Poverty, Marriage Timing and Transitions to Adulthood in Nepal:
A Longitudinal Analysis using the Nepal Living Standards Survey

- Ashish Bajracharya

Population Council
One Dag Hammarskjold Plaza
New York, NY 10017
Email: abajracharya@popcouncil.org

Preliminary Draft prepared for the
2009 Annual Meeting of the Population Association of America (PAA)
Detroit, MI
April 30th- May 2nd, 2009

I am grateful to Dr. Sajeda Amin, at the Population Council, for her valuable insights, comments and suggestions during the preparation of this paper. I am also grateful to the 2008-2009 Fred H. Bixby Fellowship at the Population Council for supporting this research.

Introduction

In many parts of the developing world, early marriage, particularly among girls, remains prevalent at high levels and continues to be among the most formidable challenges for gender equity and development. Early marriage has been linked to many adverse consequences for adolescent girls such as poor reproductive and sexual health, early childbirth, barriers to education, and limitations to skills, resources, mobility, and autonomy (UNICEF, 2001; Singh & Samara, 1996). Marriage, which is universal in almost all societies in the world, is also a major milestone in a girl's transition into adulthood. In order for girls to become active and productive members of society in the future, they are expected to successfully make well timed and proficient transitions through various stages in their developmental life course, before making the crucial transition into marriage (Lloyd, 2005). In countries and regions where early marriage is prevalent, most girls are routinely denied the opportunities to make these critical transitions in a timely sequence. In fact, when girls marry early, their marriage in most instances essentially prevents them from attending school or earning productive livelihoods, preventing them from acquiring the human and social capital that is essential for success as adults (Lloyd, 2005). Such competing choices are more likely to occur under the circumstance of poverty and severe resource constraint, when marriage decisions can sometimes determine the economic survival of households. While there is a considerable amount of research in the developing world that examines the association between various socio-economic variables and marriage timing (reviewed in Lloyd, 2005), including those that establish links between school enrollment, economic participation and marriage timing, the literature that directly links poverty or a direct measure of deprivation to early marriage is however largely absent.

This study is aimed at examining whether this potentially important but under examined link between poverty and early marriage exists, using longitudinal data from Nepal, one of the poorest countries in the world. Even as the proportion of girls who marry early has declined around most of the developing world, Nepal remains one of the few countries where this decline has been unimpressive and early marriage continues to persist in certain parts of the country at alarming levels. The Demographic Health Survey of Nepal (DHS) of 2006[1] shows that girls in Nepal married at a median age of 17.2 years, which only marks a modest increase from a median age of 16.4 years in 1996. The

[1] DHS data from 2006 is the most recent nationally representative survey data available on marriage, schooling and labor force participation in Nepal. DHS however is cross sectional and thus the NLSS panel is used for the analysis using longitudinal methods. NLSS and DHS figures are generally comparable.

conventional links between school enrollment and economic participation with delayed marriage also have shown anomalous patterns in Nepal. Labor force participation among women in Nepal is among the highest in the developing world, and with significant strides made in improving enrollment in schooling to close to 90% for primary school aged girls, Nepal does not fit the profile of a country where early marriage would be prevalent at high rates. But with over 40% of the population living under the national poverty line, it is likely that the widespread incidence of deprivation in Nepal has distinct effects on how these variables are interlinked. The question of how poverty affects the dynamics of the choices for adolescents between schooling, work and marriage, which are often incompatible and competing choices in households in Nepal, thus becomes quite compelling and is the major research question of this study. This study will be among the first to employ measures of household poverty as the main explanatory variables in examining marriage timing in relation to other non marriage adolescent outcomes in Nepal and the first to do so employing longitudinal data.

The study uses nationally representative panel data from the Nepal Living Standards Survey (NLSS) of 1995/96 and 2003/04 to examine these questions. This study advances the current literature on marriage timing in Nepal and in developing countries in general in several ways. Using a longitudinal sample allows for an examination of the influence of poverty and experiences with poverty during childhood or adolescence on the marriage, work and schooling decisions that girls face in young adulthood. The presence of panel data allows temporal ordering of explanatory and outcome variables in empirical specifications that are more likely to yield estimates that are causal and are void of simultaneity bias or reverse causality. Additional analyses and discussions are likely to elucidate the complex relationship of poverty with these adolescent outcomes further. The analysis presented in this paper is likely to enhance our understanding of the true effects of poverty on the timing of and the choice between various important aspects of the crucial transition of adolescent girls into adulthood. It is therefore also likely to enhance our knowledge of how childhood poverty in the context of developing countries is likely to influence crucial developmental outcomes as children transition into becoming adults.

