CHILDHOOD ENVIRONMENT AND THE TRANSITION TO ADULTHOOD IN RURAL CHINA

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ABSTRACT

Both modernization theory and second demographic transition theory predict that the early life course de-standardization is stronger in urban areas than in rural areas. However, empirical evidence supporting this hypothesis often confounds current residence status with residency of origin. Furthermore, few empirical studies have focused on the particular challenges of transition to adulthood among rural youth, who experience elevated risks of poverty and more uncertainties, on average, compared to their urban counterparts. Using both a national survey and a unique longitudinal sample of rural youth in one of the poorest regions of China, this study demonstrates that rural youth experience a greater diversity of pathways to adulthood than do urban youth, which contradicts many earlier studies in western contexts. In addition, this study identifies a variety of childhood environment factors that structure the transition pathways of rural youth. This study highlights the growing rural-urban disparity in China and has important implications for research on social stratification and rural youth development.

***K*eywords** transitions to adulthood · rural · China · gender · poverty

1 Introduction

Rural areas are home to an estimated 600 million youth, accounting for half of the total youth population, and this number is expected to grow over the next 35 years (International Fund for Agricultural Development (IFAD) 2022). Despite the demographic significance of rural youth, few empirical studies have focused on the particular challenges of transition to adulthood among this population. In this study, we investigate links between childhood environments and the transition to adulthood for a sample of youth growing up in rural communities in one of China's poorest provinces. The context of transition to adulthood in China has transformed dramatically in recent decades, with the shift from a socialist to a market economy and an ensuing period of dramatic economic growth and sharply rising inequality. Much research has investigated changing dynamics in the transition to adulthood and family formation behaviors in this period, on a national scale and among the urban population (Cai and Feng 2014; Qian and Qian 2017; Tian 2016; Yu and Xie 2015). However, few empirical studies have focused on the particular challenges of transition to adulthood among rural youth, who experience elevated risks of poverty and more uncertainties, on average, compared to their urban counterparts. From a cross-cohort comparison perspective, it is possible that the urban population has undergone deeper ideational and institutional transformations as a result of rapid urbanization and industrialization. However, in a within-cohort comparison, more diversified and complex patterns of transition to adulthood might be expected among rural youth, compared to their urban peers, for a number of reasons.

First, many rural children experience absentee parents, due to patterns of labor migration to metropolitan regions. Children of migratory workers may have the possibility of traveling between their natal communities and their parents' places of employment. However, due to institutional and economic restrictions, such as the household registration system (*hukou*), which limits rural children's ability to attend school in urban regions, many of those children must

remain in rural regions for education and live with extended family members. Studies of the impact of parental migration on left-behind children compared to other rural children show mixed implications, reflecting complicated selection factors, the benefits of remittances, and the harm of lost supervision, guidance, and support (for a review, see Shen, Hu, and Hannum (2021)). However, a recent, national study of the cumulative effects of parental migration has shown a sizable adverse effect of exposure to parental migration on the health and education outcomes of children, with boys bearing the brunt of these effects (Meng and Yamauchi 2017).

Second, early dropout, among other factors, may position the most disadvantaged rural youth for a very tenuous attachment to the labor market. Many youth may be involved in nonstandard employment or economic sectors with high turnover rates. A concerning development in a number of countries has been the large number of youth who are excluded from economic opportunities—characterized as not being in education, employment, or training (NEET) (Yeung and Yang 2020). A significant proportion of young individuals, particularly in Asia, "opt out" of the competitive education system and standard employment with the expectation of having little opportunity to advance in social class. According to a recent study on China, the total NEET rate for people aged 16 to 35 was 8% in 2012 (Yang 2020). Individuals with lower educational attainment, migrants, and women are more likely than others to experience NEET during young adulthood.

Third, various factors influence rural adolescent family formation behaviors in opposing directions. Rural youth, on the one hand, are more likely than their urban counterparts to marry and have children at a younger age due to normative expectations or family pressures. On the other hand, the rising trend of hypergamy in marriage predisposes socioeconomically disadvantaged male adolescents toward exclusion from the institution of marriage. Rural marriage markets may be further complicated by sex ratio imbalances, which may provide divergent paths for men and women in their relationship and marriage patterns.

In this study, we investigate the variation in timing and sequence of Chinese rural millennial (born between 1987 and 1991) in reaching a series of life milestones. This group, known as the the post 80s/90s generation in China, has been exposed to profound social changes in China, such as rapid economic development, massive parental migration, and widening rural-urban inequalities in many domains. Following norms in the research on the transition to adulthood, we define the essential milestones for reaching adulthood as graduating from school, starting first job, entering into marriage, and becoming a parent (Macmillan and Copher 2005; Yeung and Hu 2013). We demonstrate that the rural youth in China experiences a higher degree of uncertainty and diversity in their transition pathways during early adulthood compared to their urban counterpart. It differs from what modernization theory or the Second Demographic Theory predict, and it contrasts empirical findings in the West. The de-standardization of transition paths for rural youth rather than urban youth may reflect China's growing rural-urban educational and economic opportunity disparity. While urban youth have benefited from educational expansion and economic prosperity in recent decades, many rural youth remain deprived from basic education and enter adulthood at a younger age. We also discover that the pathways of transition to adulthood of rural girls is more responsive to parental education and family wealth than rural boys.

This article is organized as follows. We start with a review on the transition to adulthood literature with a focus on the rural and urban difference and the limitations of previous studies. Following that, we discuss cultural and rural contexts of rural China. We next present an overview of our data and the study site before moving on to the analyses. In analytic results, we first apply the entropy index to study the rural-urban difference in the uncertainty and diversity of life course trajectories from adolescence to early adulthood (age 16-24) using a nationally representative survey. We employ the latent class analysis to identify different transition pathways of Chinese rural millennial (born between 1987 and 1991) using a 15-year longitudinal study of rural children in one of the least developed provinces in China. We then use a variety of childhood environment factors in rural contexts to predict the pathways' membership using multinomial regression analyses. We end with a discussion on the implications of our findings.

2 Transition to adulthood: the rural-urban divide

Since the 1990s, research on transition to adulthood has documented a de-standardization of the family-life trajectory of young adults (Billari and Liefbroer 2010; Elzinga and Liefbroer 2007; Furstenberg 2013; Juárez et al. 2013; Rindfuss, Swicegood, and Rosenfeld 1987; Settersten and Ray 2010; Shanahan 2000). Geographically, the de-standardization in the pathway to adulthood tends to start in developed areas rather than isolated areas. For example, Lesthaeghe and Neidert (2006) found that the components of second demographic transitions such as premarital cohabitation and postponement of marriage and childbearing are more pronounced in metropolitan areas than in the rural areas in the US. The mechanisms explaining the rural-urban differences are that urban residents are less reliant on family ties, and thus less controlled by the role of traditional norms.

