other study shows that women from lower economic backgrounds are almost two to three times more likely to be in the labor force than those in high-income families, controlling for age, number of children under 6 and marital status (Nam 1991).

Institutions and macroeconomic environment are among the factors that affect the labor force participation. Blanchard and Wolfers (2000) suggest that better macroeconomic environment and the improvement in institutions quality should lead to a substantial decline in unemployment and to an increase in the labor force participation.

After reviewing and discussing several related studies, a conclusion is reached that many factors affect the labor force participation. These factors include gender, age, educational level, marital status, fertility rate, regions, in addition to household income and institutions. The study uses the labor force survey in Syria (2001 – 2010) that do not all include variables for household income and institutions.

#### ***4.2 The empirical model***

The labor force participation is a binary variable, which takes 1 when the individual, aged 15 years and above, participates in the labor force (employed or unemployed); and takes 0 if the individual does not participate. The model attempts to define determinants of the probability of participating in labor force rather than not participating.

$$lfp = \begin{cases} 1 & \text{with probability } p \\ 0 & \text{with probability } 1 - p \end{cases}$$

The form of the parametric function is:

$$p_i = Pr(lfp_i = 1|X) = F(X_i'\beta)$$

Where  $p_i$  is the conditional probability of the participating of individual  $i$  in labor force given the  $X$  as regressors vector, and  $F(.)$  is a cumulative distribution function (c.d.f.).

The main two standard binary models are the logit and propit models, they use different function forms, but both use maximum likelihood estimation. The logit model use a functional form  $F(.)$  that is (c.d.f.) of logistic distribution; while the probit model use (c.d.f.) of the standard normal distribution (Cameron et al. 2005). The paper reported the logit model

results since the probit and logit regressions provide similar outcomes using labor Syrian data.

Using the available multiple cross-sectional surveys, the same regression was repeated for different years to see how relations of independent variables with labor force participation varies over time. Additionally, a pool of all surveys for all years was used to estimate the coefficients of regressors after controlling for time dimension (years fixed effects).

The variables that have been used to estimate the logit regressions are the age, gender, education levels, household size, marital status, relation to the head of household, rural/urban, and regions. The multicollinearity between “relation” and “household size” and “marital” variables led to drop relation and household size variables. The regression applied to individuals above 14 years old, and for the total sample as well as for male and female. Moreover, to avoid heteroskedasticity, Taylor linearized variance estimation to have consistence estimation covariance has been used; this estimation is implied in (svy) Stata command, (Stata 2009).

### **4.3 The model results**

Although the variables that were used for this model do not cover all potential factors that affect the probability of being in the labor market, the results indicate that these variables explained an important part of the decline in the labor force participation rate in Syria. The impact of each independent variable on the probability of participating in the labor market is described as follows:

**Gender:** The empirical results show that females’ probability of participation in the labor market is significantly less than males’ probability, and it has declined over the study period. Moreover, the results indicate that “gender” is relatively the most important factor among all factors included in the model.

**Age groups:** Being among youth between 15 and 19 years affects negatively and significantly the probability of participation in the labor force; but, this negative impact was decreasing in the last two years for males and females (2009 and 2010) to become positively significant for males and insignificant for females. For youth between 20 and 24 years, the probability of being in the labor market changed over time from being significantly negative till 2007 to be significantly positive in the last three years. Being 25 and 60 years old have a positive impact on the probability to join the labor market. This probability reached its peak at the age category 30 to 39 years for females and 35 to 44 years for males. In terms of those aged 60 years and above, for both males and females, the results show that their ages affect negatively the probability of being in the labor market. This could be due to the impact of the early retirement law in addition to the difficult working conditions.

**Education level:** The probability of joining the labor market is higher among those who can read and write and who have primary education compared to those lacking these; however, this probability is lower among those who have preparatory and secondary education. This result could be influenced partly by the students who completed preparatory and secondary schools and are enrolled in higher education levels during the time of the surveys. Those who completed the institution educational level have the highest probability of being in the labor market, followed by people with university educational level; these probabilities increased over the study period.

From a gender point of view, males who have a basic education have higher participation probability compared to those lacking a primary education and literacy, while this probability becomes negative for males who have preparatory and secondary education. Completing institute and university educational levels has a negative impact on probability of males for participation in the labor market; this impact has become positive since 2008. For females,

completing preparatory and secondary education levels has a positive impact on the probability of being in labor force since 2002; however, the highest positive impact on this probability is among females who have institute and university education levels.

**Urban/rural:** Compared to urban areas, living in rural areas affects positively and significantly the probability of participation in the labor force. This probability decreased, but remained positive, during the study period; this decrease could be partly due to the impact of the draught. The impact of living in rural areas was also positive on the male labor force participation; yet, it became negative in the last two years of the study period. For females, this impact declined during the years of study, but remains positive.

**Geographical regions:** Compared to the Southern region, living in the Coastal and Middle regions had a significant and positive impact on the probability of being in the labor market throughout the study period; however, the positive impact of living in the Coastal areas on males' participation probability has become insignificant since 2008. Living in the Eastern and Northern regions had positive impact on the participation probability; yet, this impact became negative in the last three years of the study. For females, living in the Eastern region continues to have a positive and significant impact on participation probability, but declined notably.

**Marital status:** Compared to those who never married, married people have a lower probability of entering the labor market. Similarly, marriage has a negative and significant impact on females' participation probability. In contrast, married and widowed men are more likely to participate in the labor force than single men. It is worth noting that "marriage" is considered to be among the most important determinants of female labor force participation.

**Time (year as a dummy):** The pool regression of all years (using the years' dummies) shows that the time fixed effects are significant and associated negatively with the probability of being in the labor force; the negative impact increases over time. This indicates factors, other than the included ones, decrease the participation probability. These factors could be labor demand shocks, labor market policies, regional conflicts, and others. The same conclusion applies for females, and to a lesser extent for males.

## 5. Policy Recommendations

This study addresses the phenomena of declining labor force participation rate in Syria during the past decade (2001- 2010). Given the demographic and economic development characteristics of Syria, which witnessed high population and economic growth rates, the labor force participation rates were expected to increase, especially among females, during the last decade. However, it declined for males and females. The low growth rates of the labor force, comparing with the growth rates of the active population, masked the low growth rates of job opportunities. In this case, the stable and relative low unemployment rate, around 8%, is a misleading indicator of the labor market challenges in Syria.

This study adopted two methodologies:

The first methodology aims to assess the gap between the actual volume of labor force in Syria in 2009, and the simulated volume of labor force in 2009 built on the assumption that the labor force participation rates in 2009 equal to 2001. The "simulated gap" detects about 1,174 individuals (aged 15 years and above), who are actually out of the labor force, but theoretically should have joined the labor force during the last decade. Based on the simulation result, it has been concluded that the unemployment rate would be 25.3% instead of the actual rates 8.6%, with the assumption that 1,174 individuals entered the labor force at the actual job creation level. Thus, this phenomenon would cause serious challenges for sustainable development strategy.

Based on the analysis of the simulated gap the following policy options are recommended:

Making the development of a sustainable strategy for the agriculture sector a priority for policy makers. A sustainable strategy is needed to mitigate the relative decline in participation rate, mainly among females. This is especially important for the agriculture sector as it is considered a major employer of unskilled labor.

Empowering females in rural areas to obtain non-agriculture skills, access to finance, and facilitate their entry to market, in order to encourage them to participate in the labor force.

Improving working conditions for females by encouraging the shift of informal private sector to a formal one. This guarantees better conditions in terms of wages, social security, childcare services, parental paid leave, and availability of part-time jobs.

Enhancing the quality of education in parallel with a structural shift in the national economy towards higher productive sectors with high-skilled labor in order to absorb expected highly educated males and females. Otherwise, graduates would face a lack of job opportunities that match their skills (Tunisia case).

Reviewing the early retirement policy, which partly accelerates retirement mainly among medium to high-skilled males. Furthermore, early retirement is not a sustainable solution for providing enough job opportunities for youth, and it is a loss of the contribution of elderly people.

Enhancing the culture and values of work by adopting a participatory national strategy to contribute in reducing the relative increase of “sufficient” population.

Adopting an inclusive strategy to engage “unable” people in economic activities, through providing the necessary facilities to empower their effective participation in the labor market.

The second methodology is based on using a parametric logistic regression to identify the main factors that are associated with the probability of participating in the labor force. The logit regression has been applied, repeatedly, to the annual data of labor surveys from 2001 to 2010, and then a regression applied to a pool of data from all years. The same exercise was repeated for males and females separately. This approach allows carrying out the comparison among years regarding type of relationship and statistical significance between dependent and independent variables across the study’s timeframe.

Based on the logit regressions results the following policy options are recommended:

Adopting employment policies, which are able to offer a decent and fair work environment, provide required services that facilitate females’ employment (part-time jobs, insurance), and bridge the salaries gap. It is worth mentioning that the female labor force participation rate in Syria is considered one of the lowest rates worldwide and that there is a correspondingly huge potential to increase it.