Background

Marriage, Schooling and Work: Conceptual Links

Marriage timing, particularly among women, has been an area of research that has firmly remained in the domain of demographers because of its unambiguous connection with the onset of family formation and childbearing in most societies. In recent years however, as the research

community has increasingly begun to recognize the relevance of marriage timing for the successful transition of girls into adulthood, the research on early marriage has expanded considerably and diversified into examining the relationship between a range of social, family, community, gender and ethnicity related factors and marriage timing. Two main factors in this literature have consistently been linked with marriage timing in the developing world: access to schooling and formal education for women and labor force participation of women (Singh & Samara, 1996). Much has been written about the associations between these variables and marriage timing (see Lloyd, 2005 for an extensive review; see also Mensch, Singh & Casterline, 2005). The increase in school attainment for girls for instance is widely credited as being the single most important reason for the delay of marriage in most parts of the developing world (Lloyd, 2005; Mathur, Greene, & Malhotra, 2003; Singh & Samara, 1996). Even though much of this literature on schooling and marriage lacks clear empirical validation of mechanisms, schooling is widely considered to have an effect that enhances the autonomy of girls, providing them with greater decision making power in various aspects of their lives including those that concern their marriage and spousal choice (Jejeebhoy, 1995). It is believed to shape ideas and values that are less traditional and more Western, increasing their choices and alternatives to marriage by opening doors to opportunities such as work participation, and in the process helping enhance life aspirations for girls (Lloyd & Mensch 1999; Singh & Samara, 1996). In most countries, schooling is also incompatible to marriage, in practice if not by policy, providing a mechanistic reason for why such a positive association between schooling and delayed marriage exists (Lindstrom and Brambilla Paz, 2002). However, school attainment might be endogenous to marriage timing, i.e. girls who delay marriage may stay in school longer or girls who marry early may be withdrawn from school for that very reason (Mensch, Singh & Casterline, 2005). Since this issue has not been adequately addressed in the literature, these results must only be interpreted with caution. While the direction of causation remains empirically unclear between these variables, the positive association that exists between the two appears to be consistent.

In South Asia, many studies have established this positive association between school attendance and delayed marriage. In fact evidence that suggests that early marriage deprives girls of attending school and encourages dropout is largely absent in settings outside of South Asia. As Lloyd's (2005) global review insinuates, empirical evidence of such a circumstance can only be found in Bangladesh, where a study by Amin, Mahmud and Huq (2002) found that girls dropped out of school in the event where a suitable marriage partner was found. The age at dropout and the age at marriage are also very similar in Bangladesh unlike in other countries. Similarly, Mahmud and Amin (2006)

using panel data from Bangladesh also found that girls dropped out in significant numbers even before reaching secondary school when they came from poor households, but dropped out specifically for marriage when they were from households that were wealthier. In Sri Lanka on the other hand, with a traditionally late marrying society, Malhotra and Tsui (1996) found that the hypothesized effect of modernity on marriage timing, while somewhat ambiguous, was manifested mostly in terms of the normative effect of girls' school attendance rather than indicators of modernity such as economic independence, self spousal choice and nuclear family residence. De Silva (1990), examining marriage timing in Sri Lanka, also found similar patterns. Similarly, Chowdhury and Trovato (1994) examined premarital roles and status of women using educational attainment as an explanatory variable, employing data from the World Fertility Surveys conducted in the 1970s in five countries, four of which were in South Asia: Pakistan, Nepal, Sri Lanka and Bangladesh. The results unanimously showed that educational attainment before marriage was related to a delay of marriage even after appropriate adjustments were made for socio-economic and cultural variables in all countries, with the largest effects seen in Sri Lanka.

In terms of labor force participation of women, a small but noteworthy literature exists that connects it to delayed marriage outcomes in the developing world. Access to paid employment in the formal economy is believed to expose women to new ideas and opportunities that encourage the delay of marriage (Singh & Samara, 1996). As the income earning potential of girls increase through opportunities in the labor market, their status within their households and in society increase, giving them greater autonomy with marriage decisions among others. Higher incomes of daughters also provide economic incentives to parents to postpone their marriage while their daughters remain economically productive and contribute significantly to household income (Jejeebhoy, 1995; Singh & Samara, 1996). Such participation also provides additional economic resources to the household which might enable families to delay marriage decisions of young girls which are otherwise expedited due to anxieties related to factors such as dowry or other marriage related economic pressures. Workforce participation is also generally believed to act in conjunction with enhanced schooling to reduce the attractiveness of early marriage through the prospects of future returns of these human and social capital investments. The South Asia specific literature on labor force participation and marriage timing is, as expected, quite limited. Chowdhury and Trovato (1994), for example, which found associations of schooling with delayed marriage as noted earlier, also found substantial associations between pre-marital work of women in the monetized sector and delayed marriage across all four South Asian countries examined in the study. Longer delays of marriage were seen for women who worked outside

their homes or family enterprises. Another study of note from Bangladesh (Amin, Diamond, Naved & Newby, 1998) found that girls who migrated to work in the garment industry married significantly later than their peers who were not exposed to such opportunities. Much like in the schooling literature however, there are caveats to interpreting these associations as the possibility of reverse causality, i.e. delayed marriage might increase the chances of labor force participation of girls instead of the converse, clearly has not adequately addressed in the empirical research through rigorous analysis. But taken together, the associations between both school attainment and labor force participation and delayed marriage are not only plausible but also appear to be consistent in most contexts around the developing world and as the review suggests, in South Asia as well.

