The Effect of Education on Internal Migration: Level and Timing Effects by Reason of Migration[1]

by

Abdurrahman B. Aydemir

Sabanci University

Murat Guray Kirdar

Bogazici University

Huzeyfe Torun

The Central Bank of the Republic of Turkey

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Abstract

This paper estimates the causal effect of education on migration using a major compulsory school reform in Turkey. While education substantially increases the probability of ever-migrated status among men we find no effect for women. This level analysis masks the timing effects for women. Women become more likely to migrate at earlier ages and for different purposes. In particular, migration of women for education purposes increases remarkably until early 20s while migration for marriage, with parents or spouse as a tied mover declines. There is also suggestive evidence that education increases the migration for employment purposes.

Key words: education, internal migration, migration purpose, 2SLS, regression discontinuity

JEL codes: J61, I21

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1. Introduction

The positive correlation between education and propensity to migrate is well established in the literature. However, there are only few studies that study the causal effect of education on migration. These existing studies focus on developed country contexts and estimate the effect of education on internal migration probability. Using a recent compulsory school reform that extended schooling from 5 to 8 years, this study estimates causal effect of education on internal migration in Turkey. To our best knowledge this is the first study that establishes this causal link in a developing country context. We provide estimates separately for males and females.

The maintained hypothesis in the analysis of migration is that differences in net economic advantages are the main cause of migration (Sjaastad, 1962). Differences in wages or employment prospects across geographic regions are considered as the main reason for migration. Under this assumption existing studies provide causal effects of education on migration. There may be, however, various reasons for migration. In addition to migrating for employment reasons, individuals may migrate, for example, for educational purposes. Existing studies, however, but do not consider different reasons motivating migration decisions. Another contribution of this paper is to study for the first time in literature the causal effect of education by reason of migration. In particular, for a sample of women, we distinguish between different reasons of migration including migration due to education, employment, marriage, or as a tied mover (either with parents or the spouse).

The third contribution of the paper is to estimate the effect of education on the timing of migration. Since migration is often viewed as a human capital investment at what stage of the life cycle migration takes place is of major interest for understanding these investment decisions. Studies in the literature mostly assess whether education affects migration status as of the time of the survey date. While education may not affect the migration propensity by a certain age (i.e. level effect), it may affect when migration takes place (i.e. timing effect). Using the sample of females for whom we have information on the complete history of migration we estimate the effect of education on migration at different ages.

The main challenge in estimating the effect of education on migration are unobservable characteristics that are correlated with both education and decision to migrate. For instance, due to intergenerational linkages individuals with higher education are more likely to have

parents with higher education, income and wealth. Hence, they are more likely to have travelled or moved with their families during their childhood. As a consequence of this migration capital, such individuals could be types with lower migration costs. Given that migration is viewed as an investment decision similar to education, another candidate of an unobservable that is correlated with both education and migration is the willingness to invest, or patience (McHenry, 2013). The existence of such unobservable characteristics biases the estimates using observational data. To overcome such biases, several studies use the institutional characteristics of the education systems that create exogenous variation in education levels.

Machin et al. (2012) and McHenry (2013) study compulsory school (CS) reform induced changes in education within the Norwegian and the US contexts respectively. The compulsory schooling increased from 7 to 9 years in Norway and this change occurred at different times across municipalities over the period of 1961 to 1972.[2] The effects they estimate refer to individuals in their mid-careers, spanning ages 28-55. They find that more schooling has a large and positive effect on migration. For instance, a one year increase in education is found to increase annual mobility by 15%. McHenry (2013) uses changes in state compulsory schooling laws in the US over much of the 20th century that affected grades 6 to 9.[3] In the analysis using US Census data the sample includes individuals aged 30-64 while the analysis using PSID data involves individuals when they are 32 years old. Contrary to finding of Machin et al., McHenry finds that additional schooling reduces geographic mobility.

Two other papers estimate the effect of increases in schooling beyond secondary school. Malamud and Wozniak (2012) uses variation in college attainment in the US context caused by draft-avoidance behavior during the Vietnam War. Focusing on individuals in their late twenties or early thirties, they find that additional years of college significantly increased the likelihood that affected men resided outside their birth states. Bockerman and Haapanen (2013) study the effects of a polytechnic reform that took place in Finland in the 1990s which provides exogenous variation in the regional supply of higher education. This reform transformed former vocational colleges into polytechnics offering a Bachelor's degree. They

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[2] Using administrative data for 1986-2002 Machin et al. (2012) study the effect of education the annual propensity to move to another county; the total number of moves over the 17 year period between 1986 and 2002; and the probability of moving to an urban area.

[3] The measures of migration include an indicator for living in a state other than one's birth state; and an indicator for living in a state other than one's state of residence five years ago; indicators for living at a different state (commuting zone) at age 32 that is different from that where the respondent grew up; and indicators for living in different states (commuting zones) at ages 27 and 32.

find that the reform enhanced the annual migration rate of high school graduates by 1.2 percentage points over a 3-year follow-up period from a baseline migration rate of 3.7 %.[4] Interestingly, they find that the effect fades several years after the completion of secondary studies (in this long-run follow-up individuals can be observed 7 and 17 years after matriculation).

The results from these studies provide mixed evidence on the effect of education on migration. While the studies that consider increases in education at post secondary level report positive effects those that consider increases at lower education levels either find positive or negative effects.

An important characteristics of migration is that probability of migration declines systematically as individuals become older. With the exception of Bockerman and Haapanen (2013) all studies report estimates of education on migration when individuals are at least in their late twenties. This precludes analysis at earlier ages when migration propensity is much higher. Bockerman and Haapanen (2013) study the effects over different periods and show that while there are affects in the short run when individuals are young, over the long run these effects dissipate. This result underlines the importance of distinguishing timing effects from level effects of education on migration. In our analysis where we focus on the timing of migration we investigate migration behavior starting from age 15.

Above studies also do not distinguish between different reasons for migration. In fact, McHenry (2013) discusses that labor market factors may be less important in the migration decisions of lower educated compared to those with higher levels of education. Using 2005-2009 CPS data, where individuals state reasons for moving, he reports that 43% of high school dropouts gave job-related reasons for moving compared to 62% of bachelor's degree holders. Our analysis of migration by reason investigates how education affects different motives for migration.

With the exception of Malamud and Wozniak (2012) the effects are reported for all individuals regardless of gender. Malamud and Wozniak (2012) focus on the effects on men since they rely on draft-avoidance behavior for identification. In the first part of our analysis we report results separately for males and females. In the second part, where we focus on reasons for migration and level and timing effects of education on migration, we report results

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[4] The migration measures include migration across NUTS3 regions as well as residence outside the matriculation region (i.e. the region in which an individual graduated from high school).

only for females due to data availability. The analysis of female sample is interesting because there is no causal evidence of education on migration for this particular group. Moreover, some types of migration motives are more prevalent among females, such as migration due to marriage or migration as a tied mover. The prevalence of such motives for migration, however, may change as education and labor force participation of women increases. Therefore, it is interesting to investigate whether increased schooling have different impacts on migration motives of women.

Another contribution of our paper is related to the context of this study. While the previous studies that report causal effects of education on migration in developed country context our study provides evidence from a developing country. The analysis in a developing country context is interesting because internal migration dynamics may be very different between developed and developing countries. For example, structural transformations such as sectoral shift from agriculture to industry to services occurring in developing countries induce migration patterns that may differ from those in developed countries.

In order to estimate the causal effect of education on migration we exploit an education reform that was implemented in the 1997-98 school year. Before the new policy, only primary school (grades 1-5) was compulsory. The new policy combined primary and secondary schools (grades 6-8) and made the attendance of grades 1-8 mandatory. This reform affected a large fraction of school-age children at the secondary school level or below given that the net enrollment was 89.4% at the primary school level (grades 1 to 5) while enrollment at the secondary school level (grades 6 to 8) was 52.8% during the 1996–97 school year, the year before the law changed.

The government implemented a number of policy tools including expansion of the number of classes in existing schools, bussing an additional half a million (mostly rural) children to nearby schools, and constructing almost 600 boarding schools in more remote areas. The net enrollment rate at the compulsory schooling stage (grades 1 to 8) reached 95.3% by the 2000–01 school year, four years after the law was enacted.

This reform is particularly attractive from a methodological perspective for a number of reasons. Firstly, as we discuss below the major motivation for the reform was political and the timing was independent of the macroeconomic context that may affect migration incentives. Secondly, the reform in the Turkish context differs from compulsory school reforms in other studies as it binds a cross-section of the distribution unlike the studies in developed country

settings where the effected population comes from the lower end of the distribution. Enrollment rate in secondary school in 1996-97 school year, the year before the CS law changed, indicates that around 47% of the school aged children did not continue their school beyond grade 5. Hence, the reform affected a very large fraction of population in our context. As a comparison, Machin et al. (2012) notes that as a result of the reform the bottom of the educational distribution shifted upwards by two years in Norway, and this affected roughly 10%−15% of people. Thirdly, the extension in schooling was high, increasing CS by three years. The fact that a large fraction of the school-age population is bound by the policy and that the policy increased schooling by three years provides a very strong first-stage in our estimation and the resulting local average treatment estimate (LATE) in our context is closer to the average treatment effect (ATE) compared to those in previous studies. Fourth, given a usual school start age of 6, individuals who are primarily affected by the reform are those that are between ages 12 and 14. There is little migration over this age range, which aids our identification, since we know the changes in migration behavior is not due to an incapacitation effect that prevents would be migrants by keeping them at school. If the CS reform were to be implemented such that it affects higher grades, the reform would also have such an incapacitation effect since migration propensity becomes substantial beyond age 15, especially starting with age 17. Finally, this study has external validity, since reforms of this type has been carried out in European and North American contexts in the past and many countries may still carry out such reforms where compulsory schooling years is around 5 years.[5]

In our analysis we use the yearly Household Labor Force Surveys (HLFS) from 2009 to 2015 and the 2013 Demographic and Health Survey of Turkey (TDHS). HLFS is a nationally representative dataset that provides information on educational attainment, age and last migration for a large sample of both men and women. Thus, HLFS allows us to estimate the effect of education on migration propensity by gender. We implement a 2SLS estimation strategy where we instrument middle school completion by the reform dummy. The target population for the THDS data is composed of women at the reproductive age (15-49) and the data covers both ever-married and never-married women. Despite its smaller sample size and coverage of only females, TDHS data provides rich information on migration history from

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[5] In addition to CS reforms discussed in the text for Norway and the US, similar reforms were implemented for instance by Germany (1949-1969), Finland (1972-1977) among other (Murtin and Viarengo, 2011). Similar extensions could be adapted by other developing countries. The duration of compulsory schooling in 2014 was 5 years in Bangladesh, Laos, Madagascar, and Myanmar; 6 years in Angola, UAE, Cameroon, Guinea, Haiti, Iraq, Jamaica, Malaysia, and Congo.

age 12 along with information on reason for migration. This allows us to assess the impact of education on migration since age 12 and by reason of migration. Another important advantage of TDHS data is the availability of information on month and year of birth. Since whether an individual was bound by compulsory school reform was determined by the year and month of birth, this information in TDHS allows us to use an RD design for estimation.

Our results show that there is a strong effect of education on ever-migrating by mid 20s for men but not for women. The completion of middle school (an additional three years of education) increases the probability of migration by close to 50 percent for 23 to 28 year old male individuals. This level analysis masks the timing effects for women. Women become more likely to migrate at earlier ages and for different purposes. In particular, migration of women for education purposes increases remarkably until early 20s. There is also suggestive evidence that it increases the migration for employment purposes.

In the next section we discuss the conceptual framework, followed by a discussion of CS reform in Turkey in Section 3. Section 4 discusses data while Section 5 presents empirical framework and results. Section 6 concludes.

2. Conceptual Framework

Labor mobility is an important mechanism that improves the allocation of workers across firms. This mobility make take the form of switches across employers, occupations, or change of geographic boundaries that lead to internal migration. Differences in wages and employment prospects across locations are considered as important drivers of migration. As workers try to arbitrage differences in job prospects across locations, resulting migration helps improve efficiency in the labor market either through a better match between employers and employees in a nationwide labor market or as a result of workers, especially skilled ones, moving from low productivity regions to high productivity ones.