Encouraging enrolment in higher education is a key policy for improving labor force participation. Securing decent job opportunities for middle and high-skilled labor is needed to absorb the expected relative increase in graduate numbers. Moreover, providing welfare policies and programs to elderly and retired people with enough social protection is important. Nevertheless, it is not recommended to exclude people while they are still able to work, thus providing proper the work environment will encourage this age group to continue working. Furthermore, the population between 25 and 44 years, especially females, will benefit through increasing the variety of new job opportunities to match available skills.

Securing appropriate working conditions for married females, such as child care services, household services, and maternity leaves. In addition, focus should be placed on other social factors that facilitate females’ ability to work, such as raising awareness of the importance of work.

Adopting balanced development policies among regions, through reallocating resources efficiently to the regions that suffer from inappropriate infrastructure and weak business environment.

In general, decline in labor force participation rates mirrors the lack of creating new and appropriate job opportunities and is considered a social and economic challenge in Syria, which requires solutions on the national level. Therefore, in order to increase the participation rate, Syria needs a long-term strategy of restructuring towards a diversified, high-productive and creative economy. Consequently, on the level of public policies, reforming labor market institutions is needed to secure an appropriate environment to empower people, increase their productivity, and protect their rights to fair and decent work opportunities.

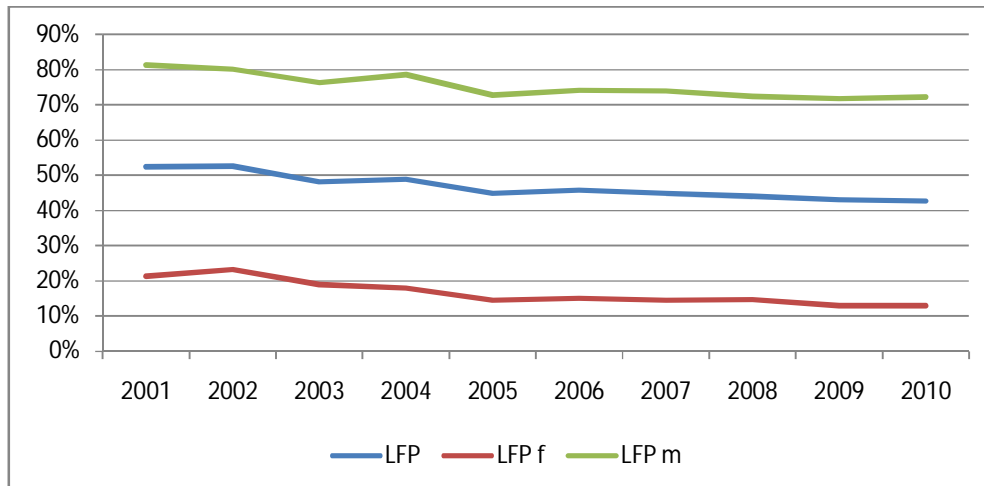
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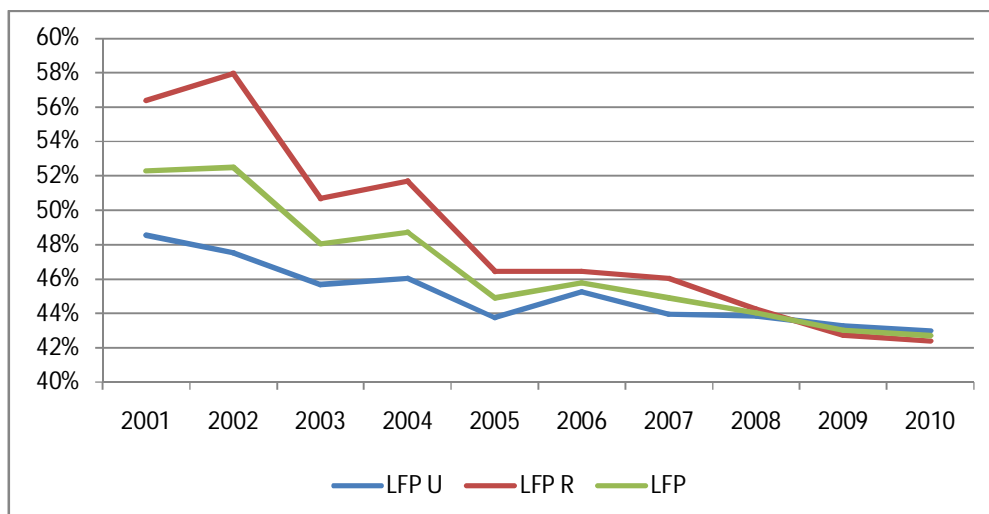


**Figure 1: Labor Force Participation Rate by Gender (2001 – 2010)**



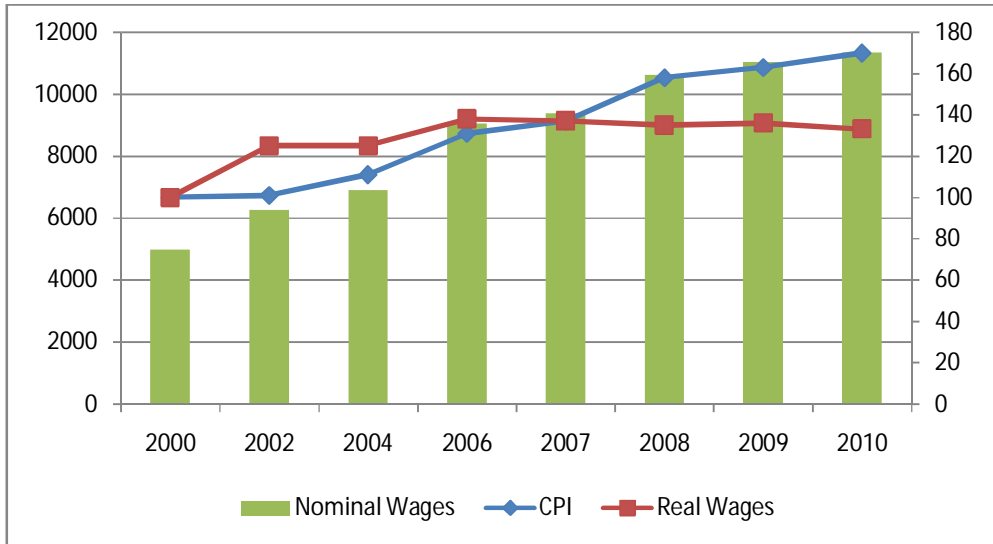
Source: CBS and authors' calculations

**Figure 2: Labor Force Participation Rate by Rural/Urban (2001 – 2010)**



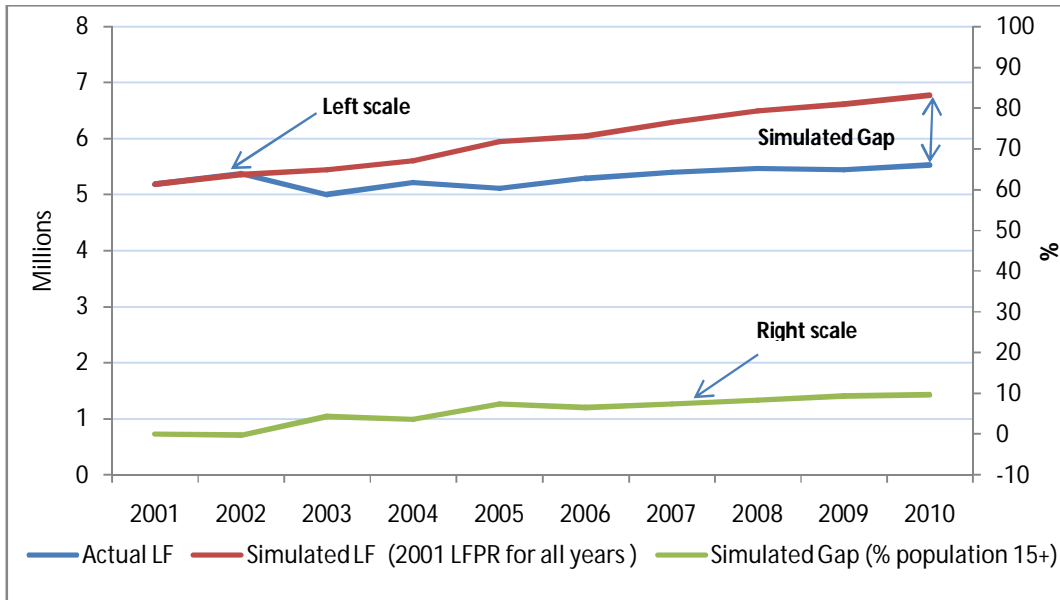
Source: CBS and authors' calculations

**Figure 3: Real Vs. Nominal Monthly Average Wages in SYP (2001-2010)**



Source: Authors' calculations

**Figure 4: Actual vs. Simulated Labor Force 2001-2010**



Source: CBS and authors' calculations

**Figure 5: Simulated Gap Structure by Gender**

<b>The gap between simulated and actual LF (1,174 thousands)</b>	
<i>Males (55%)</i>	<i>Females (45%)</i>
<i>Unable (17%)</i>	<i>Housewives (15%)</i>
<i>Retired (12%)</i>	<i>Unable (13%)</i>
<i>Student (10%)</i>	<i>Student (7%)</i>
<i>Sufficient (6%)</i>	<i>Sufficient (6%)</i>
<i>Housewives (3%)</i>	<i>Retired (2%)</i>