Institutionalization theory, on the other hand, maintains that institutional regulation has the power to standardize the pathways to adulthood (for a review, see Shanahan (2000)). For youth in particular, institutional changes facilitated

compulsory school attendance, extended their time spent on school, and thus had delaying implications for leaving the parental home and family formation. In countries experiencing rapid educational expansion, the heterogeneity of the life course transitions in early adulthood tended to decline (Fussell and Furstenberg Jr. 2005; Park 2013). For instance, Park (2013) found that the life courses of Korean urban youth were highly standardized before high school graduation because of the rapid expansion of the education system. Because the institutionalization process in rural areas tends to lag behind that in urban areas, there is reason to expect a more standardized life course transition for urban youth than for rural youth in early adulthood.

Existing research on transition to adulthood in rural areas mainly focuses on describing the trends over periods or birth cohorts and contrasting the differences with urban areas using multiple waves of cross-sectional surveys or censuses (Fussell and Furstenberg Jr. 2005; Pesando et al. 2021; Tian 2016; Yeung and Hu 2013). For instance, Pesando et al. (2021) investigate the transition to first sexual intercourse, first union, and first birth across 69 low- and middle-income countries by birth cohorts. They found little variation between rural and urban areas except for South America and Southeast and Central Asia where urban residents had a higher proportion than rural residents in the "delay rapid transition" and "gradual transition" clusters. Along this line, research relying on heterogeneity index often found that urban youth display a higher level of diversification in transition to adulthood than rural youth did (Fussell and Furstenberg Jr. 2005; Tian 2016).

However, the limitation of using cross-sectional data is it sometimes conflate rural-to-urban migrants with urban residents. While urban residents may follow a standardized path in the school-to-work transition in their young adulthood, the pathways to adulthood of rural-to-urban migrants are expected to vary depending on their reasons for migration. In addition, as Fussell Fussell (2005) pointed out, the definition of urban and rural regions also changed with time because of the rapid urbanization and industrialization processes in developing countries. That is, the de-standardization of transition to adulthood found in urban regions may represent the variation contributed by both rural-to-urban migrants and urban residents.

Even less is known about factors shaping the rural youth transition to adulthood. Compared to urban youth, children from rural areas have limited social and financial resources at both the family and community level (Cherng and Hannum 2013). Because of scant public support and large family size, rural youth may have greater responsibilities to take care of their parents and other family members. Rural youth's perception and anticipation of family economic difficulties may alter their decisions in regard to school, employment, and family formation (J. Crockett and Bingham 2000). Furthermore, parents in rural areas are more likely to be influenced by traditional gender norms and thus invest more in boys than girls (Li and Lavely 2003).

3 Childhood environments on transition to adulthood in rural context

3.1 Gender equity, and parents old-age support

Previous studies have found that parental attitudes have independent impacts on children's attitudes and behaviors towards premarital sex, cohabitation, marriage, and childbearing (Barber 2001; Cunningham 2001; Jennings, Axinn, and Ghimire 2012). Gender attitude is important because traditional gender values emphasize the gendered division of labor. Girls from families who are less supportive of gender equality may complete their education and start a family earlier.

In rural settings, it is also important to consider parents' attitude towards old age support. In a patriarchal society, sons are viewed as permanent members and have the responsibility to continue the family lineage, whereas daughters will eventually marry out and become a member of her husband's family (Cain 1991; Li and Lavely 2003; Yu, Su, and Chiu 2012). Thus, parents may invest more on sons for better economic returns and old-age supports. According to research conducted in rural northwest China, the majority of parents maintained egalitarian attitudes about girls and boys having equal opportunity, but half of parents still agree sons' are the one to provide old-age support (Hannum, Kong, and Zhang 2009; Zhang, Kao, and Hannum 2007). We hypothesize that girls who come from families that are less supportive of gender equality and prefer sons for old-age for old-age support are more likely to end up on a disadvantaged pathway.

3.2 Sibship structure and pathways to adulthood

The negative effect of sibship size on educational attainment is well documented (Steelman et al. 2002). One dominated explanation is the resource dilution hypothesis. This hypothesis suggests that the family resources that each child can share were diluted as the number of children increased. Empirical studies in the United States and Western Europe confirmed that the sibship size was inversely associated with children's participation in extracurricular activities, educational performance, parents' time and financial investments on each child (Steelman et al. 2002).

Research in East and South Asian contexts extends the resource dilution hypothesis by emphasizing the gender asymmetry nature of resources transfer within the family (Chu, Xie, and Yu 2007; Kugler and Kumar 2017; Yu and Su 2006). Specifically, the cultural norm of son preference tends to prioritize boys instead of girls. For girls, the presence of a young brother in the family may dilute their resources, especially in rural areas where the family resources are tight. Older sisters with younger siblings may do more chores and caregiving labor. In addition, older sisters may under the pressure to enter the labor market earlier and remit to their family and younger siblings.

Despite the existence of the one-child policy, having siblings is very common in rural China. One reason is that rural families are allowed to have a second child, and the other is that they are not strictly regulated in some rural areas. In the rural context of extreme poverty, the existence of siblings creates an environment for sibling competition. We hypothesize that girls who have younger brothers are more likely to end up on a disadvantaged pathway to adulthood. On the other hand, boys with older sisters are more likely to be in an advantageous pathway to adulthood.

3.3 Family background and socioeconomic status

Social inequality and poverty experienced in early life could predict future life trajectories. Research on social mobility has recognized the ascriptive features from the family of origin such as parent's education and financial resources can affect offspring's status attainment (Blau and Duncan 1967; Hout 2018). Parents from the top socioeconomic strata not only invest more money and time on their children, but also adopt a more active parenting style than parents from lower strata (Bianchi et al. 2004; Lareau 2011; McLanahan 2004). As a result, children from affluent families are more likely to pursue higher education, and to postpone union formation and childbearing, and to avoid risky behaviors.