Internal migration is modeled as a human capital investment where workers compare present value of earnings in alternative locations and decide to migrate if net gain from migration is positive. When the decision unit is a family, decision to migrate depends on family's net gain. This leads to the possibility of an individual becoming a tied stayer or a tied mover when private gains from migration imply a different decision than that implied by the collective decision.

In the decision to migrate for employment prospects education level of individuals may be an important factor. Higher educated individuals may be more likely to search for employment opportunities outside their local labor markets as increased education tends to open up new opportunities in the labor market (McCormick 1997). Increasing education may decrease migration costs, especially the psychic costs of migration through improved knowledge of the destinations and more familiarity with diversity. More educated may also find it easier to finance the costs of migration. These channels suggest that higher education may cause higher migration as workers consider relocating to take advantage of better employment prospects in other regions. McHenry (2013), however, argues that additional education at low levels may increase the strength of local job network ties and thereby provide employment stability in the local area. This may result in an increase in opportunity cost of migration and a reduction in geographic mobility. Thus, at low levels of education the effect of increased education on mobility is theoretically ambiguous.[6]

The current literature interprets the estimated impact of education on migration within the above context where the reason of migration is individual's search for better employment prospects. In that context, increased education affects the propensity of migration by changing the associated costs and benefits. There may, however, be other channels through which increased education may affect migration propensity. In particular, increased education may trigger further investments in education which in turn may increase migration propensity. For instance, investments in education increases the stock of future skills which, as a result of dynamic complementarities, in turn increases the return to future investments and lead to further investments in education.[7] If educational opportunities, either in terms of access to education or its quality, are not equally distributed across regions individuals may consider migrating to those regions that enhance their human capital accumulation. Migration may allow them to access educational institutions that are unavailable in the source region or attend higher quality schools that entail higher returns.

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[6] Education could increase the non-monetary incentives to move. Education may also lead to higher demand for better health and education services or other opportunities that vary across locations. Therefore, immigration may increase the incentives to migrate.

[7] There may be other reasons why increased education may lead to further investments in education. When education increases through an exogenous change, such as an increase in compulsory schooling duration, this changes the menu of options for individuals and further investments in schooling may become optimal. Another reason is that as the compulsory schooling duration changes the age at which individuals may drop out of school, there may be an associated change in individual's preferences and valuation of human capital investments. Moreover, further education may reveal new information about individual's abilities and result in an update in expected returns from investments in human capital. As a result, some individuals who would otherwise drop out of school may decide to continue schooling.

Increased education may also affect migration propensity and the reason for migration through its effects on marriage formation. For example, if increasing education of women lead to a decline in the education gap among spouses, earnings prospects of the wife will become a more important factor in family migration decisions. This, in turn may affect the propensity of women to migrate as a tied mover.

The existence of various channels through which education may affect migration imply that the effects of increased education on migration propensity may differ between males and females. While the increased education tends to open up new opportunities in the labor market the extent of such nationwide opportunities may be different across occupations and skill groups. If as a result of increased education males and females specialize in different occupations and skills, then the impact of increased education on migration propensity for employment related reasons may differ by gender. Similarly, the extent to which increased education triggers further education and how much parents would be willing to send their children to other locations for educational purposes may differ for daughters and sons. Finally, the influence of increased education on migration propensity as a tied mover will also differ by gender given that generally it is women who are more likely to be tied movers.

McHenry (2013) notes that among interstate movers in the US only 43% of high school dropouts gave job-related reasons for moving over 2005 through 2009. While much higher than this rate, the corresponding figure among those with bachelor's degree holders was only 62%. This indicates that a large fraction of movers in this developed country context moves for other reasons.[8] The significance of other reason for migration may even be higher among females. Within the Turkish context, by age 24, 27% of women ever migrated for marriage reason. The corresponding fractions for migration due to educational purposes, employment reasons, and as tied mover were 6.6%, 3.7%, and 10.6% respectively. These figures indicate that migration reasons other than employment purposes are quite significant. Therefore, it is of interest to understand how education affects the migration propensity by reason of migration.

3. Education System in Turkey and the 1997 Education Reform

Prior to the implementation of the 1997 education reform only primary school (grades 1-5) was compulsory. The new policy combined primary and secondary schools (grades 6-8) and

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[8] Other reasons for moving categorized as non-job-related include change in marital status, better neighborhood, desire to own a home, better house, attend or leave college, climate, and health reasons.

made the attendance of grades 1-8 mandatory. The reform was implemented nationwide in the 1997-98 school year and students who were in grade 4 or a lower grade was affected by the policy. Most students start school at the age of six. This means that children born in or after January 1987 are affected by the policy if they start school at this age. There is also a nontrivial number of students who start school earlier or later than this usual school start age.

Extending compulsory schooling beyond grade five has been sporadically discussed since early 1960s. The timing of the reform was closely related to the political developments of the time and aimed at curtailing religious education that constituted around 12% of the total enrollment at the secondary school level.[9] Importantly, the timing was independent of the macroeconomic context and, therefore did not coincide with other factors that would have a bearing on migration decisions.

The policy bound a large fraction of students due to high dropout rates prior to the policy implementation. National education statistics show that in the 1996–1997 school year, one year before the policy change took effect, almost 40 percent of students dropped out of school immediately after completing primary school. The government implemented a number of policy tools to meet the increased demands that come with an increasing student population: hiring of new teachers, expanding the number of classes in existing schools, bussing an additional half a million (mostly rural) children to nearby schools, and constructing almost 600 boarding schools in more remote areas.

Figure 1 presents the number of students in basic education (grades 1 to 8) between the 1991-92 and 2002-03 school years. There has been an upward trend in the number of students in urban areas but a downward trend in rural areas prior to the implementation of the reform in 1997-98 school year. The downward trend in rural areas is a reflection of migration from rural

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[9] Prior to the reform students could choose between different education streams at the lower secondary school level starting in grade 6. At the lower secondary level (grades 6 to 8) there were three main streams: general schools, two types of vocational schools involving religious schools and technical schools. Schools in the religious stream were called Imam Hatip Schools, and they offered a curriculum which required completion of some courses on religion in addition to those that were offered in non-vocational schools in the secular stream. Similarly there were some specialized courses offered in the technical schools depending on specialization. In the 1996–97 school year, 11.5 percent of male and 13.1 percent of female secondary school students were enrolled in the Imam-Hatip schools and 1.3 percent were in technical schools. Students from both vocational and non-vocational schools could compete for university seats on equal footing and many of the vocational school graduates went on to occupations not related to religious services. Secular coalition government that took power in 1997 saw this reform as a tool to curtail the growing demand for Imam Hatip Schools. Vocational streams at the lower secondary level were closed down and all students were offered a unified general education in grades 6 through 8. Another policy that was implemented in 1998 to prevent students graduating from vocational high schools to compete on equal grounds for university seats coupled with the closure of lower secondary vocational streams greatly reduced demand for Imam Hatip Schools.

to urban areas. The upward trend in urban regions reflects the joint effect of increasing enrollment rates as well as increases in student population due to rural to urban migration. Although there were different trends in student numbers prior to the policy implementation, both figures show sharp increases following the implementation of the reform. Kırdar et al., (2016) shows that the policy effect was especially strong in rural areas both for men and for women. Despite these large increases in the student population there is no evidence of a deterioration in the quality of schooling in terms of student-to-class ratio, student-to-teacher ratio, and student test scores (Aydemir and Kırdar, 2016).

4. Data

The first data sets we use in our analysis is the Household and Labor Force Survey (HLFS) which is a nationally representative sample of households in Turkey with information on educational attainment and migration. We use 2009 to 2015 cross sections, the years that include data on interprovincial migration pertaining to survey respondent's last migration.[10] HLFS offers large sample sizes that allows us to conduct our analysis separately for men and women.

The second data used in our analysis is the Turkish Demographic and Health Survey (TDHS). The target population in this survey is women at the reproductive age (15-49) including both ever-married and never-married women. Although providing a smaller sample size than HLFS, TDHS has a number of important features that allows a richer analysis. First, 2013 TDHS data that we use in our analysis includes information on completed years of schooling, month and year of birth for all respondents.[11] Because the year students start school depends on both month and year of birth, this information allows a more precise definition of the cohorts affected by the policy. Second, there is complete migration history from age 12 along with information on reason for each migration. This feature of the data enables the estimation of the effects of education on migration by reason of migration. We can also distinguish between level and timing effects by carrying out the analysis by individual's age. Third, the data provides geographic identifiers of the various regions an individual has ever resided that allows us to distinguish between with-in-province and interprovincial migration. While TDHS collects some information on spouses, the information on migration history is only available

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[10] The survey asks the following questions that allow us to derive migrant status questions: "Have you been living in this province since birth?" and "Since which year have you been living in this province?"

[11] The previous 2008 TDHS survey includes information on month and year of birth only for ever-married women.

for women. Therefore, the analysis by reason of migration and the investigation of level and timing effects can be carried out only for women.

Using HLFS data and restricting the sample to cohorts that are not affected by the CS reform, Figure 2 presents the correlation between educational attainment and ever migrating probability by age separately for males and females. Both graphs show a strong positive correlation between education and migration. The migration propensity is especially high for college graduates. There is also substantial difference in migration propensity of high school and secondary school graduates relative to primary school graduates - this difference is more pronounced among females. For example, by age 33 the probability of ever migrating among female high school graduates is about twice as much as that among primary school graduates. For secondary school graduate females this probability is more than 50% higher than the corresponding figure among primary school graduates.

Figure 3 presents estimated migration hazard rates by age separately for males and females. Starting from age 15, the migration probability increases with age, much more sharply after age 17, and peaks around age 20. Thereafter, it declines as individuals become older.[12] Thus, regardless of gender individuals seem to be especially prone to migration around age 20. Our analysis focuses on migration behavior during these young ages when migration activity is intense and exploits the CS reform to investigate to what extent the observed positive correlation between education and migration in Figure 3 is causal.

Before we present our empirical approach and resulting estimates, we first provide evidence on the extent to which the CS reform affected educational outcomes in Turkey. Figure 4 presents fraction of individuals completing at least grade 8 by birth cohort. The left panel refers to females while the right panel refers to males. For both groups there is a big jump at the cutoff. For example, among females the increase in grade 8 completion rate is about 20 percentage points. However, for neither group grade 8 completion is universal after the cutoff. This may reflect imperfect compliance with the law as well as late implementation of the policy in certain areas (e.g., rural areas in which bussing schemes had to be established and

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[12] Figure 4 indicates a sharp drop in migration hazard rate at age 22 for the male sample. This is an artifact of the data. The data excludes individuals in institutions among them those that are in military. A substantial portion of men serve in military at this age (which lasts 6 to 18 months) that results in a change in composition of the male sample. As males complete their military service and appear in the sample the hazard rates approach their long term trend.

locations where school construction spanned over a few years following the reform date).
Moreover, students born before January 1987 but start school later than normal age would be bound by the policy while those who are born after this date but start school before the normal age would be exempt from it. These cases contribute to the fuzziness around the cutoff. Figures 5 and 6 present similar results for at least high school and at least college completion, respectively. These figures show that there was a spillover effect of the policy on high school completion but there is no such effect for college completion.

Figure 7 presents completed years of schooling by birth cohorts. In HLFS data in order to generate the years of schooling variable based on the on the highest completed level of schooling we use information from TDHS data which includes information on both completed degrees and completed years of schooling. This enables us to find the distribution of years of schooling conditional on the highest completed schooling level. Using this information we generate the mean years of schooling for each of the highest completed schooling level in HLFS sample.[13]

5. Empirical specifications and estimation results

In this section we first discuss the empirical estimation strategy and resulting estimates for men and women of the effect of education on migration using HLFS data. This is followed by the analysis of reasons for migration, timing and level effects among females using TDHS data.