Source: Authors' calculations

**Figure 6: Simulated Gap Structure by Urban/Rural**

<b>The gap between simulated and actual LF (1,174 thousands)</b>	
<i>Rural (69%)</i>	<i>Urban (31%)</i>
<i>Housewives (19%)</i>	<i>Unable (13%)</i>
<i>Unable (16%)</i>	<i>Retired (7%)</i>
<i>Student (14%)</i>	<i>Sufficient (4%)</i>
<i>Sufficient (8%)</i>	<i>Student (3%)</i>
<i>Retired (7%)</i>	<i>Housewives (-1%)</i>

Source: Authors' calculations

**Table 1: Structure of Active Population by Relation to Labor Market (2001-2010)**

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
<b>Labor Force</b>										
Employed	46.9	46.4	42.8	44.6	41.3	42	41.1	39.2	39.5	39
Unemployed	5.4	6.1	5.3	4.2	3.6	3.7	3.8	4.8	3.5	3.7
<b>Out of Labor Force</b>										
Housewives	31.5	30.6	31.4	33	30.3	31.5	32.7	31.5	33.4	29.8
Student	11.8	11.9	12.4	13.6	15	15.1	15.7	13.4	13.4	14
Sufficient	1	1	1.5	0.7	2.6	1.6	1.8	1.9	2.1	2
Retired	1.6	1.9	2	1.9	2	2.3	2.4	2.4	3	2.8
Unable	1.7	2.1	4.1	2.2	3.7	2.7	2.5	4.9	4.4	4.6
Other			0.6		1.4	1		1.8	0.8	4.1
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: CBS and authors' calculations

**Table 2: Structure of Unemployed Population by Education Level (2001-2010)**

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Illiterate	6.4	5.2	6	5.5	5	3.8	4.4	8.5	6.4	4
Reading/writing	7.4	6.3	5	4.5	9.2	6.1	7	12.7	7.6	17.3
Elementary	57	55.8	47.1	52.9	37.5	38.8	35.9	33.6	32.4	20.2
Preparatory	13.4	13.1	14.9	14	15.1	15.8	16.1	12.6	14.6	14.1
Secondary	8.3	9.8	15.9	19.3	17	18.7	18.6	18.1	18.3	20.4
Institute	4.7	6.6	7.6	3.9	10.8	10.6	11.9	9.6	13	14.3
University +	2.8	3.1	3.4		5.4	6	6.1	4.8	7.7	9.8
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Source: CBS and authors' calculations

## Annex

### Table 1: Probability of being participated in LF (coefficient - total)

	2001-2010	2001	2002	2003	2005	2006	2007	2008	2009	2010
<b>Age (Ref. groups: 55-59 or 60-64)</b>										
14-19	-0.551*** (0.020)	-1.729*** (0.086)	-1.957*** (0.077)	-0.555*** (0.065)	-0.650*** (0.087)	-0.732*** (0.054)	-2.229*** (0.049)	-0.401*** (0.064)	-0.106 (0.079)	-0.423*** (0.076)
20-24	1.099*** (0.020)	-0.128 (0.082)	-0.342*** (0.074)	0.930*** (0.064)	0.925*** (0.085)	0.986*** (0.053)	-0.324*** (0.047)	1.241*** (0.061)	1.445*** (0.077)	1.442*** (0.074)
25-29	2.031*** (0.019)	0.455*** (0.075)	0.281*** (0.067)	1.657*** (0.061)	1.974*** (0.081)	2.097*** (0.050)	0.782*** (0.043)	2.184*** (0.058)	2.582*** (0.072)	2.522*** (0.070)
30-34	2.325*** (0.019)	0.672*** (0.073)	0.638*** (0.065)	1.954*** (0.059)	2.259*** (0.081)	2.425*** (0.049)	1.069*** (0.042)	2.539*** (0.058)	2.837*** (0.072)	2.914*** (0.068)
35-39	2.374*** (0.019)	0.799*** (0.073)	0.667*** (0.064)	1.968*** (0.059)	2.327*** (0.080)	2.464*** (0.049)	1.121*** (0.042)	2.558*** (0.058)	2.977*** (0.072)	2.972*** (0.068)
40-44	2.349*** (0.019)	0.794*** (0.074)	0.742*** (0.065)	1.971*** (0.059)	2.264*** (0.081)	2.420*** (0.049)	1.080*** (0.042)	2.496*** (0.059)	2.886*** (0.072)	2.963*** (0.069)
45-49	2.214*** (0.020)	0.625*** (0.076)	0.611*** (0.067)	1.877*** (0.061)	2.094*** (0.082)	2.304*** (0.051)	0.914*** (0.044)	2.333*** (0.060)	2.739*** (0.075)	2.794*** (0.072)
50-54	1.796*** (0.020)	0.386*** (0.079)	0.360*** (0.070)	1.514*** (0.064)	1.586*** (0.086)	1.898*** (0.053)	0.478*** (0.047)	1.863*** (0.064)	2.171*** (0.079)	2.306*** (0.076)
55-59	1.316*** (0.022)			1.098*** (0.071)	1.220*** (0.093)	1.386*** (0.058)		1.452*** (0.069)	1.394*** (0.083)	1.634*** (0.082)
60-64		-0.783*** (0.096)	-1.149*** (0.084)				-1.403*** (0.056)			
65+	-0.888*** (0.020)	-1.706*** (0.084)	-1.884*** (0.074)	-0.827*** (0.064)	-0.853*** (0.088)	-0.904*** (0.055)	-2.246*** (0.050)	-1.013*** (0.067)	-0.993*** (0.083)	-1.080*** (0.079)
<b>Gender (Ref. group: male)</b>										
female	-3.753*** (0.008)	-3.528*** (0.033)	-3.373*** (0.029)	-3.326*** (0.024)	-3.661*** (0.034)	-3.897*** (0.022)	-4.090*** (0.022)	-3.743*** (0.025)	-4.043*** (0.032)	-4.152*** (0.031)
<b>Education level (Ref. group: illiterate)</b>										
read_write	0.341*** (0.011)	0.220*** (0.043)	0.395*** (0.040)	0.342*** (0.032)	0.294*** (0.042)	0.180*** (0.027)	0.286*** (0.027)	0.490*** (0.031)	0.556*** (0.041)	0.699*** (0.039)
elementary	0.494*** (0.010)	0.361*** (0.041)	0.544*** (0.036)	0.516*** (0.028)	0.413*** (0.040)	0.509*** (0.025)	0.493*** (0.024)	0.480*** (0.029)	0.499*** (0.036)	0.385*** (0.037)
preparatory	-0.403*** (0.012)	-0.753*** (0.051)	-0.779*** (0.047)	-0.443*** (0.035)	-0.271*** (0.048)	-0.329*** (0.030)	-0.443*** (0.029)	-0.177*** (0.035)	-0.243*** (0.043)	-0.261*** (0.044)
secondary	-0.649*** (0.013)	-0.755*** (0.065)	-1.028*** (0.058)	-0.290*** (0.046)	-0.523*** (0.057)	-0.629*** (0.037)	-0.846*** (0.036)	-0.408*** (0.042)	-0.663*** (0.052)	-0.653*** (0.053)
institute	2.694*** (0.018)	2.399*** (0.088)	2.699*** (0.081)	2.779*** (0.064)	2.430*** (0.078)	2.786*** (0.048)	2.791*** (0.044)	2.709*** (0.054)	2.826*** (0.065)	2.766*** (0.063)
university+	1.887*** (0.018)	1.659*** (0.098)	1.788*** (0.087)	1.869*** (0.067)	1.361*** (0.086)	1.785*** (0.053)	1.944*** (0.049)	2.066*** (0.058)	2.156*** (0.069)	2.171*** (0.069)
<b>Table 1: Cont.</b>										
<b>Urban/rural (Ref. group: urban)</b>										
rural	0.285*** (0.006)	0.559*** (0.026)	0.826*** (0.024)	0.478*** (0.018)	0.238*** (0.024)	0.159*** (0.015)	0.245*** (0.014)	0.184*** (0.018)	0.075*** (0.021)	0.127*** (0.021)
<b>Region (Ref. group: southern)</b>										
coastal	0.714*** (0.011)	0.824*** (0.053)	0.422*** (0.042)	0.583*** (0.033)	0.667*** (0.046)	0.802*** (0.031)	1.066*** (0.030)	0.570*** (0.037)	0.652*** (0.045)	0.429*** (0.045)
middle	0.445*** (0.009)	0.420*** (0.037)	0.417*** (0.035)	0.356*** (0.027)	0.554*** (0.036)	0.437*** (0.023)	0.554*** (0.022)	0.332*** (0.027)	0.484*** (0.032)	0.310*** (0.032)
northern	0.056*** (0.008)	0.353*** (0.032)	0.299*** (0.029)	0.430*** (0.023)	0.061*** (0.029)	0.081*** (0.018)	0.004 (0.017)	-0.199*** (0.023)	-0.129*** (0.027)	-0.266*** (0.026)