In addition to financial resources, family stability is essential for child development. A large body of research has documented the negative impact of family instability on transition to adulthood (Amato and Patterson 2017; Fomby and Cherlin 2007; Goldberg 2013; McLanahan, Tach, and Schneider 2013). Children who experienced family instability are more likely to have early union formation, child bearing, and early labor force participation.

In the rural China context, a large number of rural children grow up with only one parent or extended family member because their parents have migrated to urban areas for better economic opportunities. One study in the northwest region of China found that fathers' absence corresponds to a 0.342-year reduction in children's educational attainment on average (Shen, Hu, and Hannum 2021). We hypothesize that children from the bottom of the socioeconomic status, and those experiencing family instability, are more likely to be in disadvantageous pathways to adulthood.

4 Data and methods

4.1 Data

We use two sets of data, the 2014 China Labor-force Dynamic Survey (CLDS) and the Gansu Survey of Children and Families (GSCF) for our empirical analysis. The CLDS, conducted by the Centre for Social Science Surveys at Sun Yat-Sen University, is a nationally representative social survey targeted at the labor force in both urban and rural areas. The 2014 wave included 23,594 respondents aged 15 and older from 404 communities across 29 of the 31 mainland's provinces in China. We restricted our study population to individuals born between 1970 and 1989, affording us a sample size of 8,376. We apply cross-sectional sampling weights throughout our analysis.

The GSCF is a multilevel, longitudinal survey aimed to investigate the education, health, psychosocial development, and adult outcomes of rural children. Gansu, located in northwest China, is mostly an agricultural province with large mountainous and desert areas. Since 1990, Gansu has been one of the least developed provinces in China in terms of GDP per capita. Unsurprisingly, Gansu has one of the highest rates of rural poverty and economic instability in China.

A multi-stage cluster was employed to target a sample of 2,000 rural children in Gansu in the year of 2000, and followed in 2004, 2007, 2009, and 2015. In addition to the targeted children, detailed information about the children's households, parents, communities, and a supplement sample of targeted children's siblings was collected. In this analysis, we used the education, employment, migration, and family formation histories from the 2009 and 2015 children surveys. We also used household surveys from 2000 and 2004 to obtain data on family socioeconomic status, childhood adverse experiences, and community context.

In our analysis, we first apply the entropy index to study the rural-urban difference in the uncertainty and diversity of life course trajectories from adolescence to early adulthood (age 16-24) using both CLDS and GSCF. Following norms in the research on the transition to adulthood, we define the essential milestones for reaching adulthood as graduating from school, starting a first job, entering into marriage, and becoming a parent as dichotomous variables (Macmillan and Copher 2005; Yeung and Hu 2013). We use the distribution of different status combinations of these four variables to calculate the age-specific entropy index. Because the CLDS only asked women's childbearing history, we cannot

calculate the year when a man first become a father. Therefore, we only use other three statuses to calculate the entropy index for men. Next, we employ the latent class analysis to identify different transition pathways of Chinese rural millennial (born between 1987 and 1991) using the GSCF, a 15-year longitudinal study of rural children in one of the least developed provinces in China. We then use a variety of childhood environment factors in rural contexts to predict the pathways' membership using multinomial regression analyses.

4.2 Measures

Gender attitudes. In the 2000 survey, mothers were asked how much they agree, disagree, or have no opinion on a battery of questions regarding their gender attitudes. Using exploratory factor analysis (EFA), we generated a gender equity index from five questions: 1) if working hard, girls can do as well as boys in school; 2) girls should enjoy the same opportunities of being educated as boys, 3) given equal opportunities women can make achievements as men do; 4) couples should share the housework if they both work full-time; 5) parents should encourage girls to think as independently as boys.

We performed EFA based on a matrix of polychoric correlation. Previous research indicates that this approach works better than using classical Pearson's correlations to recover the factor model when the ordinal variables are measured by fewer than five categories and when distributions of the ordinal variables are asymmetrical (Watkins 2018). In modeling analysis, we standardized the predicted factor scores to ease interpretation (Cronbach's Alpha: 0.613; McDonald's Omega: 0.676).

We included another question to capture the gender attitude regarding inter-generational support. Mothers were asked how much they agree, disagree, or have no opinion on the statement: parents should rely on sons for care-giving when they get old. We generated a binary variable with one for "argee" and zero for either "disagree" or have "no opinion". In our final sample, 57.5% of mothers agree with this statement.

Sibship structure. In the 2000 household survey, household respondents were asked to report demographic characteristics of all the household members, including the siblings of focus children who were not residing in the household during the interview. Although China adopted a one-child policy in 1982, rural families were allowed to have one additional child if their first one was a girl. In our sample, only 6.5% of focus children have no siblings, 61.5% have one sibling, and 32% have more than one sibling. We generated four continuous variables measuring the number of older brothers, older sisters, younger brothers, and younger sisters, respectively.

Educational aspiration. Children were asked the highest level of schooling they want to complete in 2000. Likewise, mothers were asked the highest grade they wished their children to achieve. We translated the grade to the years of schooling necessary for that grade and generated two continuous variables on the educational aspirations of children and mothers.

Family background and socioeconomic status. We included a set of measurements on family socioeconomic status using parents' educational attainment, household wealth, and mother's reported income insufficiency. Parents' educational attainment was a three-category (below junior high school, junior high school, high school and above) variable with below junior high school as reference. The household wealth is a summation of the total value of the household's house, fixed assets, and durable goods. We created a wealth quintile and contrasted the middle three categories with the poorest and richest quintile. The income insufficiency variable represents whether family income was insufficient in the past year. We coded one for this variable if the family had not sufficient income and zero if the mother reported having barely sufficient or with some surplus.

We included two binary variables indicating whether the father was absent (19.42%) and whether the original family was disrupted (4.2%). Following prior literature, we defined father absence as those who lived at home for less than six months in the past year. Family disruption was coded one if at least one parent had divorced, separated, or died before the year 2000. All family background and socioeconomic variables are reported in 2000 before the transitions occurred.

4.3 Analytic approach

4.3.1 Heterogeneity of transition to adulthood: the entropy index

We first compute the age-specific entropy index by hukou status at birth and by gender. The entropy index measures the level of heterogeneity of demographic status combination at a specific age. The formula can be expressed as:

$$\sum_{S=1}^{S} p_s log \frac{1}{p_s}$$

Where S denotes the number of status combinations, and p_s represents the proportion of population in status combination s. A higher score suggests that the transition pathway is more de-standardized and individualized. We convert the entropy index into a percentage of the maximum index, which is calculated when the population is equally distributed over all conceivable status combinations (0.903 for men and 1.24 for women). This measure has been used to examine the level of heterogeneity of status distributions by age across time and space and between population subgroups (Billari 2001 Fussel 2005; Park et al. 2010; Tian 2016).