5.1 The effect of education on migration propensity by gender

In the analysis of education on migration the identification challenge arises because the level of education an individual attains may be endogenous due to various omitted factors like ability, motivation, willingness to invest, and parental connections that determine both education and migration outcomes. To solve this endogeneity problem we use the compulsory schooling reform in Turkey as a source of exogenous variation in schooling. In particular, we exploit the variation in schooling across birth-cohorts induced by this institutional change and carry out the following two-stage least squares estimation:

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[13] Using information the distribution of years of schooling in TDHS data for each degree attainment we find that the average years of schooling is 0.15 years for illiterates, 2.05 years for literates with no degrees, 5.11 years for primary school graduates, and 8.44 years for secondary school graduates. We thus assign zero years for illiterates, two years for literates with no degrees, five years for primary school graduates, 8 years for secondary school graduates, and 11 years for high school graduates while generating the years of schooling variable.

$$s_i = \alpha_0 + \alpha_1 D_i + X^{'}\theta + u_i \qquad (1)$$

$$m_i = \beta_0 + \beta_1 s_i + X^{'}\delta + v_i \qquad (2)$$

where *s* denotes middle school completion status, *m* denotes migration status, *D* is a dummy variable for the policy, and *X* denotes the set of covariates including dummies for each age and calendar year.

HLFS provides information on interprovincial migration, i.e. whether an individual's current province of residence is different from the birth province. Available information in HLFS data does not allow us to consider other types of migration (e.g. within province migration). If the individual is a migrant, HLFS survey also asks since which year the individual has been living in the current place of residence. This allows us to determine the age at which migration took place. As a result we can define migration status as having migrated since an individual's certain age. For example, we can define migration status as ever migrating after age 15 or after age 18. This definition allows us to focus on migration experiences in which the individual either himself/herself made the migration decision or was part of this decision process. In absence of information when migration occurred, one has to define migration as whether the current place of residence is different from province of birth. This definition would unavoidably include child migrants moving with their families where the individual plays little role, if any, in the migration decision.

The education reform covered students who finished grade 4 or lower grades at the end of the 1996-97 school year. This implies that students who started school in September 1993 or afterwards were bound by the policy. Hence, children born in or after January 1987 are affected by the policy. These students were required by the new CS law to complete grades 6 to 8 which refer to as middle school in the analysis below. Accordingly, we construct our policy dummy that we use as an instrument for schooling, as follows:

$$D_i = 1 \; if \; \text{year of birth of individual i} >= 1987$$
$$= 0 \quad \text{o.w.}$$

We restrict our sample to individuals between ages 18 to 33 and cluster the standard errors at the year of birth level. Table 1 provides descriptive statistics for this sample. Females are

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lower educated, less likely to be employed, and more likely to be married. Within the Turkish context there is a significant gender gap in education against females as in most developing countries. Both due to this gender education gap and the fact that females are much less likely to participate in the labor market at low levels of education they have lower employment rates. Also, age at marriage is lower among females than males which leads to higher marriage rates for females in our sample. Interestingly, however, Table 1 shows that females are slightly more likely to have ever migrated than males. This may be a result of migration due to marriage which is common among females but it is likely to be much less prevalent among males.

Based on the above definition of the policy dummy it is instructive to consider which age groups are affected by the CS law in our sample. Table 2 highlights the age groups by survey year that are affected by the policy. Given that the reform was implemented only recently (in 1997) and that our data covers years from 2009 to 2015, all of the individuals above age 28 in our sample were exempt from the law while all individuals below age 23 were bound by it. Thus, in our sample only in the 23 to 28 age range there are individuals who fall under both the pre- and post-reform periods. We consider the sensitivity of our results by providing estimation results using different age restrictions.

Table 3 reports the coefficient estimates of the policy dummy from the first stage regression. Column 1 shows that in our sample middle school attainment increased by about 12.3 percentage points among males from a baseline value of 78.6 percent. There was an even larger effect of the reform on females increasing middle school completion by about 16 percentage points from a baseline value of 62.1 percent. Both effects are very precisely estimated with F values of 24.2 and 34.7 indicating that we have very strong first-stage in our 2SLS estimation.

Table 4 reports the coefficient estimates of the middle school completion in equation (2) from both the OLS and 2SLS estimation for various specifications. In this table migration is defined as having ever migrated after age 18. The first panel reports results for males while the second one reports results for females. In each panel the first column reports the OLS estimates while the following columns report 2SLS estimates. OLS estimates indicate a positive correlation between middle school completion and migration probability for both males and females. Column 2 of each panel that report 2SLS results using the same

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specification in column 1 with age and year fixed effects also indicate a positive effect of education on migration. In columns 3 and 4 we allow for age specific time trends in migration by introducing age and year interaction terms. Controlling for time trends results in 2SLS estimates to become significantly smaller for males and to disappear completely for females. Last column of each panel restricts the sample to those between ages 23 to 28 where we have variation in exposure to reform within each age group. Since with this restriction we are left with very little variation in age we do not include interaction terms. The results in the last column of each panel confirm the earlier results. The coefficient estimate for males, although insignificant, is positive and large. On the other hand, the coefficient estimate for females is close to zero. These results in general indicate a positive effect of middle school completion on migration propensity for males but no effect for females.

Tables 5 and 6 carry out the same analysis but now define migration as having ever migrated after age 15. Migration hazard rates presented in Figure 3 indicated nontrivial migration incidence starting age 15. Hence, the reform induced changes in education may be affecting migration behavior during these younger ages. We therefore also report results from this alternative migration definition. Table 5 reports results for the same age range as in Table 4 - ages from 18 to 33- while Table 6 extends the age range to 15 to 36. When we consider ever migrating after age 15 both tables show a positive and statistically significant effect of middle school completion on migration for males but no effect for females. The estimated impact is quite large for males indicating a 10 percentage point increase in migration probability as a result of three extra years of schooling (middle school completion). This corresponds to about 50% increase in migration probability from a sample mean of about 21 percent. While we find no effect of education on the level of migration for females, it is still interesting to find out if education changes timing of migration and whether education has different effects on migration propensity by reason of migration. This is what we investigate in the next section.

5.2 The effect of education by age and by reason of migration

In this section we investigate whether migration affects the timing of migration and whether its influence varies by reason of migration. Bockerman and Haapanen (2013) finds that while there is an effect of education on migration over the short run this effect dissipates several years after the completion of education. Hence, in this section we explore whether the finding of no effect of education on the level of migration among females may be masking any timing

effects. We use TDHS data in this analysis that reports the complete history of migration since age 12 for females between ages 15-49 along with the reason of migration.

The important advantage of TDHS data is the availability of month and year of birth of individuals. Therefore, we can much more precisely define cohorts that are affected by the policy. Those that are born after January 1987 are affected by the law whereas those that are born prior to this date are exempt from it. Using this information we first present in Figure 8 fraction completing grade 8. The horizontal axis denotes how far each birth cohort (as defined by month-year of birth) is from policy implementation date. Each panel provides results for a different age restriction. For example, upper left panel provides results for individuals who are age 17 in TDHS data. Each graph shows a clear discontinuity in grade 8 completion at the policy cutoff. The large reform induced shift in grade 8 completion in TDHS data is consistent with the results obtained using HLFS data.

Figure 8 presents similar results but now for the outcome of having ever migrated for any reason by a certain age. The figures display discontinuity in migration probability suggesting an increase in migration following the policy by ages 17 to 20. However, there is no clear discontinuity beyond that age suggesting that by age 22 there doesn't seem to be any effect of middle school completion on migration.

As we discussed above an important advantage of TDHS is the availability of information on reason for migration. This information is depicted in Figure 10 which presents migration hazard rate by reason of migration across different ages. The pattern in migration propensity by age is very similar to that we find in HLFS data. Migration propensity increases with age after age 15 and peaks around ages 18-20 and falls as individuals become older. Importtantly, the figure also shows that for individuals younger than age 20, migration for marriage is the most prominent reason for migration followed by migration for education purposes. The significance of migration with spouse or migration for employment reasons increases while that for migration with parents falls as individuals get older. Figure 11 that presents corresponding hazard rates when migration is defined as inter-provincial migration leads to qualitatively similar conclusions.

The availability of month-year of birth information in TDHS data provides us variation in the exposure to CS reform across different month-year of birth cohorts, as well as that across different year of birth cohorts. Exploiting this information we adopt a regression discontinuity (RD) design to estimate the causal effects of education on migration:

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$$E(Y_{0i} \mid x_i) = \alpha + \beta_{01}x_i' + \beta_{02}x_i'^2 \qquad (3)$$

$$E(Y_{1i} \mid x_i) = \alpha + \rho + \beta_{11}x_i' + \beta_{12}x_i'^2 \qquad (4)$$

$$where \qquad x_i' = x_i - x_0$$

In the above specification Y{0} refers to the outcome variable before the policy, Y{1} refers to the outcome variable after the policy, x is the year of birth, x(0) is the time of discontinuity, which is used for normalization.

Due to fuzziness in exposure to policy we cannot we adopt a 2SLS procedure where in the first stage we use policy exposure as an instrument and estimate the following specification:

$$Y_i = \alpha + \beta_{01}x_i' + \beta_{02}x_i'^2 + \rho D_i + \beta_1^* D_i x_i' + \beta_2^* D_i x_i'^2 \qquad (5)$$

$$where \qquad \beta_1^* = \beta_{11} - \beta_{01}$$
$$\beta_2^* = \beta_{12} - \beta_{02}$$

where D denotes the treatment variable (i.e. exposure to policy) and Y is the education level measured as number of years of schooling.

In the second stage equation Y denotes migration status and we are interested in the effect of an extra year of schooling on this outcome. We estimate specifications where we restrict the time trends to be the same before and after the policy ($D_i x_i'^j = 0$) and allow for the polynomial terms of the running variable x_i (birth-year of individual i) up to third degree ($j=1,2,3$). We report results separately for each j. We also allow for split time trends as specified in equation (5) and report results up to second order.

It is important to note that in our context the timing of the policy is independent of schooling, marriage, and birth outcomes because its implementation was triggered by political developments. Identification also requires that the policy does not coincide with other interventions that would also influence the outcome of interest. Figure 12 checks for this possibility by plotting various aggregate indicators across calendar years. Upper left panel shows a large discontinuity in education's share in public expenditures around the policy cutoff date as the government increased educational spending needed for school construction,

bussing, teacher hiring etc. as a result of the implementation of CS reform. For other aggregate series that reflect aggregate economic conditions, such as GDP per capita, employment rates or expenditures in other areas such as health, there is no discontinuity around the cutoff date. This provides us some assurance that the policy did not coincide with other interventions in the economy.

We first estimate a first stage equation by replacing the outcome variable in equation (5) with an indicator of middle school completion. Table 7 reports the results of this first-stage estimation. The first panel reports results when we use a single time trend up to polynomial order of three while second panel report results when we allow for split time trends up to order of two. The estimations are carried out by age and results are presented in different rows of Table 7. Consistent with our earlier findings the results indicate sizeable effect of policy on middle completion. The coefficients are precisely estimated with F values well above 10 with few exceptions when we allow split time trend of order two (last column).

Table 8 reports RD estimates of the effect of schooling on migration by age where the outcome variable is the ever-migrated status by that age. The OLS results in the first column indicate a positive correlation between years of schooling and ever-migrating for all ages beyond age 17. The 2SLS reports in columns 2 to 5 indicate, however, that increased schooling increases ever-migration probability at younger ages (age 17 to 20), however, this effect dissipates as the individual gets older. Note that the coefficient estimates in column 6 are much more volatile, large in size and are insignificant probably reflecting weaker first stages in Table 7.

Table 9 reports results by reason of migration. The most important result that emerges from this analysis is that the migration probability of women for education purposes increases remarkably until early 20s. In addition, there is also suggestive evidence that education increases the migration for employment for women. The effect of education on migration for marriage purposes is nonlinear over age. Women are more likely to migrate for marriage purposes at age 17 and 18 (as people delay their marriage from early ages to these ages), but are less likely to migrate for marriage purposes at early 20s as they become more likely to migrate for other purposes like education and employment at these ages. Table 10 carries out the analysis in Table 9 by distinguishing between inter- and intra-provincial migration. The results show that the effects observed for migration for educational and employment purposes

are driven by long distance moves as the coefficients are significant for inter-provincial migration only.