eastern	0.190*** (0.010)	1.010*** (0.043)	0.576*** (0.039)	0.481*** (0.030)	0.357*** (0.041)	0.075*** (0.024)	0.057** (0.022)	-0.015 (0.027)	-0.082** (0.032)	-0.194*** (0.032)
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**Marital status(Ref. group: ever married)**

married	-0.628*** (0.010)	-1.079*** (0.045)	-1.523*** (0.042)	-0.689*** (0.031)	-0.478*** (0.042)	-0.608*** (0.028)	-0.636*** (0.026)	-0.383*** (0.030)	-0.370*** (0.038)	-0.570*** (0.039)
divorced	0.116*** (0.040)	-0.104 (0.214)	-0.619*** (0.190)	0.035 (0.137)	-0.043 (0.170)	0.269** (0.110)	0.226** (0.108)	0.140 (0.124)	0.293** (0.138)	0.381** (0.148)
widow	-0.665*** (0.024)	-1.164*** (0.106)	-1.467*** (0.088)	-0.782*** (0.069)	-0.596*** (0.099)	-0.625*** (0.067)	-0.611*** (0.065)	-0.536*** (0.080)	-0.351*** (0.094)	-0.317*** (0.087)

**Time fixed effects (Ref. group: 2001)**

y_2002	-0.008 (0.017)									
y_2003	-0.306*** (0.016)									
y_2005	-0.693*** (0.017)									
y_2006	-0.626*** (0.015)									
y_2007	-0.668*** (0.014)									
y_2008	-0.762*** (0.015)									
y_2009	-0.862*** (0.016)									
y_2010	-0.799*** (0.016)									
<b>Constant</b>	0.663*** (0.024)	1.927*** (0.088)	2.193*** (0.079)	0.142** (0.066)	-0.052 (0.089)	0.151*** (0.055)	1.567*** (0.051)	-0.267*** (0.066)	-0.533*** (0.082)	-0.190** (0.080)
<b>Number of observations</b>	933,910	51,068	63,887	96,120	59,318	156,159	209,619	128,614	82,672	86,453
<b>F</b>		542.808	636.218	958.959	555.872	1,484.519	1,672.187	1,076.583	784.347	853.672
<b>P</b>		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 2: Probability of being participated in LF (coefficient - male)**

	2001-2010	2001	2002	2003	2005	2006	2007	2008	2009	2010
<b>Age (Ref. groups: 55-59 or 60-64)</b>										
14-19	1.179*** (0.037)	0.052 (0.232)	-0.091 (0.204)	1.235*** (0.114)	0.617*** (0.115)	-0.630*** (0.091)	-0.290*** (0.087)	-0.588*** (0.085)	1.471*** (0.101)	1.610*** (0.111)
20-24	2.947*** (0.037)	2.213*** (0.232)	2.192*** (0.205)	2.956*** (0.115)	2.249*** (0.114)	1.163*** (0.090)	1.633*** (0.086)	1.071*** (0.084)	3.048*** (0.101)	3.395*** (0.111)
25-29	4.038*** (0.038)	3.388*** (0.235)	3.299*** (0.213)	4.240*** (0.121)	3.365*** (0.117)	2.365*** (0.090)	2.768*** (0.087)	2.099*** (0.083)	4.052*** (0.104)	4.350*** (0.112)
30-34	4.628*** (0.043)	3.740*** (0.259)	4.005*** (0.239)	4.807*** (0.136)	4.092*** (0.141)	3.071*** (0.102)	3.499*** (0.101)	2.611*** (0.095)	4.466*** (0.113)	4.843*** (0.129)
35-39	4.589*** (0.045)	3.784*** (0.285)	3.719*** (0.248)	4.344*** (0.130)	4.139*** (0.146)	3.114*** (0.108)	3.336*** (0.103)	2.661*** (0.102)	4.489*** (0.120)	4.755*** (0.129)
40-44	4.186*** (0.043)	2.942*** (0.253)	3.032*** (0.226)	4.292*** (0.139)	3.848*** (0.148)	2.754*** (0.106)	2.796*** (0.097)	2.147*** (0.094)	4.155*** (0.118)	4.321*** (0.119)
45-49	3.467*** (0.039)	2.150*** (0.224)	2.666*** (0.218)	3.524*** (0.121)	3.180*** (0.130)	1.919*** (0.091)	1.910*** (0.087)	1.690*** (0.090)	3.372*** (0.104)	3.433*** (0.105)
50-54	2.376*** (0.032)	0.898*** (0.186)	0.952*** (0.173)	2.328*** (0.096)	2.145*** (0.113)	0.787*** (0.078)	0.749*** (0.074)	0.730*** (0.078)	2.321*** (0.089)	2.551*** (0.091)
55-59	1.540*** (0.031)			1.512*** (0.094)	1.432*** (0.109)				1.369*** (0.084)	1.605*** (0.086)
60-64		-1.565*** (0.165)	-1.880*** (0.147)			-1.686*** (0.071)	-1.689*** (0.067)	-1.441*** (0.073)		
65+	-0.922*** (0.024)	-2.603*** (0.157)	-2.725*** (0.140)	-0.836*** (0.068)	-0.839*** (0.090)	-2.640*** (0.067)	-2.581*** (0.063)	-2.444*** (0.068)	-1.018*** (0.074)	-1.059*** (0.072)
<b>Education level (Ref. group: illiterate)</b>										
read_write	0.443*** (0.022)	0.184** (0.088)	0.260*** (0.081)	0.432*** (0.060)	0.326*** (0.077)	0.071 (0.051)	0.379*** (0.048)	0.647*** (0.053)	0.728*** (0.069)	0.809*** (0.067)
elementary	0.534*** (0.022)	0.187** (0.095)	0.402*** (0.090)	0.610*** (0.058)	0.504*** (0.077)	0.376*** (0.050)	0.511*** (0.047)	0.644*** (0.052)	0.671*** (0.065)	0.673*** (0.069)
preparatory	-1.027*** (0.023)	-1.707*** (0.102)	-1.770*** (0.097)	-1.151*** (0.062)	-0.795*** (0.079)	-1.195*** (0.052)	-1.172*** (0.048)	-0.580*** (0.054)	-0.679*** (0.067)	-0.664*** (0.069)
Secondary	-1.865*** (0.025)	-2.669*** (0.124)	-2.955*** (0.116)	-1.814*** (0.071)	-1.593*** (0.085)	-2.066*** (0.056)	-2.120*** (0.053)	-1.286*** (0.057)	-1.591*** (0.071)	-1.593*** (0.074)
institute	0.030 (0.035)	-0.742*** (0.187)	-0.370** (0.174)	-0.025 (0.107)	-0.078 (0.110)	-0.221*** (0.078)	-0.151** (0.072)	0.424*** (0.083)	0.394*** (0.099)	0.483*** (0.102)
university+	-0.257*** (0.033)	-0.853*** (0.179)	-0.797*** (0.150)	-0.207** (0.102)	-0.593*** (0.107)	-0.548*** (0.074)	-0.269*** (0.072)	0.235*** (0.081)	0.236*** (0.091)	-0.005 (0.094)
<b>Urban/rural (Ref. group: urban)</b>										
rural	0.074*** (0.010)	0.242*** (0.042)	0.287*** (0.038)	0.148*** (0.028)	0.079** (0.035)	0.002 (0.022)	0.134*** (0.021)	0.035 (0.025)	-0.099*** (0.030)	-0.057* (0.030)