4.3.2 Identification of transition profile

We included four transition markers that were widely used in transition to adulthood literature in our latent class analysis: school attendance, first job, first marriage, and first parenthood. Using the retrospective reports on life history in the 2015 survey, we constructed a person year records for men and women from their age 16 to 24. First job, first marriage, and first parenthood was a non-recurring event, and was coded as zero before the event and one after the event. School attendance was a recurring event with one coded as being in school and zero coded as out of school. To improve the model fit, we chose transition status at age 16, 20, and 24 to build latent class models. We began by fitting a single cluster model and gradually increased the number of clusters up to eight. The selection of the models involves balancing the goodness of fit, parsimony of the model, and interpretability of the resulting classes. Appendix includes tables of goodness-of-fit statistics present the relationship between the Bayesian information criterion (BIC) and the number of clusters for both men and women. Based on these results, we adopted a 4-class model for both men and women because adding one additional class either increased the BIC or did not improve the BIC considerably.

4.3.3 Class membership prediction

In order to investigate the relationship between latent classes and childhood environment factors, we adopted the bias-adjusted three-step approach for the latent class analysis (Bakk, Tekle, and Vermunt 2013; Bolck, Croon, and Hagenaars 2004; Vermunt 2010). In our study, the three steps involve (1) building a latent class model based on variables of transition markers; (2) assigning each individual to latent classes based on their posterior class membership; (3) examining the association between latent classes and external childhood environment predictors. This approach avoids complex model-building processes than the one-step approach did. It also outperforms traditional approaches in producing unbiased and efficient estimation by properly accounting for classification errors that arise from class membership assignment (Bakk, Tekle, and Vermunt 2013; Bolck, Croon, and Hagenaars 2004; Vermunt 2010).

5 Results

5.1 Analytic results

5.1.1 Rural-urban differences in heterogeneity of transtion to adulthood

Figure 1 presents the results of age-specific entropy index by residence and by gender. Men with urban hukou at birth have a more standardized life course trajectory on average than men with rural hukou from 15 to 21. After the age of 21, the age-specific entropy index overlaps, with rural males displaying a slightly larger degree of variability. In contrast, women with urban hukou at birth had lower entropy than those with rural hukou throughout adolescence and early adulthood. The age-specific entropy for the rural Gansu sample is broadly comparable with the rural sample in CLDS, with the exception of men aged 16 to 19, who had a lower entropy than the CLDS rural sample but a higher entropy than the CLDS urban sample. These findings are consistent with our hypothesis that the life course trajectory during adolescent and early adulthood years are more structured and organized for urban kids than rural kids.

Figure 2 shows the age-specific entropy index for post-1970 and post-1980 cohorts using the CLDS samples. Except for rural men, we found that the post-1980 group shows a lower level of variability than the post-1970 generation in transition to adulthood pathways. Women with urban hukou have had the greatest decline of these four categories, likely because of marriage postponement and increased education opportunities experienced by urban women in the latest cohort.

5.1.2 Identification of transition profile

Figure 3 depicts the four transition profiles for adolecent boys based on the age-specific conditional probabilities from the four-cluster latent class model. The *keep in school* cluster represents 47% of men sample and is composed of individuals who have an extended school enrollment history. They are most likely to be college graduates. The majority of them remained unmarried until the age of 24. It is consistent with the literature that education has a delaying effect on family formation. The *work first late marriage* cluster includes 33% of men who had early employment history and

a late family formation pattern. The cluster of *Marriage first*, accounting for 8% of the men sample, display similar transition trajectories in education and family formation compared to the work first and late marriage cluster. However, they started their employment late, and by the age of 24, only around 60% had started working. The *early transition* cluster comprises 12% of men. They left school and started work early. By the age of 24, nearly all of them got married and had children.

Figure 4 depicts the four transition profiles for adolescent girls based on a similar latent class model. Three of the four transition profiles are comparable to males, but in differing proportions: *keep in school* (41%), *early transition* (23%), *marriage first* (20%), and *work first late marriage* (16%).

5.1.3 Class membership prediction

Son's class membership prediction. Table 2 presents estimates from a three-step bias-adjusted multinomial logistic model of class membership on son's family background and demographic characteristics.

Mother believes in the necessity to rely on sons for old-age care significantly increases a son's likelihood of being in the early employment and early marriage class rather than the keep in school cluster. Specifically, the chances of her son being in the early marriage cluster are 142% higher than the chances of him being in the keep in school class.

Children's and mother's educational aspirations are negatively associated with class membership other than the keep in school one. Increase in son's own educational aspirations significantly reduces the likelihood to be in the work first late marriage cluster. Increase in mother's educational aspirations significantly reduces son's likelihood in the marriage first cluster. The gender equity index and sibship structure show no significant influence in predicting son's class membership.

In addition to the results of gender attitudes and sibship structure, Table 2 indicates that father's higher education has a strong protective effect in keeping sons to stay in school compared to being in other clusters. Son who has experienced a family disruption is more likely to be in the narriage first cluster. Son's class membership seems to be insensitive to mother's education, household wealth, and income sufficiency.

Daughter's class membership prediction. Table 3 presents a similar model on class membership predictions for daughters. Mothers with a higher gender equity index significantly reduce their daughters' likelihood of being in "work first late marriage", and "early transition" cluster. Having one additional younger brother increases women's probability of being in early work late marriage, and early transition by 172% and 109% respectively.

Mothers' higher educational aspirations have a protective effect in preventing daughters from being in clusters other than the "keep in school", while daughters' own educational aspirations significantly reduce the likelihood to be in the early transition cluster.

Having a father with high school and above degree is negatively associated with daughters' probability of being in early work and early marriage classes. The effects of mother's educational attainment are in the same direction, although it is not statistically significant because only a small number of mothers had high school and above degree.

Unlike the results for sons, daughters are more sensitive to household wealth and income insufficiency when predicting their class memberships. Daughters in families with better wealth conditions are less likely to be in clusters other than the keep in school cluster. Having insufficient family income in 2000 significantly increased daughters' probability of being in marriage first cluster.