6. Conclusions

This paper estimates the causal effect of education on migration in the developing country context of Turkey. We exploit a major school reform that increased compulsory schooling by three years that affected grades 6 through 8. Exploiting the resulting exogenous variation in schooling we estimate the effects of education on migration propensity. We also estimate the effects of increased schooling on the timing of migration as well as effects by reason of migration.

Our results show that education increases the probability of ever-migrated status after age 15 for 23- to 28-year-old men in Turkey by about 50 percent. However, there is no such effect for 23- to 28-year-old women. However, this level analysis masks the timing effects for women. While education does not change the ever-migrated status of 23- to 28-year-old women, it changes the timing of migration at earlier ages.

We also find that the migration probability of women for education purposes increases remarkably until early 20s while there is also some suggestive evidence that education increases the migration for employment for women.

The results in this paper shows that in addition to the level effect of education on migration, increased schooling may change the timing of migration. Our results also underscore the importance of distinguishing between different reasons for migration.

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Figures

Figure 1 - Number of Students in Basic Education (Grades 1 to 8)
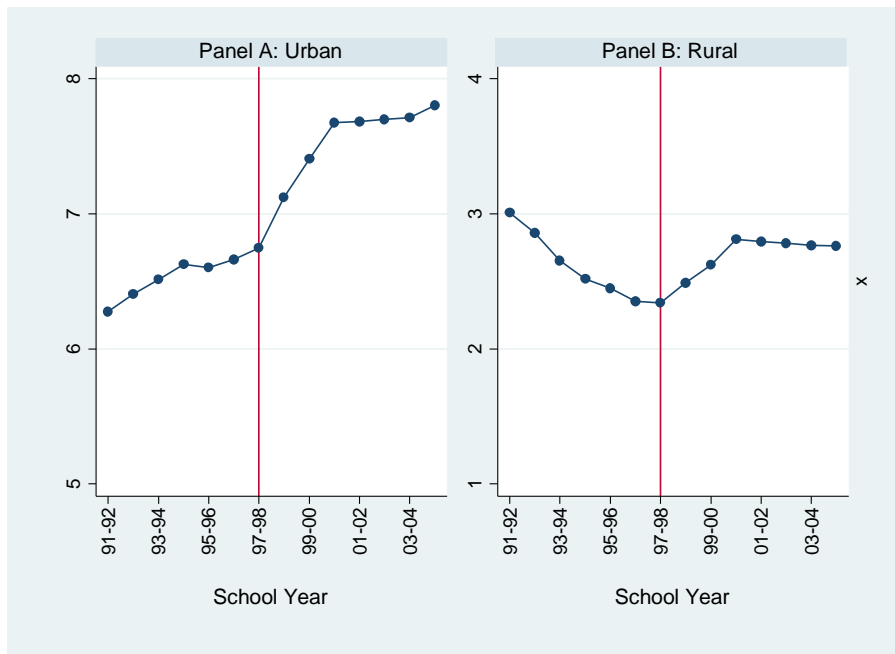
Figure 2 - Correlation between Educational Attainment and Ever Migrating After Age 22
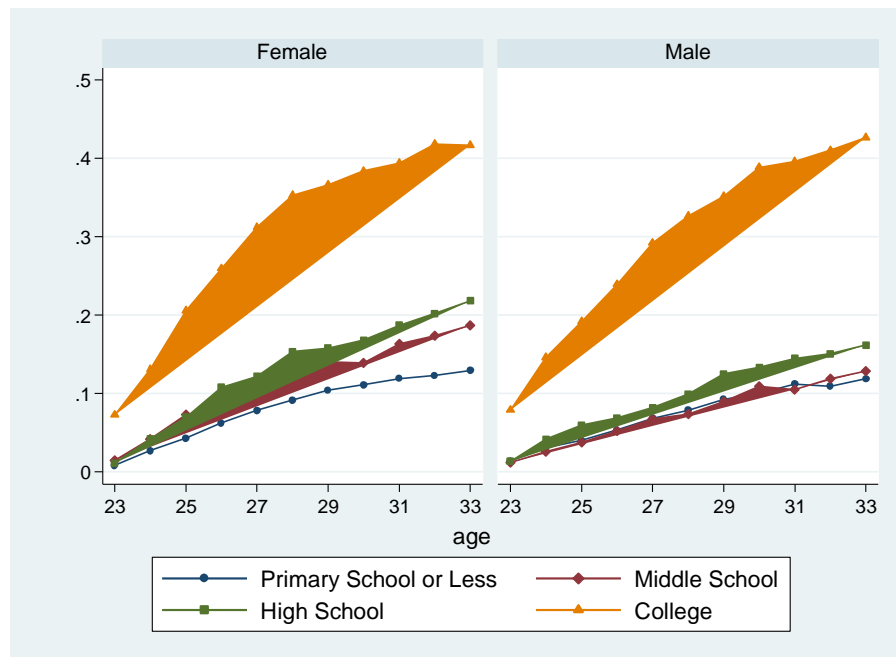
Note: The sample is restricted to birth cohorts who are not affected by the 1997 compulsory schooling policy.

Figure 3 - Estimated Migration Hazard Rates by Gender
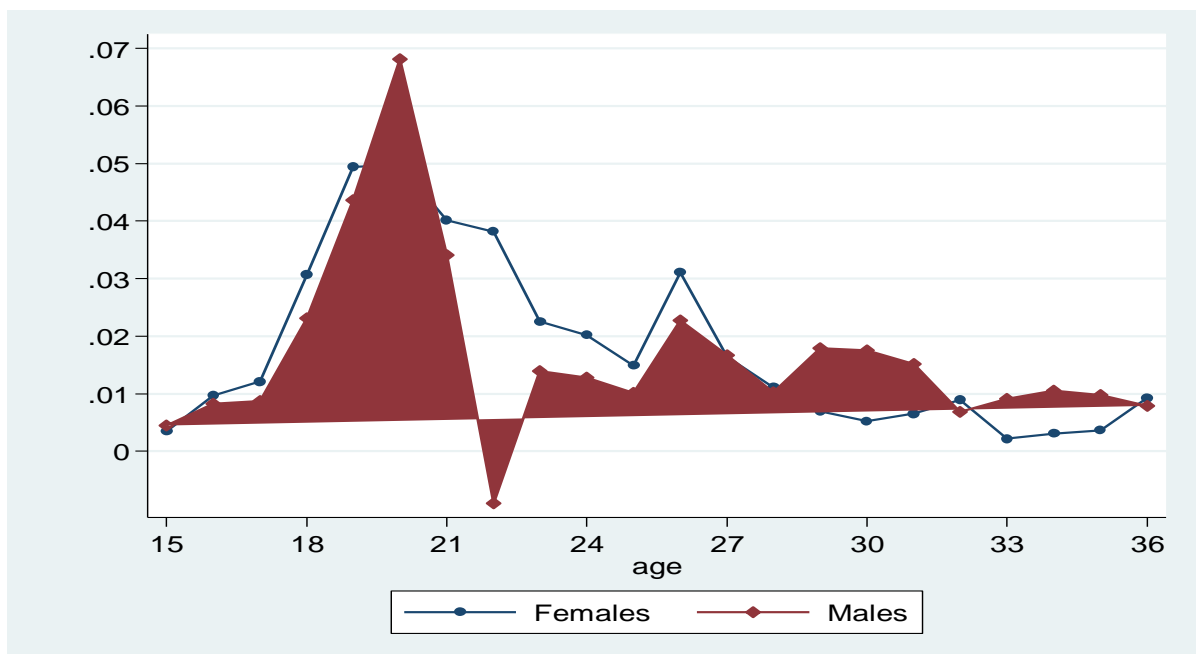
Figure 4 - Fraction Completing at Least Grade 8
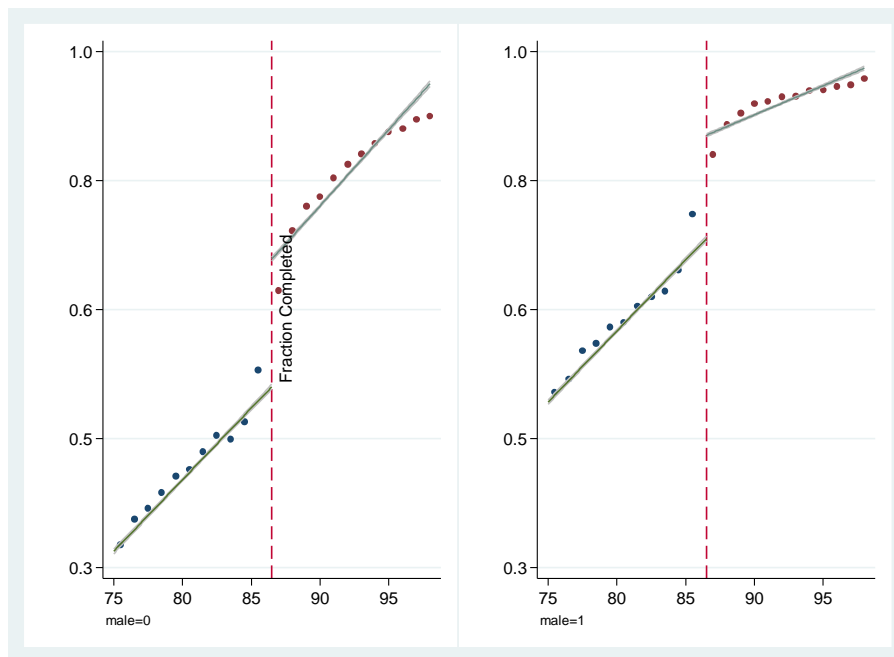
Note: The sample is restricted to individuals aged 17 or higher.

Figure 5 - Fraction Completing at Least High School
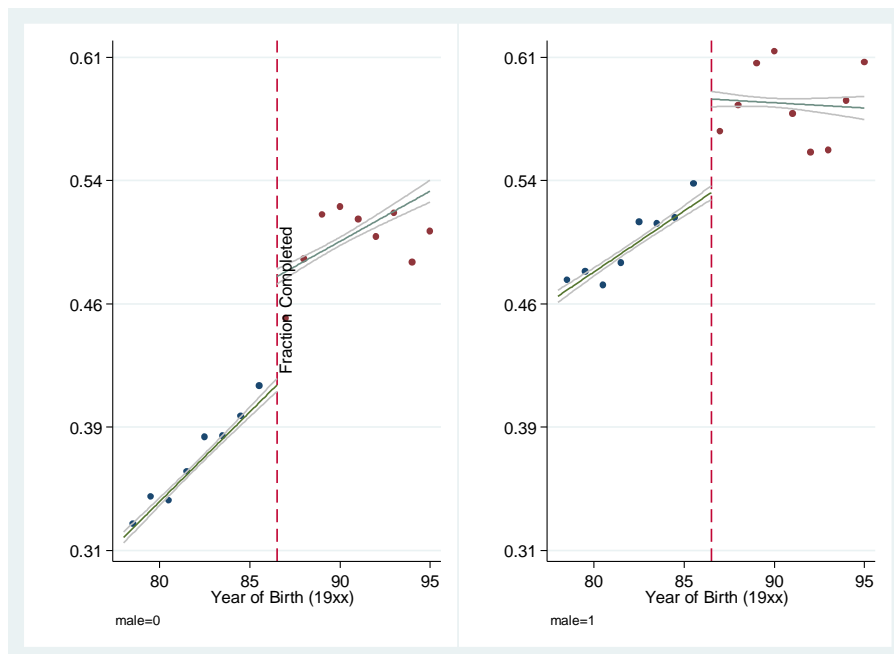
Note: The sample is restricted to individuals aged 20 or higher.