Interrelationship among these variables however is quite complex as decisions within households on marriage, schooling and work force participation for girls do not occur in a vacuum or independently of each other. These three factors figure significantly into Lloyd's (2005) conceptual framework of successful adolescent transitions into adulthood. While this framework posits that these transitions ideally should occur in succession whereby girls first gain important human and social capital in school to make a successful transition into the labor force, and schooling in conjunction with labor force participation offsets the economic attractiveness of early marriage (Singh & Samara, 1996), such a sequence of events rarely occur in developing countries. In the world's poorest countries, where early marriage is also most prevalent, these events occur in the context of severe resource constraint. Under such conditions decisions related to marriage, schooling and economic participation are made concurrently and these choices occur as competing alternatives with significant opportunity costs among one another. In households that are severely constrained for resources, marriage is often the optimal choice, especially when the alternatives such as schooling require significant investments from the household. In societies where gender inequality is embedded in the social and institutional structures, the types of expected relationships discussed earlier are unlikely to hold among these variables. For example, in a society where women have low status, a girl's economic participation is unlikely to be of significant value to the household and is unlikely to provide sufficient economic incentive to delay their marriage. In the same way, in poor households, girls are in general less likely to be enrolled in school as the perceived returns of girls' schooling to the family are likely to be negligible. In such households, even in the absence of a marriage decision, schooling and economic participation of girls are likely to face major barriers as they have significant opportunity costs to domestic work and other household responsibilities such as caring for younger children, tending to

livestock and other forms of non-economic domestic activities. Thus schooling, work participation and marriage based decisions are inherently tied to each other, particularly so in households that are poor.

Poverty and Marriage Timing

Poverty, as the discussion above suggests, clearly plays a critical role in influencing decisions related to marriage, schooling and labor force participation among girls during adolescence. In both the scientific and descriptive literature on marriage timing, poverty is widely recognized as a major underpinning factor that determines marriage timing among young adults. According to UNICEF (2001), early marriage occurs in acutely poor families primarily because daughters are regarded as economic burdens to the family. Marrying them off at a young age, which could carry significant financial incentives such as bride wealth in societies where marital transactions flow from the groom's family to the bride's, are often seen as economic survival strategies for families. Even in societies where marriage transactions flow in the opposite direction in the form of dowry, early marriage could still provide significant economic incentives as younger girls command lower dowries. Families can shift significant portions of the economic burdens related to raising, educating and investing in their daughters to their husband's family by marrying them off early (see Mensch, Singh & Casterline, 2005 or Lloyd, 2005 for a discussion of marital transactions). As discussed previously, schooling and labor force participation considerations are also likely to change significantly under circumstances of poverty. In extreme cases, early marriage in poor families could even occur under false pretenses and become precursors to girls being trafficked into prostitution. Thus, conceptually, the implications of poverty on early marriage appear to be unambiguous and quite severe. There is however a notable lack of empirical evidence that establishes a clear relationship between household poverty and early marriage or marriage timing in developing countries. The absence of a substantial literature on this topic is quite surprising given the considerable attention that individual or micro-level factors such as schooling and workforce participation of girls have received in the research in this field. Even nuanced factors such as girls' non family experiences or access to modern amenities such as the media have been examined. But much of this research has taken place without much consideration of the larger context of poverty, which ultimately might be the driver of these relationships. The void in research that examines the macro-level context such as poverty is more surprising given that international development and advocacy agencies with an interest in early marriage have used descriptive evidence to put these potential linkages into context. For example, cross-country bivariate analyses conducted by UNICEF (2005) using the Demographic and Heath Survey (DHS) data (surveys conducted between 1995 and 2003), on household wealth and early marriage shows that child marriage is most common among the poorest 20% of the

population in a majority of countries. This was true for both the proportion of girls aged 20 to 24 years old who were married before the age of 18 and the proportion of 15 to 19 year olds who were in unions. This analysis also showed that there were significantly large disparities in the prevalence of early marriage between the lowest and highest household wealth quintiles. Despite such descriptive allusions, a review of the developing country literature on early marriage revealed no known studies that directly estimate the empirical relationship between measures of household poverty and marriage timing or related adolescent outcomes. The empirical examination of this link would thus be a significant step forward in this literature in the developing world.

The construct of poverty and its impact on various adolescent outcomes (though not necessarily examining marriage timing per se) however has a strong tradition of research in the Western literature, most notably in the United States. Duncan and Brooks-Gunn's (1997) volume provides a comprehensive compilation of recent empirical research that examines the mechanisms through which income poverty during childhood affects children negatively throughout different stages in their lives (see also Duncan & Brooks-Gunn, 2000). This research has shown that the negative associations of income poverty with adolescent outcomes are the strongest when poverty occurs early in the child's life, when poverty is persistent and when it is severe. Negative associations are observed for school achievement, attainment and dropout, cognitive and behavioral outcomes, emotional distress, unwed pregnancies and risky adolescent sexual behavior etc. Exploring extensive national longitudinal datasets such as the National Longitudinal Survey of Youth (NLSY) and the Panel Study of Income Dynamics (PSID), researchers have been able to use rigorous econometric techniques to tease out causal effects. One feature of this literature that is relevant to the current analysis is the use of longitudinal data to examine the effects of income poverty during childhood or adolescence on subsequent outcomes experienced later on in young adulthood. Questions that relate early experience with poverty and later life outcomes are not only important and interesting to ask in and of themselves, but they are also important empirically as the use of longitudinal data enables statistically sound analyses that are void of the conventional problems of cross-sectional data analysis such as simultaneity bias or selection bias. For example, Teachman, Day and Carver (1997), using such longitudinal techniques, found that there were negative effects of both poverty status during adolescence and the family's income to needs ratio, on educational success during young adulthood, the latter effect being more consistent. A similar approach was used by Duncan et al. (1998) in which income poverty during early childhood was used to predict outcomes in adolescence controlling for income during various other stages of a child's development including middle childhood and adolescence. These methods allow for adjustments that

account for the fact that income during adolescence may not be independent from other immediate family factors such as employment and program participation that also affect the outcome, and might be the source significant bias in the estimation of income effects. The use of income measured during early childhood (or a measure of current asset income for example), which is more likely to be independent of other current factors that affect the outcome, are more likely to estimate true income effects that are not biased.