5.2 Summary of the findings

Both modernization theory and the second demographic transition theory predict that early life course de-standardization is stronger in urban areas than in rural areas. However, empirical evidence supporting this hypothesis often confounds current residence status with residency of origin. Using data from China, a country experiencing fast urbanization and expanding rural-urban disparity, this study finds that rural youth display a greater diversity of pathways to adulthood than urban youth. In addition, this study identifies a variety of childhood environment factors in structuring the transition pathways of rural youth. Our findings suggest that fathers' education had a protective effect for both men and women in preventing children from disadvantaged pathways. Yet, girls' transition pathways were more sensitive than boys' to household wealth and income. Girls in families at the lowest wealth quintile or in families with income insufficiency were less likely to maintain their school enrollment status. In addition, we found that mother's educational aspirations and gender attitudes were negatively associated with daughters' disadvantaged pathways. Moreover, the presence of a younger brother in the family led women to enter the labor market and the marriage market relatively earlier. The presence of a sibling and mother's gender attitude had no influence on men's pathways to adulthood. However, mother's positive attitude towards sons for old-age support increased the rate of son's marriage.

6 Discussion and Conclusions

The pathways to adulthood have become protracted, more diverse, and less predictable. Both ideational diffusion and economic development perspectives suggest that the more economically developed a region is, the more complex and diverse the transition pathways are. In this study, we argued that rural youths' paths to adulthood are more diversified than previous research suggests.

Focusing on rural youth aged 16 to 24, we found substantial heterogeneity and social stratification within local rural communities. Nearly 38% of boys and 36% of girls in our sample have extended school enrollment history, and thus have postponed employment and family formation. The remaining youth leave school earlier and follow different pathways in employment, marriage, and parenthood. The association between early childhood environment and latent classes clearly shows that rural youths' paths to adulthood are stratified by parents' education and household economic status.

Our study also highlights that cultural norms of old-age support and son preference continue to play a significant role in rural contexts. Women with younger brothers and from lower-income families are more likely to follow a disadvantageous path, reflecting structural constraints on women, especially when family resources are limited. Rural men are still expected to assume caregiving duties for their aging parents, even though these responsibilities are commonly shared by daughters-in-law. The fact that mothers' favorable attitudes regarding sons for old-age support increase sons' rate of marriage partly reflects this norm.

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Figure 1: Age-specific entropy index by residence and gender, age 16-24