Figure 6 - Fraction Completing at Least College
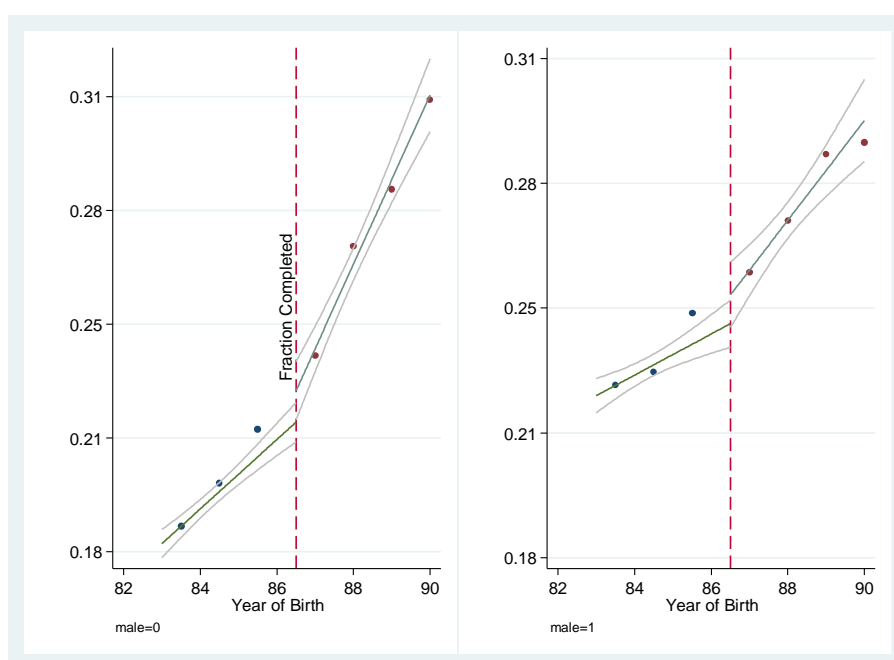
Note: The sample is restricted to individuals aged 25 or higher.

Figure 7 - Completed Generated Years of Schooling
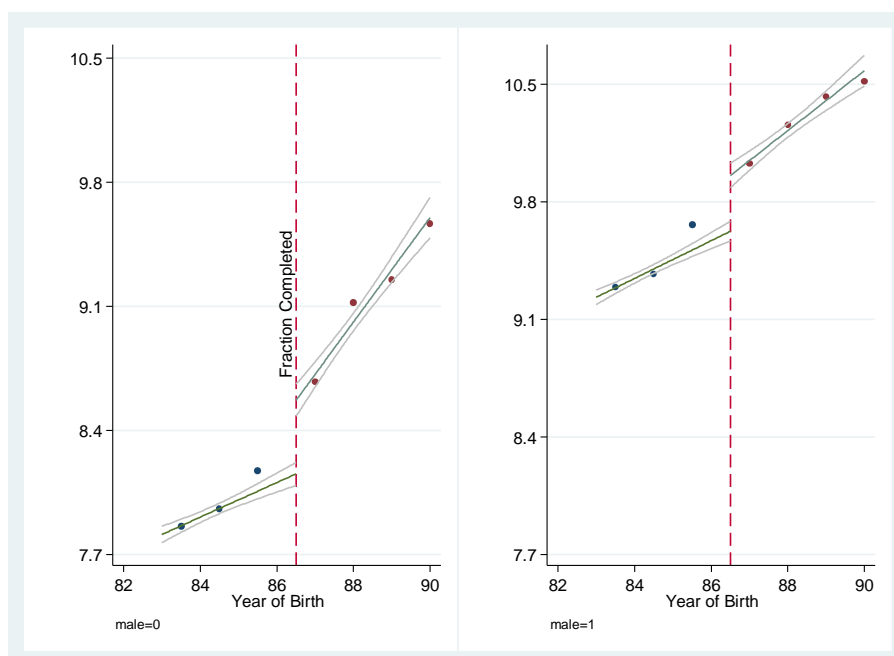
Note: The sample is restricted to individuals aged 25 or higher.