While the context and mechanisms through which poverty might influence children's outcomes between developed and developing countries may vary, it is likely that the severe poverty experienced earlier in life is consequential to later outcomes of adolescents in developing countries in analogous ways. The Western literature thus serves as an important guideline for such analyses in developing countries. The lack of such analysis in the developing country literature however is much more of a reflection of the lack of appropriate longitudinal data in developing countries than the lack of rigor in early marriage research in the developing world. This point has also been emphasized in Lloyd's (2005) and Mensch, Singh and Casterline's (2005) discussion of the shortcomings of the schooling and work participation literature that relates them to marriage timing. This examination of poverty and welfare, along with the use of a unique panel dataset, will make important contributions to the research on poverty, marriage and adolescent transitions to adulthood in developing countries.

Setting

The research questions in this study are set in the context of Nepal, one of the poorest and most underdeveloped countries in the world. With a per capita Gross National Income (GNI) of $1630 (PPP) in 2006, Nepal is the poorest country in the world outside of Africa. Early marriage is common in Nepal. In 2006, over 32% of women who were aged 15 to 19 years old were in unions. Similarly, approximately 51% of young women aged 20 to 24 years had been married by the age of 18 and 10% by the age of 15 (DHS, 2006). While marriage patterns vary by geography and ethnic background within Nepal (see Thapa, 1989; Thapa, 1996), the predominantly patriarchal Hindu population shares many characteristics of marriage across the country. Marriages, which typically occur early continue to be primarily arranged by parents, are monogamous and patrilocal. Marriages also involve material or financial transfers, most predominantly in the form of groom-wealth or dowry among most groups in Nepal. Typically, girls who are married are engaged in domestic work in the spousal home and are generally not enrolled in school even if they are of still of school going age or participate in the monetized economy outside of the home. Married women generally enjoy a significantly low status in their households and societies (see Bista, 1991).

If the figures on early marriage noted above and the previously posited associations between school attendance and labor force participation and marriage timing are to be accepted, then one would expect that the figures for schooling and work force participation among women to be dismal in Nepal. This is however where Nepal is an anomaly. First, the pattern in schooling among girls in Nepal has shown considerable progress in the last several decades and by 2006 only 11.3 % of girls aged 10 to 14 years old had never enrolled in school. Among girls aged 15 to 19 years old, approximately 21% had never enrolled in school in 2006. These statistics for schooling are significantly better than other neighboring regions and countries in South Asia such as Pakistan, or the Bihar and Rajasthan provinces in India, that have similar poverty and early marriage profiles.[2] But when labor force participation of women is considered, the mismatch between the work statistics and the poverty and early marriage patterns becomes abundantly clear. In Nepal, women participate in work outside of the home in uncharacteristically high numbers. In 2006, close to half (47.8%) of adolescent girls aged 15 to 19 and almost 60% of young women aged 20 to 24 were economically active in Nepal (DHS, 2006). These proportions are on an order of several magnitudes higher than work force participation among women in for example Bangladesh and Bihar where economic activity among adolescent girls (15 to 19 year olds) is as low as 9.9% and 14.5% respectively. In fact, the 2006 statistics for women's labor force participation in Nepal was the highest among all countries where DHS surveys were conducted. These statistics clearly indicate that these indicators in Nepal do not follow conventional or expected patterns. These unconventional and mismatched patterns suggest that the interrelationship between work force participation, schooling and marriage are likely distinct from those in other countries and regions. The analysis in this study is aims to examine the dynamic of these relationships in Nepal.

Previous Literature

Nepal has been the subject of a considerable volume of inquiry on marriage timing from a number of different academic perspectives. Much of the marriage timing literature in Nepal examines the influence of socio-economic variables, family and non family experiences and neighborhood and organizational effects on when girls (and boys as well) get married and begin forming families and becoming parents. Macro-level effects such as the influence of ethnicity and culture based differences on marriage timing have also been examined. The studies which examine effects of socio-economic

[2] The schooling statistics are more directly comparable to numbers in Bangladesh and India. Bangladesh however, despite better schooling statistics has dismal labor force participation statistics and a median age at marriage as low as 14.8 years in 2006. Schooling and marriage in Bangladesh has been explored several papers by Sajeda Amin and colleagues.

variables and non family processes have mostly come from the Chitwan Valley Family Study (CVFS). This survey, set in an area of rapid social change in rural southern Nepal, has given rise to a considerable body of research that examines marriage timing using event history analysis on a life history calendar. Ghimire, Axinn, Yabiku and Thornton (2006), using the CVFS found that premarital non-family experiences, primarily exposure to media and participation in clubs were strongly positively associated with individual's participation in spousal choice. Similarly, Yabiku (2005) found that school enrolment had a negative effect on both men's and women's marriage rates and over time schooling became a strong deterrent to marriage for both sexes. Employment outside of the home on the other hand appeared so augment marriage rates for men but not for women. Yabiku's (2004) analysis incorporated multilevel analysis to find that the proximity of services and organizations such as schools, health posts, cinemas and bus stops were significantly associated with reduced marriage rates. The use of these services appeared to mediate neighborhood and organizational effects on marriage timing.