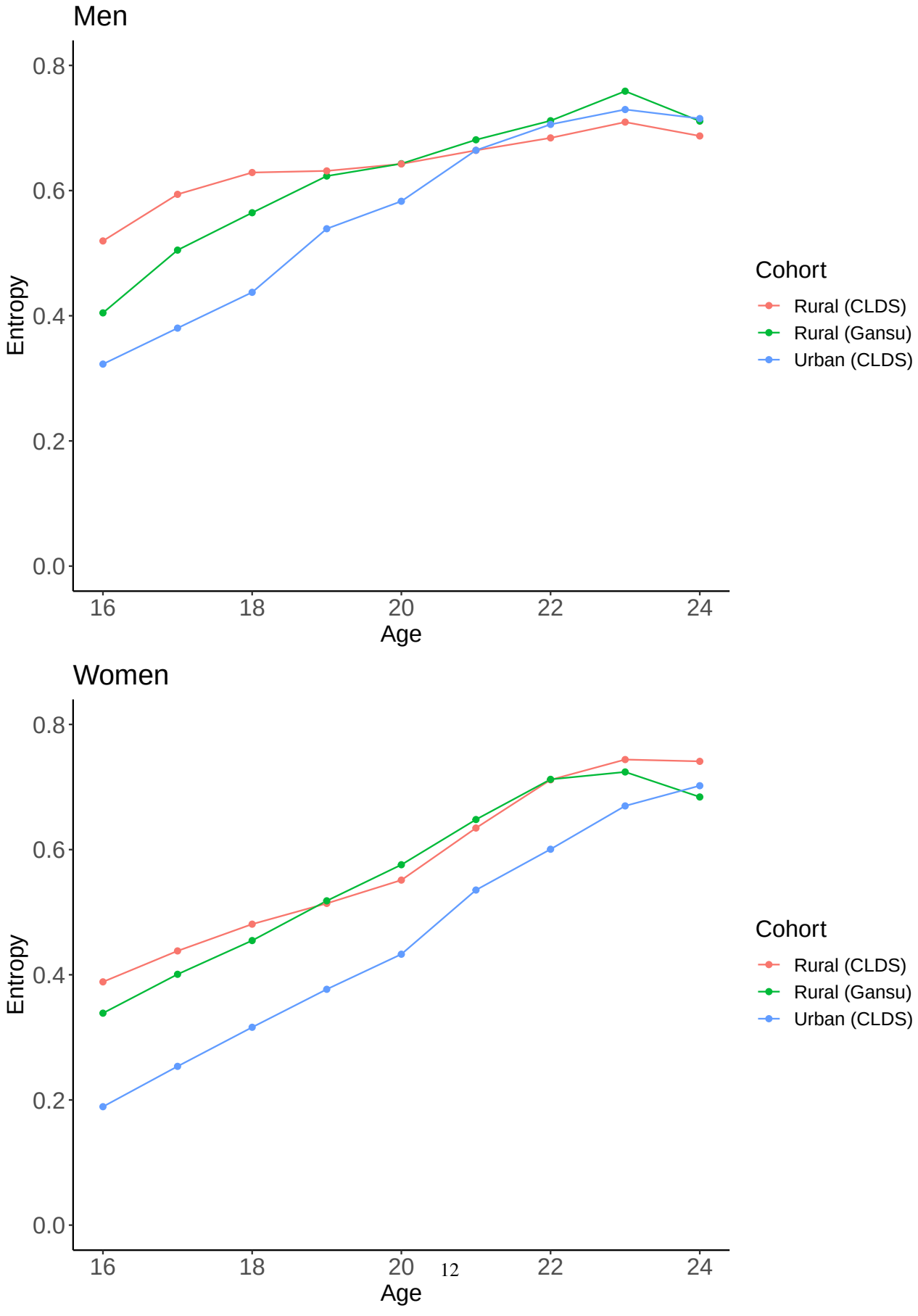

Figure 2: Age-specific entropy index by cohort, residence, and gender, age 16-24

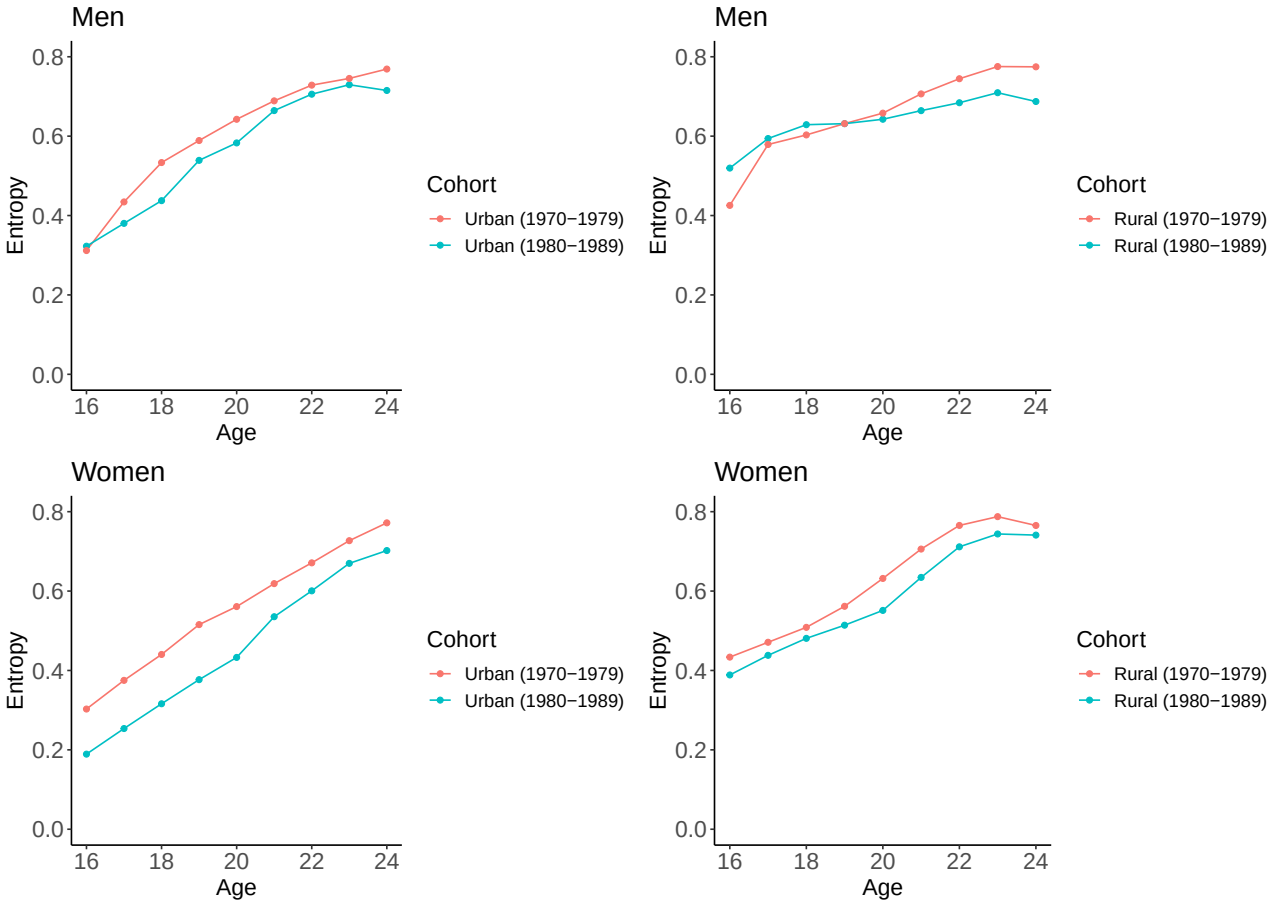

Figure 3: Estimated population prevalence and conditional age-specific probabilities for latent pathways to adulthood, men