Figure 8 - Fraction Completing Grade 8 by Age
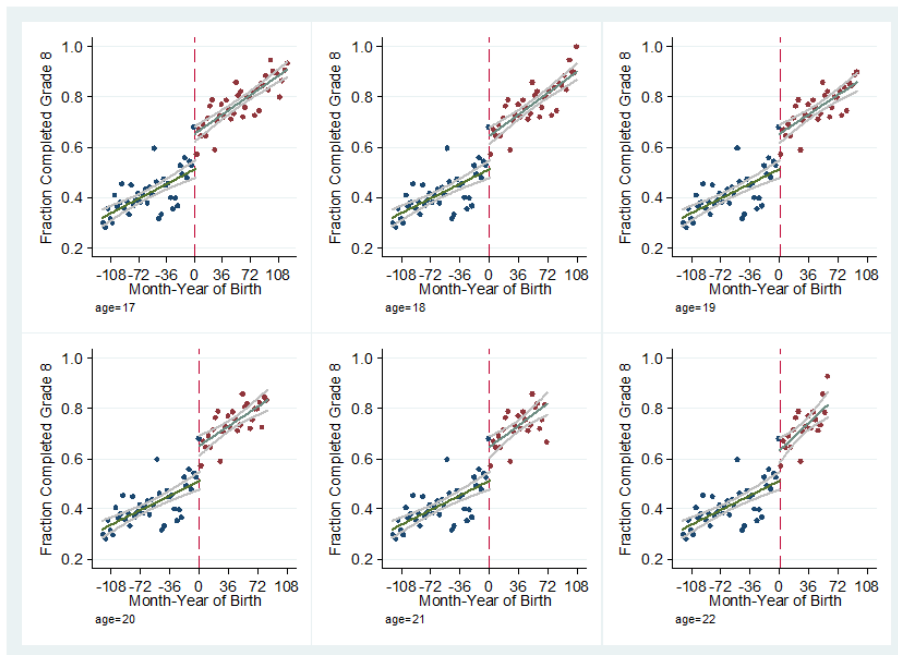
Figure 9 - Fraction Migrated for any Reason by Age
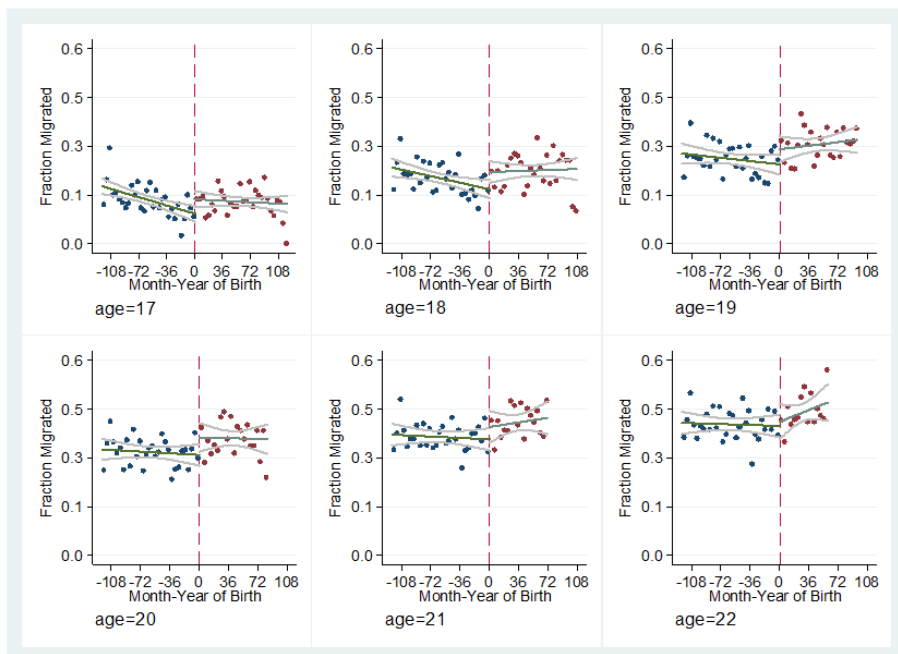
Figure 10 - Migration Hazard Rate by Reason of Migration
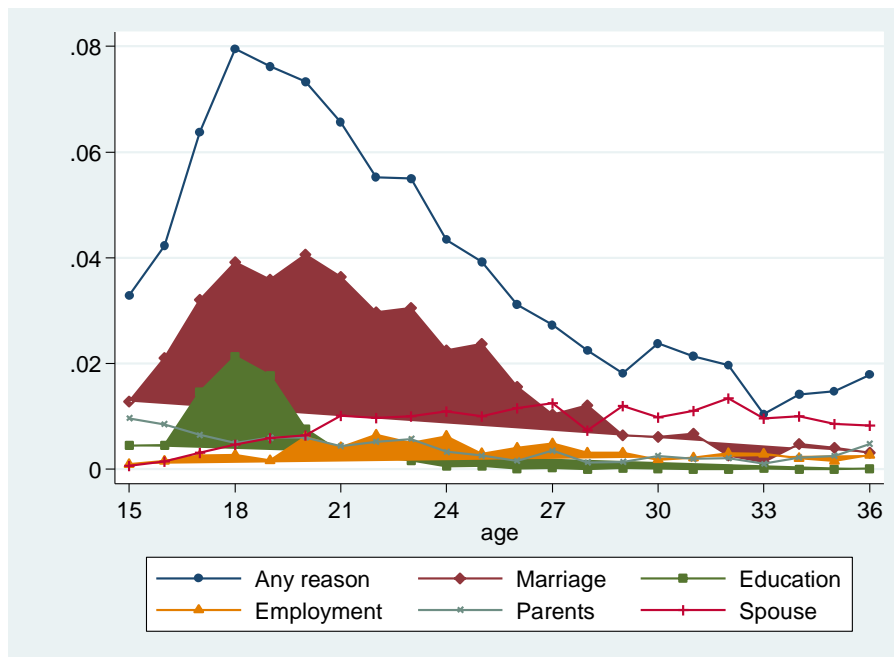
Figure 11 - Interprovincial Migration Hazard Rate by Reason of Migration
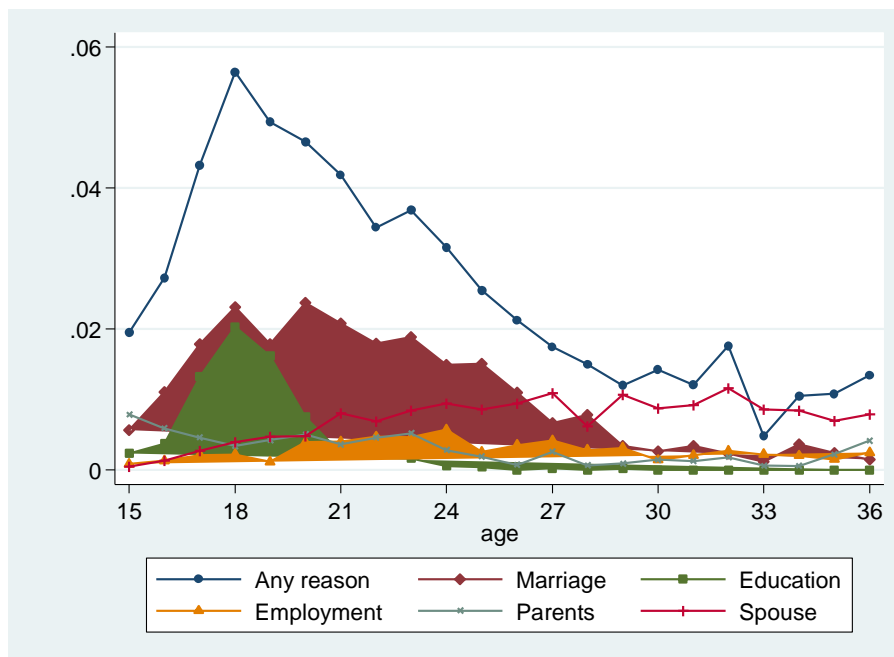
Figure 12 - Policy implementation and other aggregate indicators
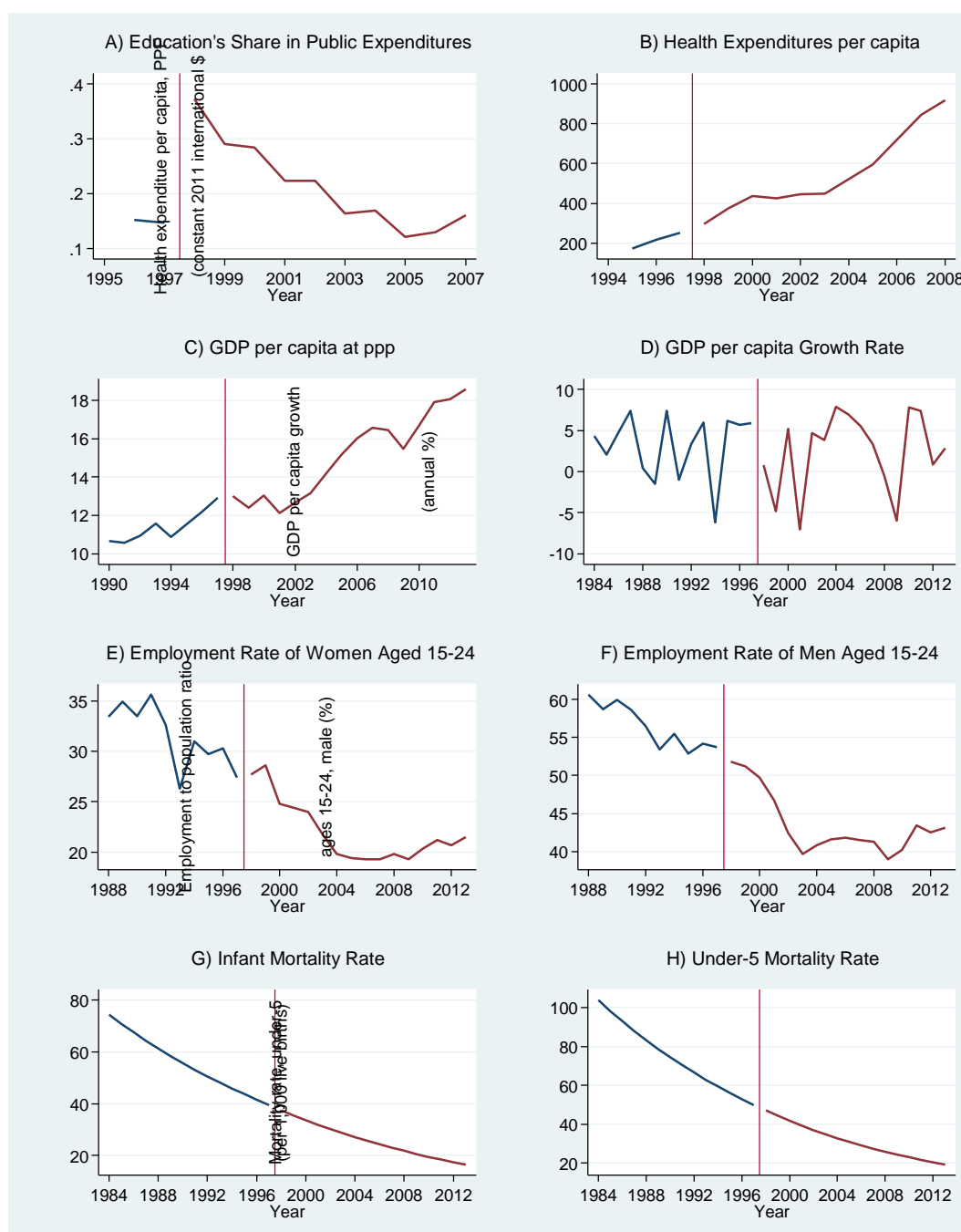
Figure 13 - Fraction Migrated for Employment Purposes by Age
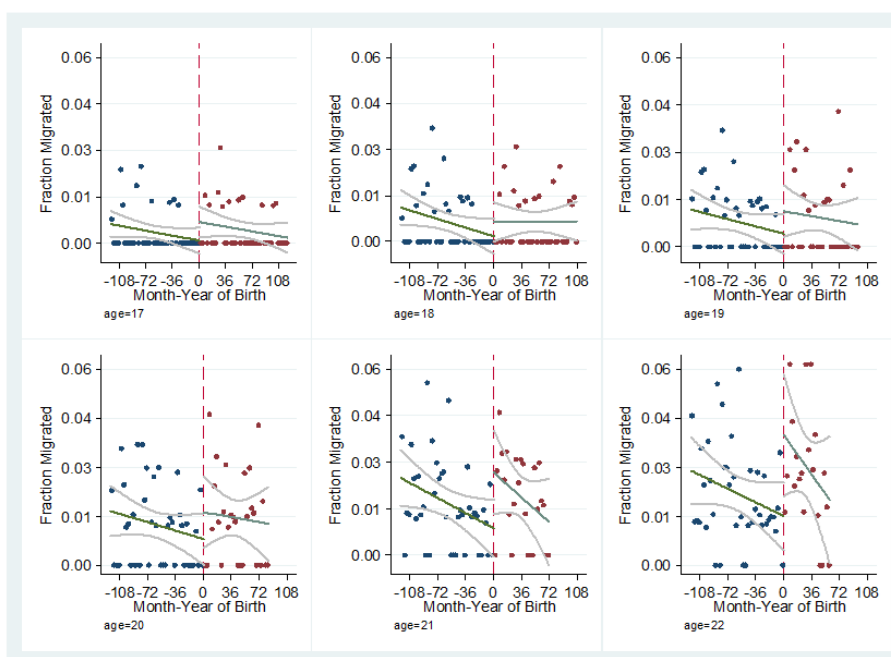
Figure 14 - Fraction Migrated for Educational Purposes by Age
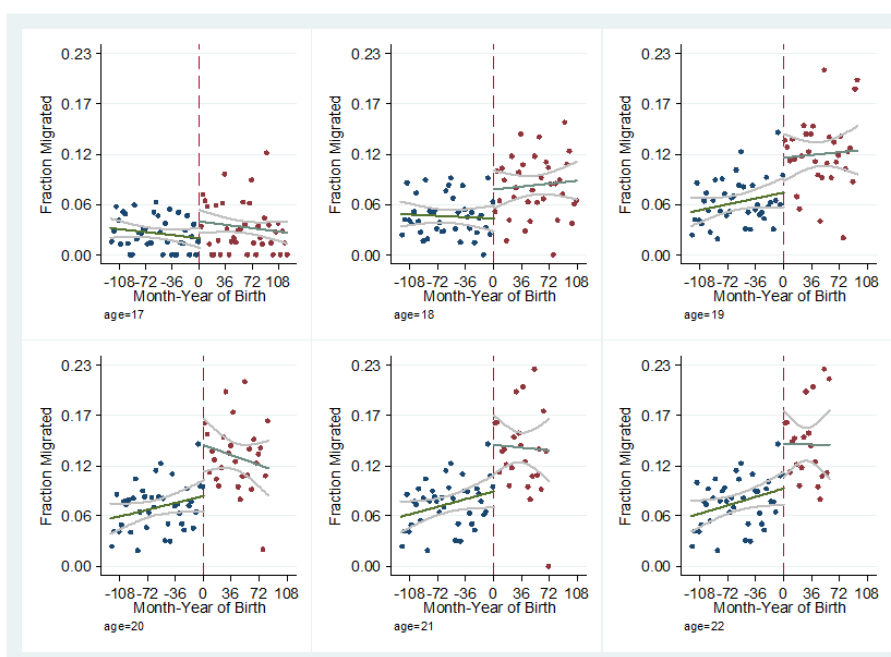
Figure 15 - Fraction Migrated for **Marriage** by Type of Residence before Age 15
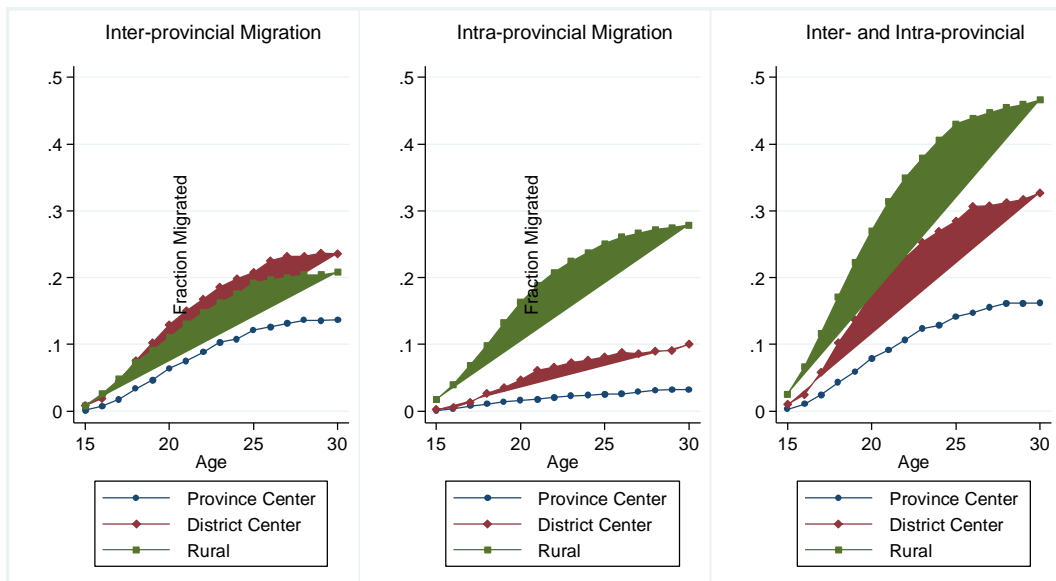
Figure 16 - Fraction Migrated for **Education** by Type of Residence before Age 15
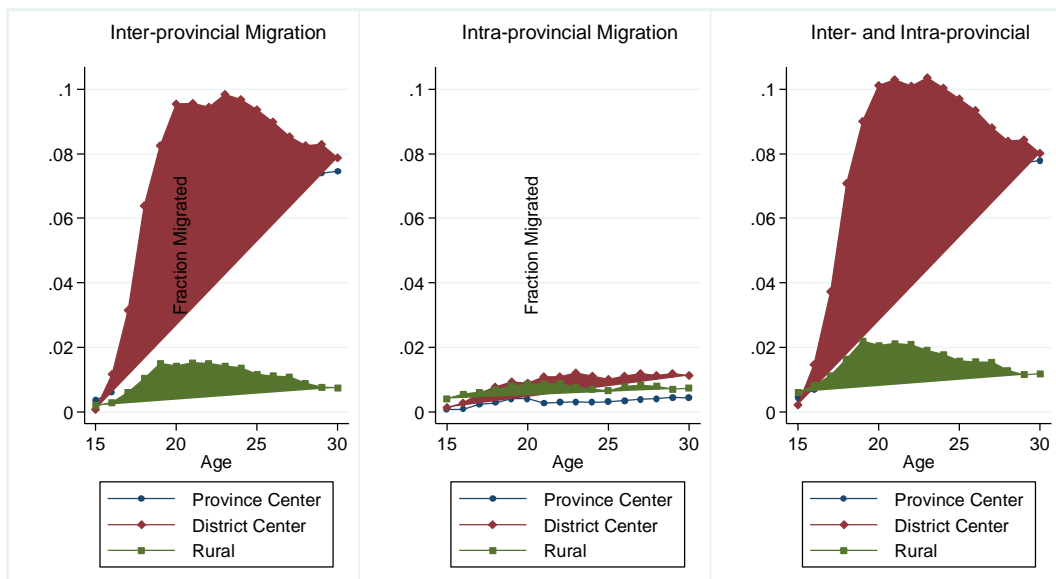
Figure 17 - Fraction Migrated for **Employment** by Type of Residence before Age 15
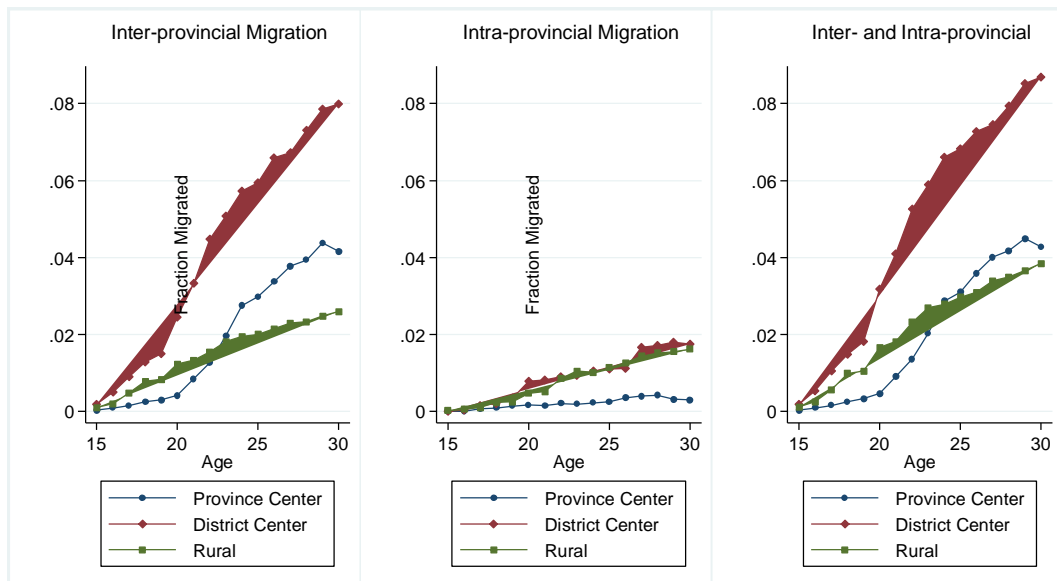
Figure 18 - Fraction Migrated for **Marriage** by Region of Residence before Age 15
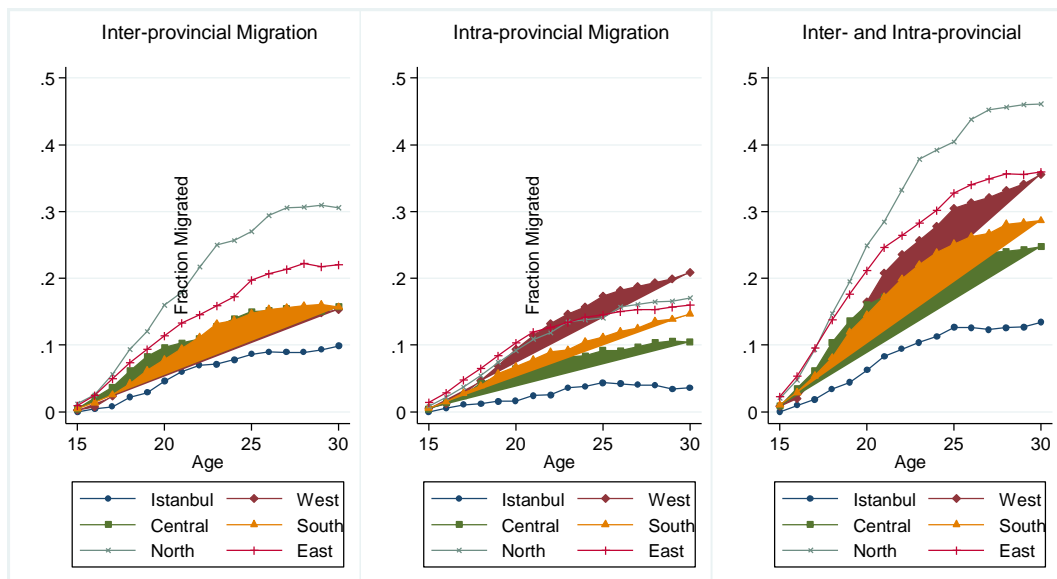
Figure 19 - Fraction Migrated for **Education** by Region of Residence before Age 15
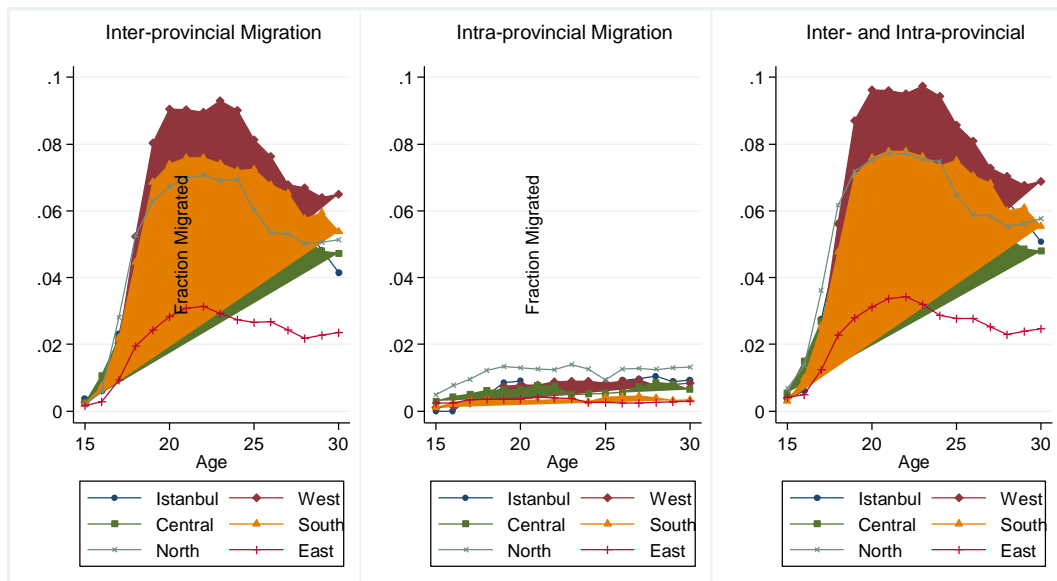
Figure 20 - Fraction Migrated for **Employment** by Region of Residence before Age 15
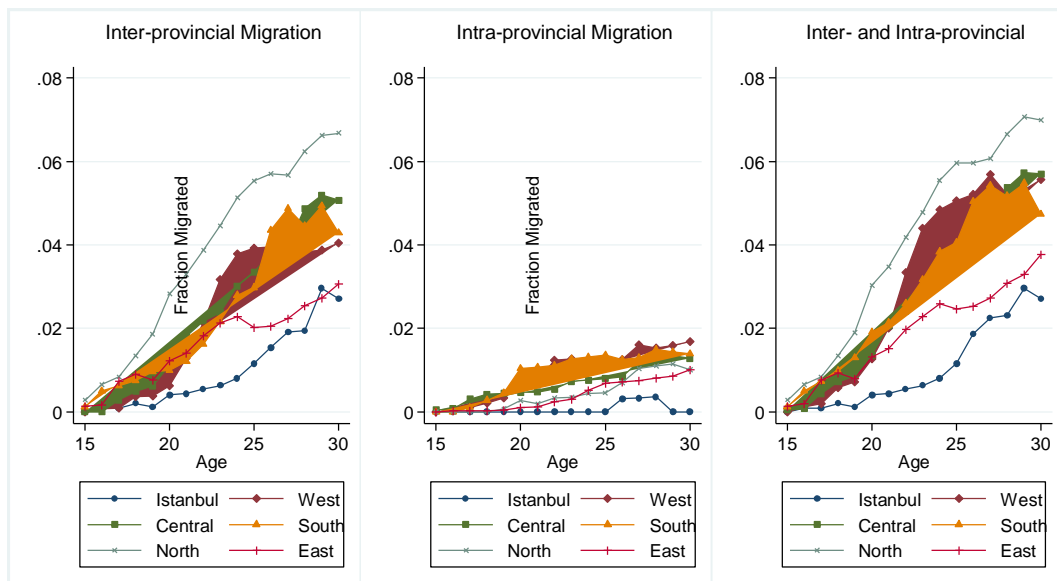
Tables