<b>Table 2: Cont.</b>	<b>2001-2010</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>Region (Ref. group: southern)</b>										
coastal	0.112*** (0.018)	0.191** (0.076)	0.037 (0.061)	0.104** (0.046)	0.267*** (0.060)	0.150*** (0.039)	0.367*** (0.037)	-0.026 (0.046)	0.028 (0.055)	-0.037 (0.056)
Middle	0.188*** (0.015)	0.248*** (0.060)	0.107* (0.056)	0.109*** (0.041)	0.441*** (0.050)	0.059* (0.032)	0.245*** (0.031)	0.009 (0.038)	0.314*** (0.045)	0.150*** (0.045)
northern	0.095*** (0.013)	0.281*** (0.055)	0.246*** (0.050)	0.413*** (0.038)	0.198*** (0.042)	0.125*** (0.028)	0.124*** (0.026)	-0.149*** (0.034)	-0.049 (0.039)	-0.156*** (0.039)
eastern	0.006 (0.015)	0.254*** (0.065)	0.134** (0.061)	0.326*** (0.047)	0.249*** (0.059)	-0.031 (0.034)	-0.006 (0.031)	-0.201*** (0.038)	-0.144*** (0.046)	-0.312*** (0.043)
<b>Marital status (Ref. group: ever married)</b>										
married	1.408*** (0.030)	1.928*** (0.183)	1.726*** (0.160)	1.413*** (0.094)	1.078*** (0.084)	1.362*** (0.068)	1.780*** (0.066)	1.201*** (0.062)	1.489*** (0.079)	1.702*** (0.091)
divorced	0.123 (0.112)	1.302 (1.225)	0.702 (0.675)	0.322 (0.304)	-0.618** (0.243)	0.009 (0.189)	0.896*** (0.315)	-0.200 (0.251)	0.657** (0.292)	0.801* (0.451)
widow	0.257*** (0.060)	0.973*** (0.257)	0.897*** (0.227)	0.471*** (0.151)	-0.435** (0.189)	-0.036 (0.142)	0.528*** (0.136)	-0.105 (0.160)	0.506*** (0.170)	0.648*** (0.187)
<b>Time fixed effects (Ref. group: 2001)</b>										
y_2002	-0.061** (0.025)									
y_2003	-0.450*** (0.023)									
y_2005	-0.789*** (0.026)									
y_2006	-0.632*** (0.022)									
y_2007	-0.598*** (0.021)									
y_2008	-0.853*** (0.023)									
y_2009	-0.890*** (0.024)									
y_2010	-0.761*** (0.024)									
<b>Constant</b>	-0.863*** (0.044)	0.413 (0.254)	0.548** (0.226)	-1.519*** (0.121)	-1.256*** (0.128)	0.485*** (0.101)	-0.096 (0.097)	-0.012 (0.097)	-1.966*** (0.114)	-2.069*** (0.124)
<b>Number of observations</b>	478,733	26,379	32,908	48,684	30,909	81,417	109,052	64,667	41,370	43,347
<b>F</b>	2,321.534	144.488	177.836	345.264	255.062	646.596	768.333	510.355	362.258	372.961
<b>P</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1



**Table 3: Probability of being participated in LF (coefficient - female)**

	2001-2010	2001	2002	2003	2005	2006	2007	2008	2009	2010
<b>Age (Ref. groups: 55-59 or 60-64)</b>										
14-19	-0.890*** (0.042)	-0.116 (0.169)	0.470*** (0.181)	-0.598*** (0.111)	-0.074 (0.222)	-0.358** (0.146)	-1.393*** (0.096)	-1.449*** (0.112)	-0.025 (0.253)	-0.101 (0.245)
20-24	-0.180*** (0.040)	0.509*** (0.167)	1.120*** (0.180)	0.125 (0.108)	0.645*** (0.217)	0.588*** (0.143)	-0.225** (0.091)	-0.556*** (0.104)	0.858*** (0.248)	1.151*** (0.238)
25-29	0.393*** (0.039)	0.770*** (0.164)	1.525*** (0.178)	0.473*** (0.106)	1.384*** (0.213)	1.350*** (0.141)	0.516*** (0.087)	0.060 (0.100)	1.807*** (0.243)	1.989*** (0.236)
30-34	0.612*** (0.039)	0.924*** (0.164)	1.707*** (0.177)	0.658*** (0.104)	1.534*** (0.213)	1.590*** (0.140)	0.669*** (0.086)	0.410*** (0.099)	1.987*** (0.243)	2.336*** (0.235)
35-39	0.700*** (0.039)	1.025*** (0.163)	1.802*** (0.176)	0.721*** (0.104)	1.652*** (0.212)	1.592*** (0.141)	0.742*** (0.087)	0.401*** (0.099)	2.225*** (0.244)	2.375*** (0.236)
40-44	0.721*** (0.039)	1.088*** (0.165)	1.787*** (0.177)	0.673*** (0.105)	1.607*** (0.213)	1.576*** (0.141)	0.762*** (0.086)	0.489*** (0.099)	2.118*** (0.244)	2.440*** (0.235)
45-49	0.626*** (0.040)	0.824*** (0.170)	1.524*** (0.181)	0.647*** (0.108)	1.352*** (0.216)	1.569*** (0.142)	0.683*** (0.089)	0.343*** (0.101)	2.170*** (0.245)	2.481*** (0.236)
50-54	0.321*** (0.042)	0.573*** (0.171)	1.396*** (0.183)	0.312*** (0.112)	0.859*** (0.221)	1.344*** (0.144)	0.394*** (0.094)	0.095 (0.109)	1.885*** (0.248)	2.112*** (0.239)
55-59		0.195 (0.194)	1.055*** (0.199)		0.760*** (0.234)	0.839*** (0.156)			1.332*** (0.261)	1.830*** (0.248)
60-64	-0.920*** (0.064)			-0.465*** (0.142)			-0.917*** (0.155)	-1.326*** (0.189)		
65+	-1.559*** (0.064)	-0.657*** (0.209)	-0.308 (0.220)	-1.239*** (0.150)	- 1.407*** (0.319)	-0.690*** (0.187)	-1.375*** (0.144)	-1.998*** (0.194)	-0.365 (0.314)	-0.493 (0.303)
<b>Education level (Ref. group: illiterate)</b>										
read_write	-0.052** (0.021)	-0.120* (0.066)	-0.005 (0.061)	-0.068 (0.055)	0.059 (0.073)	-0.094* (0.056)	-0.156*** (0.055)	0.127** (0.058)	0.105 (0.088)	0.275*** (0.073)
elementary	0.066*** (0.018)	-0.217*** (0.057)	-0.062 (0.054)	-0.012 (0.042)	- 0.200*** (0.072)	0.272*** (0.046)	0.176*** (0.044)	0.169*** (0.053)	0.178** (0.069)	-0.087 (0.068)
preparatory	-0.028 (0.023)	-0.646*** (0.082)	-0.778*** (0.078)	-0.108* (0.057)	0.106 (0.086)	0.414*** (0.055)	0.221*** (0.053)	0.385*** (0.064)	0.501*** (0.083)	0.399*** (0.078)
Secondary	0.684*** (0.023)	0.120 (0.094)	-0.267*** (0.087)	0.863*** (0.059)	0.766*** (0.085)	1.003*** (0.057)	0.780*** (0.054)	0.982*** (0.062)	1.193*** (0.081)	1.037*** (0.075)
institute	3.659*** (0.026)	3.210*** (0.110)	3.743*** (0.104)	3.710*** (0.077)	3.379*** (0.093)	3.859*** (0.061)	3.792*** (0.057)	3.643*** (0.067)	3.983*** (0.083)	3.732*** (0.079)
university+	3.402*** (0.031)	2.850*** (0.130)	3.503*** (0.130)	3.249*** (0.087)	2.830*** (0.107)	3.381*** (0.068)	3.418*** (0.065)	3.456*** (0.074)	3.711*** (0.093)	3.785*** (0.090)
<b>Urban/rural (Ref. group: urban)</b>										
rural	0.821*** (0.012)	1.000*** (0.041)	1.616*** (0.040)	1.036*** (0.030)	0.584*** (0.044)	0.539*** (0.027)	0.612*** (0.026)	0.580*** (0.032)	0.527*** (0.040)	0.567*** (0.039)