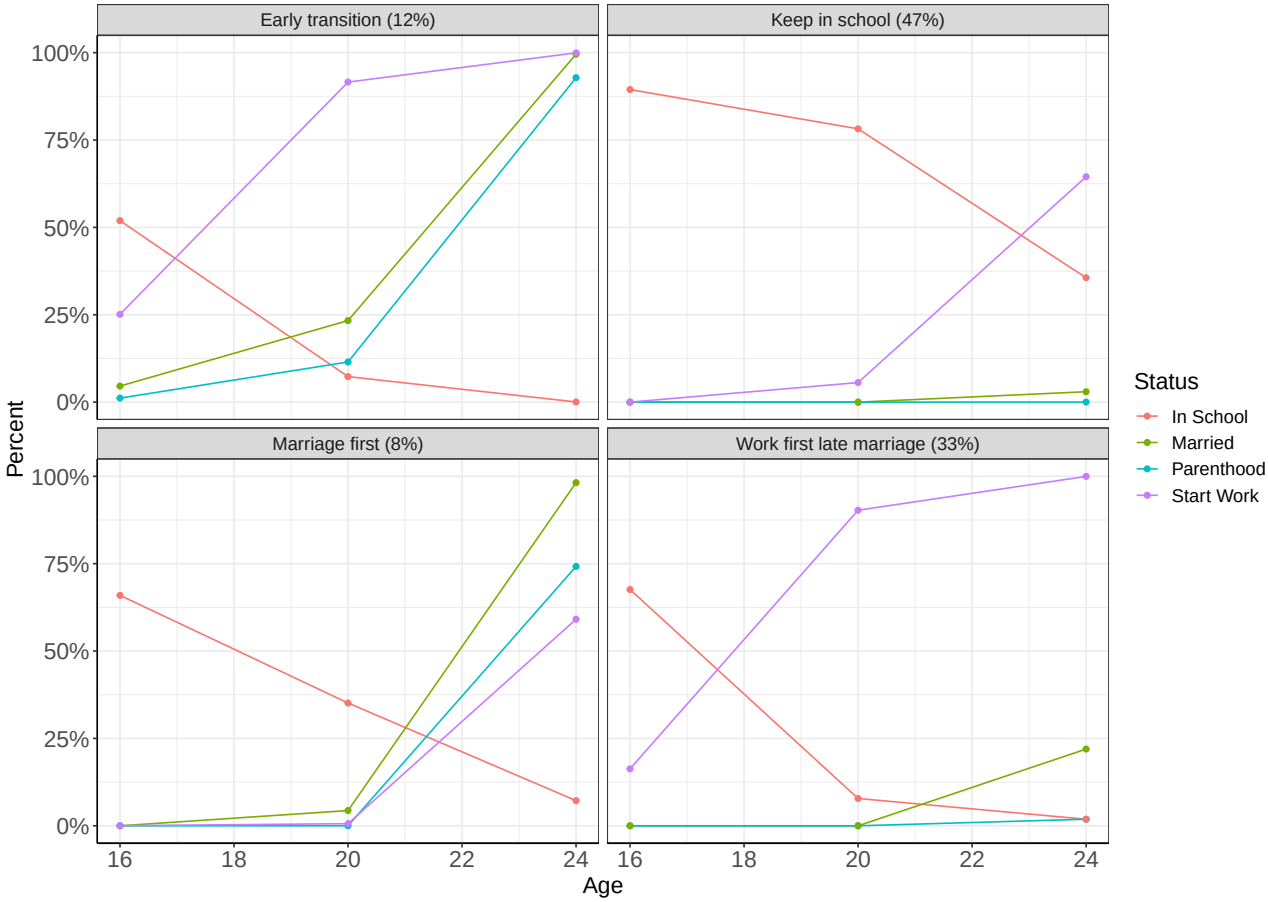

Figure 4: Estimated population prevalence and conditional age-specific probabilities for latent pathways to adulthood, women

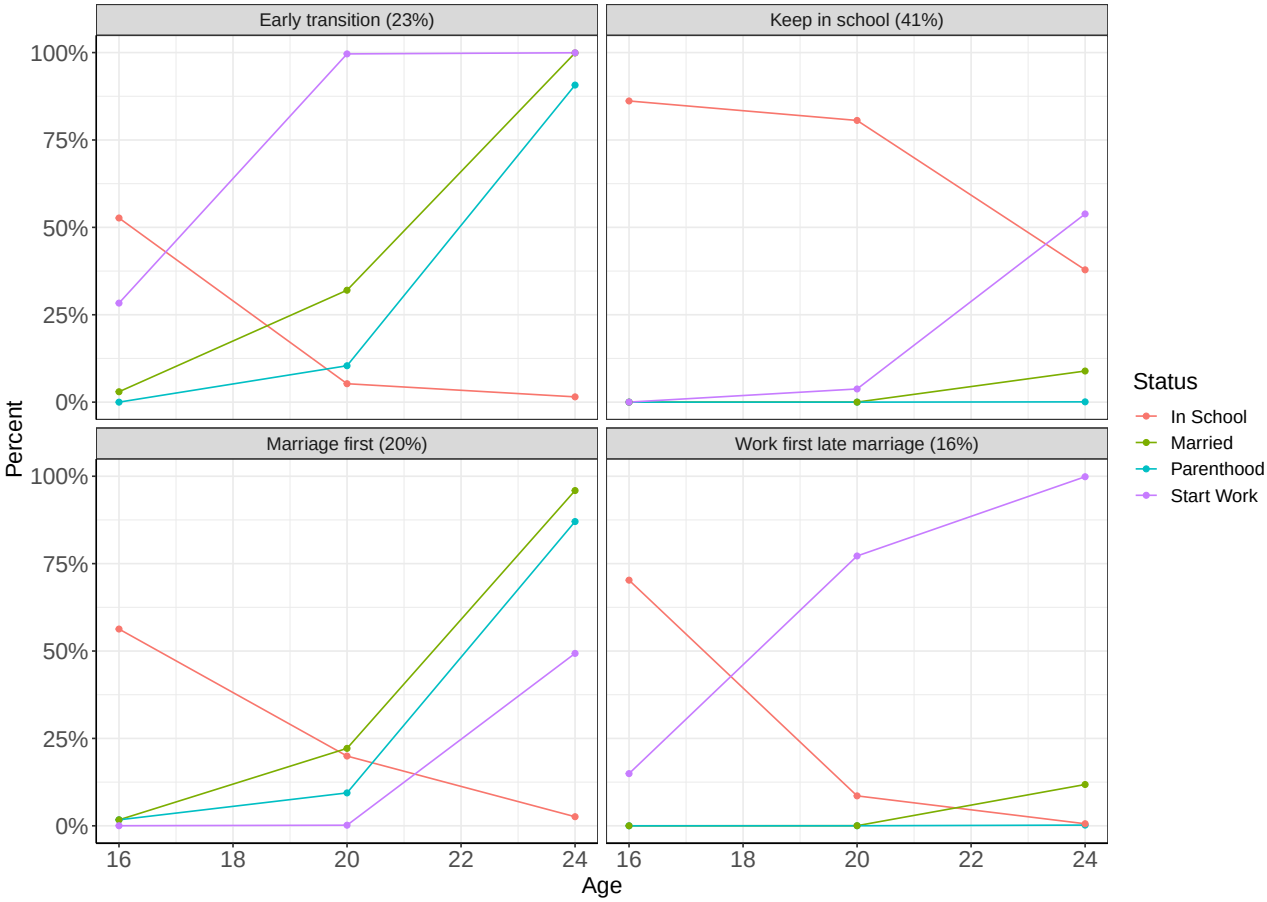

Table 1: Descriptive statistics

	Men (n=734)				Women (n=588)			
Variable	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
Gender equity index	0.03	0.95	-5.20	0.55	-0.04	1.07	-5.55	0.55
Rely on sons	0.59	0.49	0	1	0.55	0.50	0	1
Number of old brothers	0.23	0.43	0	2	0.50	0.54	0	2
Number of old sisters	0.53	0.76	0	5	0.31	0.59	0	4
Number of young brothers	0.26	0.47	0	3	0.37	0.54	0	2
Number of young sisters	0.20	0.42	0	2	0.29	0.54	0	4
Child's educational aspiration	13.83	2.78	6	16	13.44	3.08	6	16
Mother's educational aspiration	14.73	2.24	6	16	13.93	2.91	6	16
Father's education								
Below junior high	0.46	0.50	0	1	0.49	0.50	0	1
Junior high	0.34	0.47	0	1	0.32	0.47	0	1
High school and above	0.20	0.40	0	1	0.19	0.39	0	1
Mother's education								
Below junior high	0.76	0.43	0	1	0.77	0.42	0	1
Junior high	0.20	0.40	0	1	0.19	0.39	0	1
High school and above	0.04	0.20	0	1	0.04	0.19	0	1
Wealth quintile								
Poorest	0.19	0.39	0	1	0.22	0.41	0	1
Middle	0.59	0.49	0	1	0.61	0.49	0	1
Richest	0.22	0.42	0	1	0.18	0.38	0	1
Insufficient income	0.39	0.49	0	1	0.42	0.49	0	1
Father absence	0.20	0.40	0	1	0.19	0.39	0	1
Family disruption	0.04	0.20	0	1	0.04	0.19	0	1
Early academic skills	18.16	9.80	0	43	17.08	10.06	0	68
Chronic disease	0.02	0.13	0	1	0.03	0.16	0	1