Table 1 - Summary Statistics for HLFS sample

	Men	Women
Age (mean)	25.56	25.59
Less than Middle School (share)	0.21	0.38
Middle School Degree (share)	0.28	0.21
High School Degree (share)	0.34	0.26
2 Year College and Above (share)	0.16	0.15
Employed (share)	0.7	0.3
Ever Married (share)	0.41	0.61
Migrant (share)	0.17	0.2
# of Observations	388,889	418,971

Note: The sample contains individuals aged 18-33 from 2009-2015 releases of the Household Labor Force Survey. Schooling categories are mutually exclusive and collectively exhaustive.

Table 2 - The Cohorts Affected by the Reform

Age Year	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
2009	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977	1976
2010	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978	1977
2011	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979	1978
2012	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979
2013	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981	1980
2014	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982	1981
2015	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	1986	1985	1984	1983	1982

Note: Individuals born in or after 1987 are affected by the Compulsory Schooling Reform. Year of births are imputed by subtracting the age from survey year.

Table 3 - The Effect of the Reform on Middle School Degree Attainment (HLFS data)

	Men	Women
Compulsory Schooling Reform	0.123***	0.159***
	(0.025)	(0.027)
Mean of Deperndent Variable	0.786	0.621
Observations	388,899	418,971

***, **, and * refer to 1%, 5%, and 10% significance levels, respectively. Standard errors are clustered at the year of birth level. Each column shows a separate estimation and the sample restriction is given at the top of each column. The dependent variable is a binary variable for having a middle school or a higher degree. Each specification controls for age fixed effects and survey year fixed effects.

Table 4 - The Effect of Middle School Degree Attainment on Ever-Migrated Status after Age 18 (HLFS data)

	Men					Women				
	OLS	2SLS	2SLS	2SLS	2SLS	OLS	2SLS	2SLS	2SLS	2SLS
Middle School Degree	0.111***	0.108***	0.080*	0.061	0.056	0.110***	0.088***	-0.015	-0.036	-0.005
	[0.003]	[0.028]	[0.041]	[0.039]	[0.043]	[0.007]	[0.032]	[0.046]	[0.042]	[0.040]
Age Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age Group Dummies * Year Trend			Yes					Yes		
Age Dummies * Year Trend				Yes					Yes	
Sample Mean	0.171	0.171	0.171	0.171	0.183	0.202	0.202	0.202	0.202	0.230
Age Interval	18-33	18-33	18-33	18-33	23-28	18-33	18-33	18-33	18-33	23-28
Number of Clusters	22	22	22	22	12	22	22	22	22	12
Number of Observations	388,899	388,899	388,899	388,899	146,014	418,971	418,971	418,971	418,971	153,601

Notes: ***, **, and * refer to 1%, 5%, and 10% significance levels, respectively. Standard errors are clustered at the year of birth level.

Table 5 - The Effect of Middle School Degree Attainment on Ever-Migrated Status after Age 15 (HLFS data)

	Men					Women				
	OLS	2SLS	2SLS	2SLS	2SLS	OLS	2SLS	2SLS	2SLS	2SLS
Middle School Degree	0.107***	0.134***	0.128**	0.107***	0.103**	0.095***	0.084**	-0.015	-0.037	-0.005
	[0.003]	[0.029]	[0.059]	[0.041]	[0.047]	[0.007]	[0.035]	[0.052]	[0.049]	[0.050]
Age Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age Group Dummies * Year Trend			Yes					Yes		
Age Dummies * Year Trend				Yes					Yes	
Sample Mean	0.202	0.202	0.202	0.202	0.210	0.242	0.242	0.242	0.242	0.267
Age Interval	18-33	18-33	18-33	18-33	23-28	18-33	18-33	18-33	18-33	23-28
Number of Clusters	22	22	22	22	12	22	22	22	22	12
Number of Observations	388,899	388,899	388,899	388,899	146,014	418,971	418,971	418,971	418,971	153,601

Notes: ***, **, and * refer to 1\%, 5\%, and 10\% significance levels, respectively. Standard errors are clustered at the year of birth level.