<b>Table 3: Cont.</b>	<b>2001-2010</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>Region (Ref. group: southern)</b>										
coastal	1.174*** (0.018)	1.472*** (0.071)	0.868*** (0.062)	1.077*** (0.046)	1.055*** (0.066)	1.373*** (0.041)	1.659*** (0.039)	1.079*** (0.050)	1.298*** (0.061)	0.866*** (0.061)
Middle	0.836*** (0.016)	0.794*** (0.061)	0.826*** (0.055)	0.767*** (0.043)	0.861*** (0.058)	1.061*** (0.037)	1.060*** (0.037)	0.828*** (0.043)	0.941*** (0.054)	0.639*** (0.053)
northern	0.105*** (0.017)	0.595*** (0.058)	0.495*** (0.051)	0.655*** (0.041)	-0.010 (0.060)	0.051 (0.037)	-0.184*** (0.039)	-0.414*** (0.048)	-0.231*** (0.058)	-0.518*** (0.057)
eastern	0.652*** (0.018)	1.596*** (0.058)	0.978*** (0.055)	0.778*** (0.046)	0.650*** (0.072)	0.282*** (0.045)	0.297*** (0.042)	0.348*** (0.048)	0.222*** (0.062)	0.173*** (0.057)
<b>Marital status (Ref. group: never married)</b>										
married	-1.633*** (0.016)	-1.849*** (0.061)	-2.568*** (0.061)	-1.332*** (0.042)	- 1.428*** (0.058)	-1.519*** (0.037)	-1.662*** (0.035)	-1.346*** (0.041)	-1.527*** (0.052)	-1.670*** (0.051)
divorced	0.080 (0.054)	-0.117 (0.237)	-0.613** (0.244)	0.242 (0.148)	0.143 (0.184)	0.292** (0.118)	-0.034 (0.128)	0.123 (0.129)	0.031 (0.154)	0.256* (0.148)
widow	-0.793*** (0.035)	-1.222*** (0.132)	-1.517*** (0.114)	-0.747*** (0.086)	- 0.398*** (0.120)	-0.584*** (0.081)	-0.719*** (0.078)	-0.712*** (0.096)	-0.611*** (0.117)	-0.531*** (0.104)
<b>Time fixed effects (Ref. group: 2001)</b>										
y_2002	0.116*** (0.025)									
y_2003	-0.207*** (0.023)									
y_2005	-0.667*** (0.028)									
y_2006	-0.662*** (0.023)									
y_2007	-0.772*** (0.022)									
y_2008	-0.758*** (0.024)									
y_2009	-0.985*** (0.026)									
y_2010	-0.973*** (0.026)									
<b>Constant</b>	-1.711*** (0.044)	-2.292*** (0.171)	-2.719*** (0.181)	-2.434*** (0.110)	- 3.117*** (0.219)	-3.341*** (0.145)	-2.441*** (0.091)	-2.159*** (0.105)	-4.106*** (0.251)	-3.969*** (0.242)
<b>Number of observations</b>	455,177	24,689	30,979	47,436	28,409	74,742	100,567	63,947	41,302	43,106
<b>F</b>	1,666.964	142.613	193.687	274.790	165.116	479.712	590.361	339.717	263.655	281.346
<b>P</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 4: Probability of being participated in LF (elasticity - total)**

	2001-2010	2001	2002	2003	2005	2006	2007	2008	2009	2010
<b>Age (Ref. groups: 55-59 or 60-64)</b>										
14-19	-0.129*** (0.004)	-0.400*** (0.017)	-0.443*** (0.014)	-0.135*** (0.015)	-0.148*** (0.019)	-0.168*** (0.012)	-0.404*** (0.006)	-0.091*** (0.014)	-0.024 (0.018)	-0.092*** (0.016)
20-24	0.268*** (0.005)	-0.032 (0.020)	-0.085*** (0.018)	0.226*** (0.015)	0.227*** (0.020)	0.242*** (0.013)	-0.076*** (0.011)	0.301*** (0.014)	0.346*** (0.017)	0.345*** (0.017)
25-29	0.450*** (0.003)	0.109*** (0.017)	0.068*** (0.016)	0.371*** (0.011)	0.447*** (0.014)	0.462*** (0.008)	0.192*** (0.010)	0.487*** (0.010)	0.556*** (0.011)	0.547*** (0.010)
30-34	0.490*** (0.003)	0.158*** (0.016)	0.150*** (0.014)	0.415*** (0.009)	0.487*** (0.012)	0.504*** (0.007)	0.261*** (0.010)	0.535*** (0.008)	0.585*** (0.009)	0.596*** (0.008)
35-39	0.494*** (0.003)	0.185*** (0.015)	0.156*** (0.014)	0.416*** (0.009)	0.497*** (0.011)	0.508*** (0.006)	0.273*** (0.010)	0.534*** (0.008)	0.597*** (0.008)	0.598*** (0.008)
40-44	0.487*** (0.003)	0.183*** (0.015)	0.172*** (0.014)	0.413*** (0.008)	0.484*** (0.011)	0.499*** (0.006)	0.264*** (0.010)	0.524*** (0.008)	0.583*** (0.008)	0.595*** (0.008)
45-49	0.466*** (0.003)	0.147*** (0.017)	0.143*** (0.014)	0.396*** (0.009)	0.457*** (0.013)	0.479*** (0.007)	0.225*** (0.010)	0.498*** (0.008)	0.562*** (0.009)	0.571*** (0.008)
50-54	0.402*** (0.003)	0.093*** (0.018)	0.087*** (0.016)	0.338*** (0.011)	0.369*** (0.016)	0.419*** (0.008)	0.118*** (0.012)	0.424*** (0.011)	0.482*** (0.012)	0.505*** (0.011)
55-59	0.312*** (0.004)			0.259*** (0.014)	0.294*** (0.020)	0.326*** (0.012)		0.345*** (0.014)	0.335*** (0.018)	0.386*** (0.017)
60-64		-0.192*** (0.022)	-0.273*** (0.017)				-0.264*** (0.007)			
65+	-0.194*** (0.004)	-0.377*** (0.014)	-0.407*** (0.011)	-0.193*** (0.013)	-0.183*** (0.016)	-0.196*** (0.010)	-0.356*** (0.004)	-0.205*** (0.011)	- (0.013)	-0.203*** (0.011)
<b>Gender (Ref. group: male)</b>										
Female	-0.723*** (0.001)	-0.706*** (0.004)	-0.685*** (0.004)	-0.679*** (0.003)	-0.704*** (0.004)	-0.737*** (0.002)	-0.755*** (0.002)	-0.712*** (0.003)	- (0.003)	-0.748*** (0.003)
<b>Education level (Ref. group: illiterate)</b>										
read_write	0.084*** (0.003)	0.054*** (0.010)	0.095*** (0.009)	0.085*** (0.008)	0.072*** (0.010)	0.044*** (0.007)	0.070*** (0.007)	0.119*** (0.008)	0.134*** (0.010)	0.167*** (0.010)
elementary	0.121*** (0.002)	0.089*** (0.010)	0.133*** (0.009)	0.128*** (0.007)	0.100*** (0.010)	0.125*** (0.006)	0.119*** (0.006)	0.115*** (0.007)	0.117*** (0.009)	0.090*** (0.009)
preparatory	-0.096*** (0.003)	-0.186*** (0.012)	-0.192*** (0.011)	-0.108*** (0.008)	-0.064*** (0.011)	-0.078*** (0.007)	-0.102*** (0.006)	-0.041*** (0.008)	- (0.009)	-0.058*** (0.009)
Secondary	-0.149*** (0.003)	-0.186*** (0.015)	-0.249*** (0.013)	-0.071*** (0.011)	-0.119*** (0.012)	-0.144*** (0.008)	-0.184*** (0.007)	-0.092*** (0.009)	- (0.010)	-0.136*** (0.010)
institute	0.514*** (0.002)	0.400*** (0.007)	0.417*** (0.005)	0.485*** (0.005)	0.497*** (0.009)	0.524*** (0.004)	0.538*** (0.004)	0.538*** (0.006)	0.565*** (0.007)	0.561*** (0.007)
university+	0.414*** (0.003)	0.324*** (0.012)	0.337*** (0.010)	0.390*** (0.009)	0.324*** (0.018)	0.399*** (0.009)	0.431*** (0.008)	0.455*** (0.009)	0.478*** (0.011)	0.482*** (0.011)

<b>Table 4:Cont.</b>	<b>2001-2010</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>Urban/rural (Ref. group: urban)</b>										
rural	0.069*** (0.002)	0.137*** (0.006)	0.201*** (0.006)	0.119*** (0.005)	0.057*** (0.006)	0.039*** (0.004)	0.059*** (0.003)	0.044*** (0.004)	0.017*** (0.005)	0.029*** (0.005)
<b>Region (Ref. group: southern)</b>										
coastal	0.177*** (0.003)	0.191*** (0.011)	0.101*** (0.010)	0.144*** (0.008)	0.165*** (0.011)	0.198*** (0.007)	0.260*** (0.007)	0.139*** (0.009)	0.157*** (0.011)	0.102*** (0.011)
Middle	0.110*** (0.002)	0.102*** (0.009)	0.101*** (0.008)	0.089*** (0.007)	0.136*** (0.009)	0.108*** (0.006)	0.136*** (0.006)	0.080*** (0.007)	0.115*** (0.008)	0.073*** (0.008)
northern	0.014*** (0.002)	0.086*** (0.008)	0.073*** (0.007)	0.107*** (0.006)	0.015** (0.007)	0.020*** (0.004)	0.001 (0.004)	-0.046*** (0.005)	-0.029*** (0.006)	-0.059*** (0.006)
eastern	0.047*** (0.002)	0.231*** (0.009)	0.137*** (0.009)	0.120*** (0.007)	0.088*** (0.010)	0.018*** (0.006)	0.014** (0.005)	-0.004 (0.006)	-0.019** (0.007)	-0.043*** (0.007)
<b>Marital status (Ref. group: ever married)</b>										
married	-0.153*** (0.002)	-0.260*** (0.010)	-0.358*** (0.009)	-0.170*** (0.008)	-0.115*** (0.010)	-0.148*** (0.007)	-0.153*** (0.006)	-0.091*** (0.007)	- 0.086*** (0.009)	-0.131*** (0.009)
divorced	0.028*** (0.010)	-0.026 (0.053)	-0.153*** (0.046)	0.009 (0.034)	-0.010 (0.041)	0.066** (0.027)	0.055** (0.027)	0.033 (0.030)	0.070** (0.034)	0.091** (0.037)
widow	-0.150*** (0.005)	-0.275*** (0.021)	-0.334*** (0.016)	-0.183*** (0.014)	-0.133*** (0.020)	-0.141*** (0.014)	-0.135*** (0.013)	-0.118*** (0.016)	- 0.076*** (0.019)	-0.069*** (0.018)
<b>Time fixed effects (Ref. group: 2001)</b>										
y_2002	-0.002 (0.004)									
y_2003	-0.073*** (0.004)									
y_2005	-0.157*** (0.004)									
y_2006	-0.145*** (0.003)									
y_2007	-0.156*** (0.003)									
y_2008	-0.173*** (0.003)									
y_2009	-0.191*** (0.003)									
y_2010	-0.179*** (0.003)									
<b>Pr(lfp)</b>		0.422	0.548	0.553	0.470	0.403	0.418	0.399	0.384	0.357
<b>Number of observations</b>	933,910	51,068	63,887	96,120	59,318	156,159	209,619	128,614	82,672	86,453
<b>F</b>		542.808	636.218	958.959	555.872	1,484.519	1,672.187	1,076.583	784.347	853.672
<b>P</b>		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 5: Probability of being participated in LF (elasticity - male)**