Table 2: Multinomial logit results predicting the pathways to adulthood followed by young men (age 16-24), reference pathway for dependent variable: Keep in school

Covariates	Work first late marriage	Marriage first	Early transition
Gender equity index	-0.099	**-0.107**	**-0.060**
	(0.104)	(0.123)	(0.128)
Rely on sons	**0.350+**	0.342	**0.885****
	(0.197)	(0.259)	(0.286)
Number of old brothers	0.062	-0.177	-0.006
	(0.261)	(0.354)	(0.327)
Number of old sisters	-0.169	**-0.014**	0.075
	(0.138)	(0.212)	(0.17)
Number of young brothers	0.042	**-0.463**	**-0.438**
	(0.234)	(0.328)	(0.387)
Number of young sisters	-0.074	0.091	**-0.742+**
	(0.27)	(0.358)	(0.406)
Child's educational aspiration	**-0.083***	**-0.086+**	**-0.062**
	(0.038)	(0.047)	(0.051)
Mother's educational aspiration	**-0.080**	**-0.154****	**-0.059**
	(0.049)	(0.058)	(0.062)
Father's education (ref=Below junior high)			
Junior high	**-0.699****	**-0.629***	-0.452
	(0.225)	(0.29)	(0.308)
High school and above	**-0.964*****	**-0.812***	**-0.743***
	(0.262)	(0.354)	(0.367)
Mother's education (ref=Below junior high)			
Junior high	-0.054	**-0.103**	**0.033**
	(0.253)	(0.32)	(0.341)
High school and above	-0.094	-1.372	0.353
	(0.462)	(1.098)	(0.564)
Wealth quintile (ref=lowest quintile)			
Middle quintile	**-0.146**	**-0.009**	**-0.418**
	(0.281)	(0.364)	(0.35)
Richest quintile	**-0.273**	**-0.375**	**-0.681**
	(0.322)	(0.422)	(0.436)
Insufficient income	**0.263**	0.067	0.290
	(0.2)	(0.262)	(0.281)
Father absence	-0.177	-0.043	0.069
	(0.253)	(0.308)	(0.308)
Family disruption	**0.993+**	**1.423***	-0.452
	(0.542)	(0.576)	(1.103)
Early academic skill	**-0.021+**	**-0.001**	**-0.008**
	(0.011)	(0.014)	(0.014)
Chronic disease	1.514	1.371	1.430
	(1.323)	(1.304)	(1.313)
Intercept	**2.973****	**2.870****	**1.014**
	(0.951)	(1.107)	(1.171)

Note: + p<.1, * p<.05, ** p<.01, ***<.001; Standard error in parentheses

Table 3: Multinomial logit results predicting the pathways to adulthood followed by young women (age 16-24), reference pathway for dependent variable: Keep in school

Covariates	Marriage first	work first late marriage	Early transition
Gender equity index	-0.169	**-0.319****	**-0.284***
	(0.128)	(0.124)	(0.129)
Rely on sons	0.021	0.160	-0.003
	(0.253)	(0.271)	(0.271)
Number of old brothers	-0.071	0.210	0.187
	(0.296)	(0.331)	(0.328)
Number of old sisters	0.078	**0.487***	-0.177
	(0.249)	(0.231)	(0.248)
Number of young brothers	-0.086	**0.999****	**0.735***
	(0.326)	(0.332)	(0.338)
Number of young sisters	-0.132	-0.027	0.084
	(0.228)	(0.307)	(0.26)
Child's educational aspiration	0.003	-0.023	**-0.111****
	(0.047)	(0.045)	(0.043)
Mother's educational aspiration	**-0.120***	**-0.123***	**-0.146****
	(0.051)	(0.049)	(0.051)
Father's education			
Junior high	-0.103	0.070	-0.510
	(0.284)	(0.294)	(0.314)
High school and above	-0.474	**-0.780***	**-0.940***
	(0.345)	(0.378)	(0.385)
Mother's education			
Junior high	-0.386	**-0.755***	**-0.778***
	(0.306)	(0.381)	(0.396)
High school and above	-1.278	-0.489	-0.874
	(0.937)	(0.655)	(0.797)
Wealth quintile			
Middle quintile	**-0.913***	**-1.086****	**-0.870***
	(0.367)	(0.373)	(0.371)
Richest quintile	**-1.212****	**-1.472****	**-1.307****
	(0.461)	(0.472)	(0.486)
Insufficient income	**0.560***	0.265	0.446
	(0.276)	(0.275)	(0.272)
Father absence	-0.048	0.439	0.046
	(0.351)	(0.331)	(0.353)
Family disruption	-0.028	0.057	0.405
	(0.76)	(0.877)	(0.738)
Early academic skill	**-0.022+**	**-0.027+**	**-0.027+**
	(0.013)	(0.015)	(0.015)
Chronic disease	0.950	0.710	-0.046
	(0.698)	(0.76)	(1.004)
Intercept	**2.494***	**2.316***	**4.1912*****
	(1.015)	(1.044)	(1.005)

Note: + p<.1, * p<.05, ** p<.01, ***<.001; Standard error in parentheses

Table A1: Goodness-of-fit statistics for latent class model selection, men

Men	LL	BIC(L^2)	df
1-Cluster	-3305.27	-3111.09	722
2-Cluster	-2876.29	-3883.27	709
3-Cluster	-2703.53	-4143.01	696
4-Cluster	-2651.39	-4161.51	683
5-Cluster	-2607.71	-4163.08	670
6-Cluster	-2576.63	-4139.46	657
7-Cluster	-2546.48	-4113.97	644
8-Cluster	-2533.39	-4054.38	631

Table A2: Goodness-of-fit statistics for latent class model selection, women

Women	LL	BIC(L^2)	df
1-Cluster	-3097.07	-1821.91	576
2-Cluster	-2592.38	-2748.38	563
3-Cluster	-2476.52	-2897.21	550
4-Cluster	-2387.38	-2992.60	537
5-Cluster	-2350.28	-2983.90	524
6-Cluster	-2320.81	-2959.93	511
7-Cluster	-2292.41	-2933.83	498
8-Cluster	-2263.10	-2909.55	485