Much of the research examining factors such as ethnicity on the other hand have employed macro-level datasets such as the Census, utilizing mainly correlation or simple regression based analyses to determine these relationships. Thapa (1997), Thapa (1996) and Thapa (1989) are examples of such studies, all of which in varying degrees of model specification complexity, use district level analysis finding that ethnicity and ethnic group related differences have strong significant associations with the age at which women get married in Nepal, independent of socio-economic variables including the level of development of districts. Choe, Thapa and Mishra (2005) finds that education, ethnicity and region of residence are key correlates of the timing of first marriage and that while Nepal's society is in transition and the pervasiveness of modernity have had positive effects on delaying marriage, that cultural and ethnicity based factors still affect marriage in the opposite direction significantly. Aryal (2007) and Maitra (2004), using different datasets have also taken approaches that are similar those in the CVFS studies, in examining socio economic variables and have found results that are consistent with the other studies noted here.

Finally, Dahal, Fricke and Thornton (1993), using a smaller qualitative sample, examined standard demographic variables to exploring parental marriage patterns and kin status, nature of material exchange and relative landholding of families. Information on the inheritance received by mothers and whether they spoke Nepal was also collected. Their findings in a small Nepali village setting suggested that access to kin and marriage partner networks were significant predictors of delayed marriage. Similarly, a participatory study conducted by Mathur, Malhotra and Mehta (2001) in urban Kathmandu and rural Nawalparasi districts found that economic empowerment of girls through

economic activities is related to higher aspirations in life and were also connected with desires to delay marriage. In this literature, while links have been made between marriage timing and various aspects of schooling, employment, and a host of other factors such as ethnicity and non family experiences, an explicit consideration of poverty or deprivation as an explanatory variable is notably absent. In addition, the treatment of marriage as an outcome that is a part of a set of competing decisions alongside schooling or workforce participation and not as a sole outcome on its own is largely absent as well. This study thus aims to fill this void in the research of marriage timing in Nepal.

Data & Methods

Data for this study comes from the two wave panel of Nepal Living Standards Survey (NLSS) of 1995/96 and 2003/04. The NLSS is a comprehensive, nationally representative multi-topic household survey conducted by the Central Bureau of Statistics (CBS) of the Government of Nepal in conjunction with the World Bank and is part of the Living Standards Measurement Surveys (LSMS) conducted in a number of developing countries around the world. While the NLSS collected data in two large cross-sections of 3373 households and 3912 households in 1995/96 (NLSS I) and 2003/04 (NLSS II) respectively, the analysis in this paper is drawn from the 962 panel households that were chosen from NLSS I and re-interviewed in NLSS II. The NLSS panel collected detailed longitudinal data using a comprehensive household survey instrument covering a wide range of topics including demographic characteristics of respondents and their households, indicators of income, consumption, employment, educational attainment, marriage, maternity history, health status, remittances, quality and access to facilities, agricultural and non agricultural production etc. in two waves. The NLSS is among the most comprehensive household surveys ever collected in Nepal and is the only nationally representative survey to collect longitudinal data on individuals on such a wide range of topics, making it a uniquely appropriate and an important dataset for the analysis presented in this paper.

The sample in this study is restricted to unmarried adolescent girls in the panel households aged 5 to 9 years old in NLSS I (N= 414). Table 1 summarizes the sample used in this study and documents the retention and attrition of girls in the panel households between NLSS I and NLSS II. All girls aged 5 to 9 years old in NLSS I were under the age of 18 in NLSS II. Any incidence of marriage among these girls by the follow up survey therefore also constitutes a union that is considered to be early under the internationally accepted age of adulthood of 18 years. Among the 414 girls in the initial sample, 289 (or 69.81%) remained in their respective households and were followed in NLSS II with extensive information on their outcomes and household characteristics as young adults, while 111 girls (26.81%)

were no longer residing in their households in 2003/04. Despite their absence, information on these girls was maintained through a panel tracking instrument in the survey, providing information on their activities in NLSS II or reasons for their absence including death. Outcomes on their schooling, work and marriage in NLSS II were created using information available in this tracking instrument. Other supplemental information such as those about earnings and type of activity, level of education attained or spells of enrollment and dropout between waves and other detailed data however was not available for these girls in NLSS II. The final analytic sample is thus comprised of 400 girls between the ages of 13 and 17 years old in NLSS II (or 96.62% of the baseline sample) about whom information on their outcomes was available, while 14 (or 3.38%) of girls from the baseline could not be followed and were excluded from the final sample.

Measures

Dependent Variable

The dependent variable in this study is a categorical indicator of the competing choice of school attendance, labor force participation, domestic work or marriage for adolescent girls and young women in the follow up survey NLSS II conducted in 2003/04. This variable captures fundamental aspects of a young woman's transition into adulthood in Nepal, which not only determine their trajectories into assuming future adult roles and their overall development, but also indicate their status during this crucial period between adolescence and young adulthood. These adolescents, aged 13 to 17 years old, are those who were either successfully followed in NLSS II or those about whom information on their follow up outcome was retained in the panel tracking instrument. This measure is constructed as a multinomial outcome with the following mutually exclusive categories that indicates outcomes for girls in NLSS II:

1) Only Attending school, not participating in economic activities, and not married
2) Only participating in economic activities, not in school and not married
3) Participating in both economic activities and enrolled in school, but not married
4) Neither working nor in school, reporting only domestic work as major activity or are idle
5) Married and left the household
6) Not followed in NLSS II because of reasons such as death, household splits and migration to other reasons that are unrelated to work, schooling or marriage.