	2001-2010	2001	2002	2003	2005	2006	2007	2008	2009	2010
<b>Age (Ref. groups: 55-59 or 60-64)</b>										
14-19	0.098*** (0.002)	0.003 (0.013)	-0.005 (0.012)	0.095*** (0.006)	0.072*** (0.012)	-0.078*** (0.013)	-0.031*** (0.010)	-0.091*** (0.015)	0.139*** (0.006)	0.139*** (0.006)
20-24	0.169*** (0.001)	0.073*** (0.005)	0.072*** (0.004)	0.156*** (0.004)	0.185*** (0.006)	0.093*** (0.005)	0.109*** (0.004)	0.114*** (0.007)	0.211*** (0.004)	0.198*** (0.004)
25-29	0.178*** (0.001)	0.083*** (0.004)	0.079*** (0.003)	0.162*** (0.003)	0.210*** (0.005)	0.137*** (0.003)	0.138*** (0.003)	0.172*** (0.004)	0.229*** (0.004)	0.211*** (0.004)
30-34	0.177*** (0.001)	0.081*** (0.003)	0.081*** (0.003)	0.161*** (0.003)	0.208*** (0.004)	0.148*** (0.002)	0.144*** (0.002)	0.185*** (0.003)	0.226*** (0.004)	0.213*** (0.004)
35-39	0.173*** (0.001)	0.080*** (0.003)	0.079*** (0.003)	0.152*** (0.003)	0.212*** (0.004)	0.148*** (0.002)	0.140*** (0.002)	0.182*** (0.003)	0.219*** (0.004)	0.202*** (0.004)
40-44	0.160*** (0.001)	0.069*** (0.003)	0.070*** (0.003)	0.145*** (0.003)	0.193*** (0.004)	0.137*** (0.002)	0.127*** (0.002)	0.162*** (0.004)	0.205*** (0.003)	0.192*** (0.004)
45-49	0.143*** (0.001)	0.059*** (0.003)	0.064*** (0.003)	0.129*** (0.003)	0.178*** (0.004)	0.113*** (0.003)	0.104*** (0.003)	0.140*** (0.004)	0.184*** (0.003)	0.167*** (0.003)
50-54	0.123*** (0.001)	0.036*** (0.005)	0.037*** (0.005)	0.111*** (0.003)	0.149*** (0.004)	0.065*** (0.005)	0.058*** (0.004)	0.080*** (0.007)	0.156*** (0.003)	0.147*** (0.003)
55-59	0.098*** (0.001)			0.088*** (0.003)	0.120*** (0.005)				0.118*** (0.005)	0.117*** (0.004)
60-64		-0.167*** (0.028)	-0.223*** (0.028)			-0.298*** (0.017)	-0.285*** (0.016)	-0.283*** (0.018)		
65+	-0.132*** (0.004)	-0.370*** (0.036)	-0.393*** (0.032)	-0.108*** (0.011)	- 0.140*** (0.018)	-0.516*** (0.015)	-0.488*** (0.015)	-0.513*** (0.015)	-0.176*** (0.016)	-0.173*** (0.015)
<b>Education level (Ref. group: illiterate)</b>										
read_write	0.042*** (0.002)	0.010** (0.004)	0.013*** (0.004)	0.037*** (0.005)	0.040*** (0.009)	0.007 (0.005)	0.034*** (0.004)	0.077*** (0.005)	0.079*** (0.006)	0.082*** (0.006)
elementary	0.055*** (0.002)	0.010** (0.005)	0.022*** (0.005)	0.058*** (0.006)	0.064*** (0.009)	0.039*** (0.005)	0.048*** (0.004)	0.082*** (0.006)	0.084*** (0.008)	0.075*** (0.007)
preparatory	-0.140*** (0.004)	-0.161*** (0.014)	-0.169*** (0.013)	-0.151*** (0.010)	- 0.125*** (0.014)	-0.167*** (0.009)	-0.152*** (0.008)	-0.090*** (0.009)	-0.103*** (0.011)	-0.094*** (0.011)
Secondary	-0.318*** (0.005)	-0.367*** (0.026)	-0.427*** (0.024)	-0.296*** (0.015)	- 0.297*** (0.019)	-0.361*** (0.012)	-0.354*** (0.011)	-0.233*** (0.012)	-0.294*** (0.015)	-0.280*** (0.016)
institute	0.003 (0.004)	-0.057*** (0.019)	-0.024* (0.013)	-0.003 (0.011)	-0.011 (0.015)	-0.025*** (0.010)	-0.016** (0.008)	0.051*** (0.009)	0.046*** (0.010)	0.050*** (0.009)
university+	-0.030*** (0.004)	-0.068*** (0.019)	-0.061*** (0.015)	-0.022* (0.012)	- 0.093*** (0.019)	-0.070*** (0.011)	-0.029*** (0.009)	0.030*** (0.010)	0.029*** (0.011)	-0.001 (0.012)
<b>Urban/rural (Ref. group: urban)</b>										
rural	0.008*** (0.001)	0.014*** (0.002)	0.016*** (0.002)	0.015*** (0.003)	0.010** (0.005)	0.000 (0.002)	0.013*** (0.002)	0.005 (0.003)	-0.013*** (0.004)	-0.007* (0.004)
<b>Table 5: Cont.</b>										
<b>Region (Ref. group: southern)</b>										
coastal	0.012***	0.010***	0.002	0.010**	0.033***	0.015***	0.032***	-0.004	0.004	-0.005

	(0.002)	(0.004)	(0.003)	(0.004)	(0.007)	(0.004)	(0.003)	(0.006)	(0.007)	(0.007)
Middle	0.019***	0.013***	0.006*	0.010***	0.053***	0.006*	0.023***	0.001	0.039***	0.018***
	(0.001)	(0.003)	(0.003)	(0.004)	(0.005)	(0.003)	(0.003)	(0.005)	(0.005)	(0.005)
northern	0.010***	0.015***	0.013***	0.038***	0.026***	0.013***	0.012***	-0.021***	-0.007	-0.020***
	(0.001)	(0.003)	(0.003)	(0.003)	(0.005)	(0.003)	(0.003)	(0.005)	(0.005)	(0.005)
eastern	0.001	0.013***	0.007**	0.029***	0.031***	-0.003	-0.001	-0.029***	-0.020***	-0.041***
	(0.002)	(0.003)	(0.003)	(0.004)	(0.007)	(0.004)	(0.003)	(0.006)	(0.006)	(0.006)

**Marital status (Ref. group: ever married)**

married	0.163***	0.123***	0.106***	0.146***	0.148***	0.156***	0.196***	0.174***	0.217***	0.231***
	(0.004)	(0.012)	(0.011)	(0.010)	(0.012)	(0.008)	(0.008)	(0.009)	(0.012)	(0.013)
divorced	0.013	0.043**	0.029	0.028	-0.100**	0.001	0.063***	-0.029	0.069***	0.073**
	(0.011)	(0.020)	(0.020)	(0.023)	(0.046)	(0.020)	(0.015)	(0.039)	(0.024)	(0.029)
widow	0.025***	0.037***	0.035***	0.039***	-0.066**	-0.004	0.043***	-0.015	0.056***	0.063***
	(0.005)	(0.006)	(0.005)	(0.010)	(0.033)	(0.016)	(0.009)	(0.023)	(0.016)	(0.014)