Table 6 - Effect of Middle School Degree Attainment on Ever-Migrated Status after Age 15 (HLFS data)

	Men					Women				
	OLS	2SLS	2SLS	2SLS	2SLS	OLS	2SLS	2SLS	2SLS	2SLS
Middle School Degree	0.107***	0.152***	0.138**	0.107***	0.103**	0.096***	0.104***	-0.011	-0.037	-0.005
	[0.006]	[0.025]	[0.054]	[0.040]	[0.047]	[0.008]	[0.031]	[0.048]	[0.047]	[0.050]
Age Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age Group Dummies * Year Trend			Yes					Yes		
Age Dummies * Year Trend				Yes					Yes	
Sample Mean	0.181	0.181	0.181	0.181	0.210	0.216	0.216	0.216	0.216	0.267
Age Interval	15-36	15-36	15-36	15-36	23-28	15-36	15-36	15-36	15-36	23-28
Number of Clusters	28	28	28	28	12	28	28	28	28	12
Number of Observations	564,430	564,430	564,430	564,430	146,014	598,730	598,730	598,730	598,730	153,601

Notes: ***, **, and * refer to 1\%, 5\%, and 10\% significance levels, respectively. Standard errors are clustered at the year of birth level.

Table 7 - First-Stage Results, Policy Effect on Middle School Completion Status (TDHS data)

Type of Poly.	A) Single			B) Split		
Degree of Poly.	First	Second	Third	First	Second	No. Obs
	(1)	(2)	(3)	(4)	(5)	(6)
Age=16	0.167***	0.166***	0.141***	0.166***	0.121***	5,855
	[0.027]	[0.027]	[0.037]	[0.027]	[0.042]	
Age=17	0.167***	0.166***	0.141***	0.166***	0.120***	5,819
	[0.027]	[0.027]	[0.037]	[0.027]	[0.042]	
Age=18	0.166***	0.161***	0.143***	0.162***	0.118***	5,503
	[0.028]	[0.028]	[0.038]	[0.027]	[0.043]	
Age=19	0.165***	0.153***	0.143***	0.155***	0.114**	5,206
	[0.029]	[0.028]	[0.039]	[0.028]	[0.045]	
Age=20	0.166***	0.147***	0.142***	0.151***	0.103**	4,921
	[0.030]	[0.030]	[0.039]	[0.029]	[0.048]	
Age=21	0.167***	0.134***	0.140***	0.143***	0.106**	4,651
	[0.031]	[0.033]	[0.039]	[0.031]	[0.051]	
Age=22	0.167***	0.112***	0.125***	0.126***	0.138***	4,389
	[0.030]	[0.036]	[0.039]	[0.032]	[0.051]	
Age=23	0.165***	0.124***	0.123***	0.135***	0.138**	4,128
	[0.030]	[0.042]	[0.042]	[0.036]	[0.056]	
Age=24	0.157***	0.135***	0.118**	0.150***	0.145**	3,860
	[0.030]	[0.048]	[0.049]	[0.041]	[0.065]	

Table 8 - Effect of Years of Schooling on Ever-Migrated Status by Age (TDHS data)

Type of Poly. Degree of Poly.	OLS	2SLS					Baseline	No. Obs
		A) SINGLE			B) SPLIT			
		First	Second	Third	First	Second		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Age=16	-0.001	0.012	0.010	-0.006	0.010	-0.019	0.074	5,854
	[0.001]	[0.016]	[0.014]	[0.025]	[0.014]	[0.035]		
Age=17	0.004**	0.072***	0.069***	0.072	0.069***	0.084	0.135	5,818
	[0.002]	[0.026]	[0.025]	[0.050]	[0.025]	[0.080]		
Age=18	0.010***	0.091***	0.084***	0.125*	0.083***	0.149	0.205	5,502
	[0.002]	[0.034]	[0.032]	[0.067]	[0.032]	[0.115]		
Age=19	0.015***	0.085**	0.074**	0.160**	0.074**	0.249	0.267	5,205
	[0.002]	[0.035]	[0.035]	[0.081]	[0.034]	[0.209]		
Age=20	0.018***	0.085**	0.095**	0.132*	0.088**	0.191	0.318	4,920
	[0.002]	[0.034]	[0.041]	[0.069]	[0.038]	[0.218]		
Age=21	0.018***	0.077**	0.083	0.106*	0.072	0.117	0.363	4,650
	[0.002]	[0.034]	[0.056]	[0.064]	[0.045]	[0.116]		
Age=22	0.019***	0.059*	0.103	0.117	0.062	0.079	0.397	4,388
	[0.002]	[0.033]	[0.077]	[0.077]	[0.049]	[0.077]		
Age=23	0.021***	0.032	0.078	0.076	0.023	0.032	0.430	4,127
	[0.002]	[0.030]	[0.072]	[0.072]	[0.044]	[0.058]		
Age=24	0.021***	0.007	0.067	0.023	-0.010	0.069	0.453	3,859
	[0.002]	[0.035]	[0.067]	[0.064]	[0.037]	[0.069]		

Table 9 - Effect of Years of Schooling on Ever-Migrated Status by Reason of Migration and Age
(TDHS data)

Cause:	Marriage			Education			Employment			
	OLS	2SLS	Baseline	OLS	2SLS	Baseline	OLS	2SLS	Baseline	No. Obs
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Age=16	-0.004***	0.006	0.034	0.003***	0.008	0.009	0.000	-0.001	0.002	5,854
	[0.001]	[0.008]		[0.001]	[0.005]		[0.000]	[0.002]		
Age=17	-0.006***	0.043***	0.066	0.010***	0.026**	0.024	0.000	0.007*	0.005	5,818
	[0.001]	[0.016]		[0.001]	[0.011]		[0.000]	[0.004]		
Age=18	-0.008***	0.052**	0.104	0.020***	0.045***	0.045	0.000	0.007	0.008	5,502
	[0.001]	[0.024]		[0.001]	[0.017]		[0.000]	[0.006]		
Age=19	-0.010***	0.030	0.139	0.028***	0.051**	0.062	0.000	0.013*	0.009	5,205
	[0.001]	[0.025]		[0.001]	[0.020]		[0.000]	[0.007]		
Age=20	-0.012***	0.032	0.174	0.031***	0.068***	0.067	0.001	0.014	0.015	4,920
	[0.002]	[0.028]		[0.002]	[0.023]		[0.001]	[0.010]		
Age=21	-0.013***	0.043	0.205	0.033***	0.073**	0.068	0.001*	0.023	0.020	4,650
	[0.002]	[0.042]		[0.002]	[0.029]		[0.001]	[0.015]		
Age=22	-0.012***	0.014	0.229	0.034***	0.086**	0.068	0.003***	0.042*	0.026	4,388
	[0.002]	[0.044]		[0.002]	[0.037]		[0.001]	[0.025]		
Age=23	-0.012***	-0.022	0.253	0.034***	0.105**	0.067	0.005***	0.030	0.032	4,127
	[0.002]	[0.047]		[0.002]	[0.045]		[0.001]	[0.023]		
Age=24	-0.011***	-0.005	0.270	0.034***	0.066**	0.066	0.007***	0.033	0.037	3,859
	[0.002]	[0.043]		[0.002]	[0.028]		[0.001]	[0.024]		

Table 10 - Effect of Years of Schooling on Ever-Migrated Status by Reason of Migration and Age, (TDHS data) cont'd

Cause:	with Parents			with Spouse			Tied			
	OLS	2SLS	Baseline	OLS	2SLS	Baseline	OLS	2SLS	Baseline	No. Obs
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Age=16	0.001	-0.010	0.018	-0.000*	-0.002	0.002	0.001	-0.011	0.018	5,854
	[0.001]	[0.008]		[0.000]	[0.003]		[0.001]	[0.008]		
Age=17	0.001	-0.005	0.024	-0.001**	-0.005	0.005	0.001	-0.010	0.027	5,818
	[0.001]	[0.008]		[0.000]	[0.004]		[0.001]	[0.009]		
Age=18	0.001	-0.013	0.028	-0.001***	-0.007	0.010	0.000	-0.018	0.033	5,502
	[0.001]	[0.010]		[0.000]	[0.007]		[0.001]	[0.011]		
Age=19	0.001	-0.022*	0.033	-0.002***	-0.002	0.016	-0.002	-0.018	0.044	5,205
	[0.001]	[0.012]		[0.000]	[0.008]		[0.001]	[0.013]		
Age=20	0.002	-0.032**	0.038	-0.002***	-0.005	0.023	0.000	-0.032*	0.055	4,920
	[0.001]	[0.014]		[0.001]	[0.010]		[0.001]	[0.017]		
Age=21	0.002**	-0.048**	0.043	-0.003***	-0.027	0.033	-0.001	-0.068**	0.069	4,650
	[0.001]	[0.021]		[0.001]	[0.017]		[0.001]	[0.029]		
Age=22	0.004***	-0.030	0.045	-0.004***	-0.033	0.042	0.000	-0.057*	0.079	4,388
	[0.001]	[0.023]		[0.001]	[0.023]		[0.001]	[0.034]		
Age=23	0.006***	0.010	0.051	-0.003***	-0.027	0.052	0.002	-0.016	0.094	4,127
	[0.001]	[0.022]		[0.001]	[0.029]		[0.001]	[0.035]		
Age=24	0.007***	-0.004	0.055	-0.003***	0.002	0.062	0.003*	-0.001	0.106	3,859
	[0.002]	[0.023]		[0.001]	[0.022]		[0.002]	[0.035]		

Table 11 - Effect of Years of Schooling on Ever-Migrated Status by Reason of Migration and Age,
Inter-provincial vs. intra-provincial migration (TDHS data)

Cause:	Marriage				Education				Employment			
	Inter-provincial		Intra-provincial		Inter-provincial		Intra-provincial		Inter-provincial		Intra-provincial	
	2SLS	Baseline	2SLS	Baseline	2SLS	Baseline	2SLS	Baseline	2SLS	Baseline	2SLS	Baseline
	(1)	(2)	(4)	(5)	(1)	(2)	(4)	(5)	(1)	(2)	(4)	(5)
Age=16	0.003 [0.006]	0.017	0.003 [0.006]	0.017	0.007* [0.004]	0.006	0.001 [0.003]	0.003	-0.001 [0.002]	0.002	-- --	--
Age=17	0.025** [0.011]	0.035	0.018* [0.010]	0.031	0.025** [0.011]	0.020	0.003 [0.003]	0.004	0.006 [0.004]	0.004	0.001 [0.001]	0.001
Age=18	0.037** [0.019]	0.058	0.014 [0.012]	0.047	0.047*** [0.017]	0.040	0.001 [0.004]	0.005	0.007 [0.006]	0.007	-0.001 [0.001]	0.002
Age=19	0.018 [0.020]	0.076	0.012 [0.016]	0.063	0.057*** [0.021]	0.056	-0.002 [0.004]	0.007	0.015** [0.007]	0.008	-0.003 [0.002]	0.002
Age=20	0.011 [0.023]	0.097	0.020 [0.019]	0.079	0.077*** [0.024]	0.061	-0.005 [0.005]	0.007	0.014* [0.009]	0.012	-0.002 [0.005]	0.004
Age=21	0.019 [0.033]	0.114	0.021 [0.026]	0.093	0.082*** [0.031]	0.063	-0.005 [0.007]	0.007	0.025* [0.013]	0.016	-0.004 [0.007]	0.004
Age=22	0.006 [0.038]	0.129	0.012 [0.029]	0.104	0.100** [0.041]	0.063	-0.010 [0.010]	0.007	0.042* [0.023]	0.021	-0.002 [0.008]	0.006
Age=23	-0.035 [0.050]	0.145	0.009 [0.032]	0.113	0.119** [0.051]	0.063	-0.013 [0.011]	0.007	0.032 [0.022]	0.026	-0.007 [0.010]	0.007
Age=24	0.003 [0.040]	0.155	-0.006 [0.025]	0.120	0.072** [0.030]	0.062	-0.014 [0.009]	0.006	0.031 [0.020]	0.031	0.000 [0.007]	0.007