These comparison categories are modeled in multinomial logit regression analyses (which are outlined in detail in the next section) and are coded in no particular order. Due to the small number of

girls who reported being idle (i.e. not in school and not in the labor force) or reported only domestic work as their primary activity while not reporting school attendance of work force participation, this category is merged with the category of girls for whom information is missing or unavailable in NLSS II, creating a category that combines all non-marriage, non-school and non-work categories. For those who married between waves and had left the household in the NLSS II, information on whether they were active in the labor force or attended school in their post-marital households was not available in the tracking variable and are thus grouped separately as a distinct marriage outcome.

Explanatory Variables

The main explanatory variable in this study is an indicator of household poverty status of adolescent girls in the sample in the baseline survey (NLSS I). This measure indicates whether the household is poor using a measure of the nominal per capita household consumption expenditures in Nepali Rupees in 1995/96 and whether it was higher or lower than a household size adjusted poverty line (See CBS, 1997 for a detailed description of how consumption expenditures for households were enumerated). This measure was created by the CBS in the NLSS data as a dummy variable where "1" indicated that the household was poor and "0" indicated that the household was non-poor. Consumption measures are widely used in research in developing countries as proxies for household welfare in place of income measures. Consumption based measures are used here in the analyses instead of an income based measure as they are considered to be better indicators of a household's ability to meet its current basic needs than are income measures and are measured with higher reliability than income. Consumption measures are also more likely to reflect the long term welfare of families as they are less sensitive to fluctuations in income (CBS, 2004).

A set of mutually exclusive variables indicating household consumption expenditures for girls in the sample in quintiles is also used as explanatory variables in the analyses. The categorization into consumption quintiles is based on the distribution of household consumption levels of all NLSS I households distributed in five consumption groups of equal populations. While not adjusted to a particular threshold indicating deprivation (such as a poverty line), these measures represents a more refined metric of a household's welfare status or proxy of a household's total income than a poverty status dummy. By using this metric, welfare effects on the outcome variable can be analyzed by households that fall in the richest 20% and the poorest 20% of households. The richest quintile is used as a reference category in the regressions, which are discussed in detail in the forthcoming sections.

Control Variables

A number of individual, household and community or regional level factors may potentially confound the relationship between the poverty, and young adult outcomes in marriage, work and schooling. In order to ensure that the associations that are observed in the analyses between the dependent and independent variables are not spurious, the analyses control for these factors extensively. All control variables are taken from the baseline survey, i.e. NLSS I in 1995/96, when the young women for whom the multinomial dependent variable is measured in follow up were between the ages of 5 and 9 years old. These control variables thus represent the early experiences and background characteristics of these adolescents and young women during their childhood, and are expected to be associated with both the dependent and independent measures outlined above.

First, a set of individual level characteristics for the girls in the sample are controlled for in the regression models. A continuous measure for age of girls in years is included in the models to control for intra-cohort age effects in the analyses. There is considerable evidence, particularly from Nepal that there may be religious and caste-ethnicity based differences in schooling, work and marriage outcomes (Thapa, 1989). Thus, controls for these variables for girls are included in the analyses based on the characteristics of the household head in NLSS I. We follow the operationalization of caste-ethnic groups employed in Yabiku (2004) and Axinn and Yabiku (2001) by using dummy variables for the five major caste-ethnic subdivisions in Nepal. These groups, as much of the literature suggest, have been shown to have meaningful differences and distinct institutional arrangements, customs, norms and attitudes towards work, schooling and marriage for adolescent girls, making them appropriate distinctions in caste and ethnicity for this analysis. Dummy variables are included for the *Brahmins* and *Chettris*, the first group who represent the upper castes in the hierarchical Hindu caste system. Similarly lower caste Hindu occupational groups are represented in a second dummy variable which includes groups such as the *Kami*, *Sarki*, *Damai* etc. The *Newars*, who are distinct from the upper caste Hindu groups noted above, but rival them in educational attainment and wealth are the third group that is included. Two groups of Tibeto-Burmese origin are included in the analysis based on their origin from either the Hills or the Terai. The groups that originate in the Hills include groups such as the *Magar*, *Tamang*, *Rai*, *Limbu* and the *Gurung*. Groups such as the *Tharu* are included in the Terai originating groups. Individuals who could not be clearly classified into these five categories are captured in a dummy variable representing all other caste-ethnic groups (See Thapa, 1989 for a more detailed discussion of caste and ethnicity and its interrelationship with marriage in Nepal; See Bista, 1972 for a more general discussion of caste and ethnicity in Nepal).

The analyses also control for characteristics of the household head to account the influence of decision-making adults in the household on schooling, work and marriage decisions for adolescent girls in the sample. These controls include the age of the household head in years and a dummy variable indicating whether the head of the household is female. A control for the whether the household head had ever attended school is also included as a measure of his/her human capital. Finally, the nature of the household head's employment is also included in the analysis by using a variable which indicates the head's engagement in the formal or paid economy (includes wage or self employed non-agriculture or wage agriculture) (coded "1") in NLSS I. This variable is coded as "0" if the household head was either engaged in self-employed agriculture such as subsistence agriculture, which is the most predominant form of work in Nepal, or if they were unemployed during the first wave of the survey. As the intergenerational transmission literature suggest, parental resources, both economic and human capital, are likely to significantly influence children's outcomes and behavior. Naturally, research that examines such relationships opts to use controls for the human capital characteristics of the parents of the children in question. I elect to use household head characteristics primarily as direct lineal relationships between girls and their parents could not be established for all girls in the NLSS sample, particularly when girls were not directly related to the household head. The use of household head characteristics, commonly used in studies to control for such characteristics are also advantageous for its simplicity and it notably reduces the potential problem that arise due to correlated characteristics of parents when using mother and father characteristics. It also allows the analyses to include a larger sample of girls in the models.