**Time fixed effects (Ref. group: 2001)**

y_2002	-0.007**									
	(0.003)									
y_2003	-0.055***									
	(0.003)									
y_2005	-0.106***									
	(0.004)									
y_2006	-0.081***									
	(0.003)									
y_2007	-0.076***									
	(0.003)									
y_2008	-0.116***									
	(0.004)									
y_2009	-0.122***									
	(0.004)									
y_2010	-0.101***									
	(0.004)									
<b>Pr(lfp)</b>		0.878	0.940	0.941	0.889	0.843	0.878	0.888	0.837	0.843
<b>Number of observations</b>	478,733	26,379	32,908	48,684	30,909	81,417	109,052	64,667	41,370	43,347
<b>F</b>	2,321.534	144.488	177.836	345.264	255.062	646.596	768.333	510.355	362.258	372.961
<b>P</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 6: Probability of being participated in LF (elasticity - female)**

	2001-2010	2001	2002	2003	2005	2006	2007	2008	2009	2010
<b>Age (Ref. groups: 55-59 or 60-64)</b>										
14-19	-0.065*** (0.002)	-0.014 (0.021)	0.065** (0.027)	-0.064*** (0.010)	-0.006 (0.018)	-0.027*** (0.010)	-0.073*** (0.004)	-0.079*** (0.004)	-0.001 (0.015)	-0.006 (0.014)
20-24	-0.015*** (0.003)	0.073*** (0.027)	0.183*** (0.036)	0.016 (0.014)	0.064** (0.025)	0.057*** (0.016)	-0.015*** (0.006)	-0.037*** (0.006)	0.068*** (0.025)	0.099*** (0.028)
25-29	0.040*** (0.004)	0.119*** (0.030)	0.272*** (0.039)	0.065*** (0.016)	0.173*** (0.036)	0.167*** (0.024)	0.044*** (0.009)	0.005 (0.008)	0.196*** (0.040)	0.226*** (0.041)
30-34	0.067*** (0.005)	0.150*** (0.032)	0.318*** (0.041)	0.095*** (0.018)	0.205*** (0.040)	0.214*** (0.027)	0.061*** (0.010)	0.036*** (0.010)	0.234*** (0.045)	0.297*** (0.047)
35-39	0.079*** (0.005)	0.171*** (0.033)	0.341*** (0.041)	0.106*** (0.018)	0.229*** (0.042)	0.216*** (0.027)	0.070*** (0.010)	0.036*** (0.010)	0.285*** (0.049)	0.313*** (0.049)
40-44	0.082*** (0.005)	0.186*** (0.035)	0.343*** (0.042)	0.099*** (0.018)	0.224*** (0.042)	0.216*** (0.027)	0.073*** (0.010)	0.045*** (0.011)	0.268*** (0.049)	0.331*** (0.050)
45-49	0.070*** (0.005)	0.133*** (0.033)	0.285*** (0.042)	0.095*** (0.019)	0.178*** (0.040)	0.219*** (0.028)	0.064*** (0.010)	0.030*** (0.010)	0.285*** (0.051)	0.349*** (0.052)
50-54	0.032*** (0.005)	0.087*** (0.030)	0.256*** (0.042)	0.042** (0.016)	0.097*** (0.032)	0.177*** (0.027)	0.033*** (0.009)	0.008 (0.009)	0.230*** (0.048)	0.272*** (0.049)
55-59		0.027 (0.028)	0.182*** (0.043)		0.084** (0.033)	0.095*** (0.023)			0.136*** (0.040)	0.220*** (0.048)
60-64	-0.059*** (0.003)			-0.048*** (0.012)			-0.047*** (0.005)	-0.063*** (0.005)		
65+	-0.083*** (0.002)	-0.068*** (0.017)	-0.035 (0.023)	-0.100*** (0.007)	-0.071*** (0.009)	-0.044*** (0.009)	-0.062*** (0.003)	-0.079*** (0.003)	-0.019 (0.014)	-0.024** (0.012)
<b>Education level (Ref. group: illiterate)</b>										
read_write	-0.005** (0.002)	-0.015* (0.008)	-0.001 (0.008)	-0.008 (0.006)	0.005 (0.006)	-0.008* (0.004)	-0.011*** (0.004)	0.010** (0.005)	0.007 (0.006)	0.018*** (0.005)
elementary	0.006*** (0.002)	-0.027*** (0.007)	-0.008 (0.007)	-0.001 (0.005)	-0.016*** (0.006)	0.023*** (0.004)	0.013*** (0.003)	0.014*** (0.004)	0.011** (0.004)	-0.005 (0.004)
preparatory	-0.002 (0.002)	-0.070*** (0.007)	-0.081*** (0.006)	-0.013* (0.006)	0.009 (0.008)	0.038*** (0.006)	0.017*** (0.004)	0.033*** (0.006)	0.035*** (0.007)	0.026*** (0.006)
Secondary	0.076*** (0.003)	0.016 (0.013)	-0.031*** (0.009)	0.133*** (0.011)	0.081*** (0.011)	0.114*** (0.008)	0.074*** (0.006)	0.105*** (0.009)	0.107*** (0.010)	0.087*** (0.008)
institute	0.699*** (0.004)	0.660*** (0.018)	0.733*** (0.012)	0.729*** (0.010)	0.637*** (0.018)	0.721*** (0.009)	0.693*** (0.010)	0.676*** (0.012)	0.699*** (0.014)	0.647*** (0.015)
university+	0.660*** (0.006)	0.600*** (0.024)	0.704*** (0.017)	0.665*** (0.014)	0.527*** (0.025)	0.644*** (0.013)	0.631*** (0.013)	0.647*** (0.014)	0.655*** (0.018)	0.666*** (0.017)
<b>Urban/rural (Ref. group: urban)</b>										
rural	0.077*** (0.001)	0.131*** (0.005)	0.213*** (0.005)	0.128*** (0.004)	0.050*** (0.004)	0.046*** (0.002)	0.046*** (0.002)	0.046*** (0.003)	0.033*** (0.003)	0.035*** (0.003)

<b>Table 6: Cont..</b>	<b>2001-2010</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>Region (Ref. group: southern)</b>										
coastal	0.152*** (0.003)	0.266*** (0.016)	0.138*** (0.012)	0.172*** (0.009)	0.123*** (0.010)	0.174*** (0.007)	0.209*** (0.007)	0.119*** (0.007)	0.124*** (0.008)	0.069*** (0.007)
Middle	0.094*** (0.002)	0.121*** (0.011)	0.125*** (0.010)	0.110*** (0.007)	0.091*** (0.008)	0.118*** (0.005)	0.105*** (0.005)	0.081*** (0.005)	0.075*** (0.006)	0.046*** (0.005)
northern	0.010*** (0.002)	0.084*** (0.009)	0.068*** (0.007)	0.088*** (0.006)	-0.001 (0.005)	0.004 (0.003)	-0.013*** (0.003)	-0.030*** (0.003)	-0.013*** (0.003)	-0.028*** (0.003)
eastern	0.070*** (0.002)	0.285*** (0.012)	0.155*** (0.010)	0.113*** (0.008)	0.065*** (0.009)	0.025*** (0.004)	0.024*** (0.004)	0.030*** (0.004)	0.014*** (0.004)	0.011*** (0.004)
<b>Marital status (Ref. group: ever married)</b>										
married	-0.173*** (0.002)	-0.263*** (0.010)	-0.372*** (0.009)	-0.173*** (0.006)	-0.138*** (0.007)	-0.148*** (0.004)	-0.148*** (0.004)	-0.122*** (0.004)	-0.114*** (0.005)	-0.122*** (0.005)
divorced	0.007 (0.005)	-0.014 (0.028)	-0.062*** (0.019)	0.032 (0.021)	0.013 (0.017)	0.027** (0.012)	-0.002 (0.009)	0.010 (0.011)	0.002 (0.010)	0.017 (0.011)
widow	-0.054*** (0.002)	-0.106*** (0.007)	-0.120*** (0.005)	-0.071*** (0.006)	-0.029*** (0.007)	-0.039*** (0.004)	-0.040*** (0.003)	-0.043*** (0.004)	-0.029*** (0.004)	-0.026*** (0.004)
<b>Time fixed effects (ref. group: 2001)</b>										
y_2002	0.011*** (0.002)									
y_2003	-0.017*** (0.002)									
y_2005	-0.049*** (0.002)									
y_2006	-0.049*** (0.001)									
y_2007	-0.055*** (0.001)									
y_2008	-0.055*** (0.001)									
y_2009	-0.067*** (0.001)									
y_2010	-0.066*** (0.001)									
<b>Pr(lfp)</b>		0.100	0.151	0.148	0.140	0.091	0.091	0.079	0.084	0.064
<b>Number of observations</b>	455,177	24,689	30,979	47,436	28,409	74,742	100,567	63,947	41,302	43,106
<b>F</b>	1,666.964	142.613	193.687	274.790	165.116	479.712	590.361	339.717	263.655	281.346
<b>P</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1