Control variables for family structure are also included in the analysis using dummy variables that mainly indicate the two most common forms of family organization in Nepal. Family structure is coded in three variables based on family structure in NLSS I. The first two variables indicate whether the girl lived in an intact two generational nuclear household (i.e. girls living with their parents and siblings only) or whether they lived in an intact multigenerational lineal household (i.e. girls living with their parents and grandparents, but no parental siblings and their families). A third variable indicates any other form of family organization, which includes multigenerational collateral households (living with grandparents, parents, siblings and parental siblings and their families) and those that are not intact or with various other relatives and non relatives. Controls for family structure are included for their potential influence on our outcome variable. Children living in intact households can be expected to be less exposed to risk and vulnerability and may enjoy better outcomes in their transitions to adulthood. Such outcomes may be variably affected by the organization of the household and the expectations of

resource sharing in complex family structures. For example children in a multigenerational lineal household are likely less vulnerable than children in multigenerational collateral households where there are likely to be more conflicts about resource allocation and sharing and significant competition for scarce resources, influencing decisions on work, schooling and even marriage. Such households are more susceptible to fissure as well.

Household composition is accounted for primarily by using controls for the number of children present in the household. A number of studies that independently examine work, schooling and marriage have posited that siblings and other children present within the same household often compete for the same resources and may influence decisions on their outcomes. For girls in our sample, sibling rivalry effects for schooling, and economic effects for work and marriage based decisions are likely to be more salient with the presence of other children in the household, the effects of which may vary considerably by the age of other children. A set of control variables indicating the number of children who are present in the household of ages 0 to 4 years, 5 to 9 years, 10 to 14 years and 15 to 19 years old are included in the regressions. One example of a sibling rivalry effect might occur with the presence of young children under the age of five in the household. In such a situation, older siblings, such as the girls in our sample, might be expected to leave school to assume adult like responsibilities in the home including caring for younger siblings or help in domestic chores etc. Along the same lines, having a large number of siblings or other children in the household may expedite the marriage decision of girls, particularly if the household is poor and severely resource constrained.

Finally, control variables indicating the region of residence of the girls in our sample is included in the analyses. The distinction between urban and rural residence has been universally seen as a key variable in most adolescent transitions and particularly so for the three key outcomes of marriage, work and schooling considered here (Lloyd, 2005; Singh and Samara, 1996). A dummy variable indicating that the household is in an urban area is thus included. In a topographically diverse country like Nepal, the ecological belt that individuals live in also significantly influence the customs, norms and attitudes about the constructs that are examined here. A set of control variables for the ecological regions in which each household is situated in is thus also included in the models to account for these differences by including dummy variables for the Mountainous, Hill (reference category) and Terai regions. A discussion of the cultures and issues associated with these three regions can be found in Gurung (2001).

Empirical Strategy

The analyses in this study employs *multinomial logit regression* to estimate multivariate models of the relationship between the marriage-schooling-work outcome of young women in the sample in

NLSS II and the explanatory and control variables measured in NLSS I. With five non-ordinal categories making up the outcome variable, the multinomial logit models are distinctly suited for this analysis. Models for each category in the multinomial outcome are estimated simultaneously as binary logit regressions where a particular category in the outcome is compared with a reference category in a multi-equation estimation where an outcome with k categories generates k-1 equations. The multinomial logit function can be represented as follows:

$$\Pr(y_i = j) = \frac{\exp(X_i \beta_j)}{1 + \sum_j^J \exp(X_i \beta_j)}$$

and

$$\Pr(y_i = 0) = \frac{1}{1 + \sum_j^J \exp(X_i \beta_j)},$$

Where, for the i^{th} individual, j is the observed outcome and X_i is a vector of explanatory variables, which are measured in NLSS I. The unknown parameter β_j is estimated using maximum likelihood. In this estimation, the estimated parameters are presented as "relative risk ratios", which are odds ratios that are obtained by taking the exponent of the β coefficient estimates from the logit models. Relative risk ratios are simpler to interpret and indicate the odds of being in the dependent variable category of interest (for example being married and no longer in the household in our outcome) and not in the reference category (being unmarried, enrolled in school and not economically active) for a unit change in the explanatory variable (or a change from 0 to 1 for a dummy variable). The longitudinal nature of the data, set by two panel waves that are approximately 8 years apart, provides a unique opportunity to examine the association of early adolescent experiences and background characteristics on these decisions as these girls transition into adults in the second wave. The multinomial outcome for girls in NLSS II described earlier is modeled against explanatory variables of poverty status or consumption quintiles and control variables in NLSS I as follows:

$$\mathbf{Y_{i\ NLSS2}} = \alpha_0 + \delta_1\ \mathbf{P_{i\ NLSS1}} + \beta_1\text{'}\ \mathbf{X_{i\ NLSS1}} + \varepsilon_i$$

Here $\mathbf{Y_{i\ NLSS2}}$ is the multinomial outcome of young adult outcomes for girls measured in NLSS II and

$\mathbf{P}_{i\ NLSS1}$ represents the poverty and consumption indicators which are the main explanatory variables in the study and are measured in a preceding point in time during the girl's childhood in NLSS I. $\mathbf{X}_{i\ NLSS1}$ represents a vector of control variables all of which in this analysis are measured in the baseline of NLSS I. Here δ_1 represents the parameter estimate of interest, which is the association of the explanatory variable representing poverty with the young adult outcome.

This procedure allows for the strategic time ordering of the dependent variables measured temporally against the independent variables measured at an earlier point in time. This allows for the analyses to guard against simultaneity bias and reverse causation and sets the analysis apart from previous studies that have been reviewed earlier that use cross-sectional data and are plagued by these very problems in the absence of rigorous econometric treatment and plausible instruments. As noted earlier, the length of time between panel waves also ensures that autocorrelation related issues are greatly reduced and provides a unique approach to the analysis whereby experiences with poverty during early adolescent years may be related to later outcomes as girls take on adult responsibilities.

In the analytic sample, as noted earlier, all girls aged 5 to 9 years old at the baseline are under the age of 18 in NLSS II and thus the hazard of marriage for these girls also represents the hazard for early marriage. Most of these girls are also expected to be enrolled in school in NLSS II, before transitioning into formal work. Thus models use the "only enrolled in school and not employed or married" category as the base outcome category against which relative risk estimates are compared, as an acknowledgement of school enrolment as not only the desired outcome but also the expected one relative to work and marriage related outcomes. While models presented in the tables in the next section represent the final specifications of the multinomial logit models where all control variables are included, sequential models (not shown here) were specified in a series of sensitivity analyses by systematically adding and omitting various sets of control variables to test for the any mediating effects. For simplicity only the final model specifications are presented here. Key results from these exercises are discussed further in the forthcoming section.

As is common with household data, clustering of individuals is taken into consideration by specifying models to account for clustering at the Primary Sampling Unit (PSU) level, which represents the sampling unit most closely analogous to a neighborhood. Individuals who live in the same PSU are likely to have correlated errors among them as they are likely to share common fixed characteristic such as neighborhood traits, customs and culture, or share other characteristics such as access to schools, roads, communications and media, which may bias the results and inflate the standard errors in the estimation. Using the "cluster" function in STATA, robust standard errors are estimated in the models

to account for this issue allowing for accurate testing of the statistical significance of parameter estimates.

Results

Descriptive Statistics

Descriptive statistics for the characteristics of girls in our sample aged 5 to 9 years old in the baseline survey of NLSS I in 1995/96 and their households are presented in Table 2. In terms of the individual characteristics, girls in the sample were on average 6.86 years old (S.D. =1.410) and approximately 49% of them were enrolled in school in 1995/96 .Economic activity for girls under the age of 10 was not measured in the NLSS. Among household characteristics, close to 43% of girls aged 5 to 9 years resided in households that were poor, as operationalized in the NLSS. Likewise, 25.4% of the sample households fell in the poorest 20% of the overall population while only 12.9% of these households fell in the richest 20%. Only a very small proportion, 4.2%, of girls in lived in urban areas.

In terms of the characteristics of the household head, the mean age of the household head was 44.282 years (S.D=13.019). Approximately 36.8% of head of households had ever attended school and only 6.4% of the head of households were female. The participation of the household head in the paid economy or outside of agriculture was also quite limited with only 36.6% of household heads who were engaged in formal work and were not working in subsistence agriculture or were unemployed.

In terms of the distribution of the sample's caste and ethnic background, high caste Hindus and lower occupational caste Hindus were the two most dominant groups. High caste Hindu's, which comprises of the *Brahmin* and *Chettri* groups made up 21.2% of the sample while the low caste Hindu groups comprised of 22.9% of the girls in the sample. These two ethnic groups are followed by Tibeto-Burmese ethnic groups of Terai origin (16.8%) and Hill origin (12.1%) and then finally by Newars, who make up the smallest proportion of girls at 2.8% of the sample. A significant proportion of girls fell into the "Other" category, which comprised of ethnic groups that couldn't be clearly classified into any of the five categories. In the distribution of family structure variables, the two most dominant groups accounted for around 77% of households in the sample. Multigenerational lineal households, the most dominant group, accounted for close to 40% of all households while intact nuclear households made up for approximately 37% of households. Means, standard deviations and ranges of the remaining variables appear in Table 2 and are not discussed here in further detail in the interest of brevity.

Table 3 presents the distribution of the outcome variable representing the work, school and marriage choices of unmarried girls in the analytic sample. Among these girls, now aged 13 to 17 years

old, 22% were enrolled in school and not employed in NLSS II while 23% were employed and not enrolled. About 25.5% of girls were both enrolled in school and were working signaling a considerable overlap between work and school for young adolescents in Nepal. 15.25% of girls had married by the second wave, at which time all were under the age of 18, and had left the household.

Bivariate Cross Tabulations of Multinomial Young Adult Outcome by Key Variables

One of the key aims of this paper was to examine how early experiences with poverty, particularly during the critical years of childhood and early adolescence may affect various outcomes of children as they transition into becoming adults, particularly in that of marriage, work and schooling, key indicators of successful transitions into adulthood. In this section, I present some descriptive results of the distribution of girls in NLSS II on the multinomial outcome by key NLSS I characteristics of sampled girls and their households such as poverty status, the richest and poorest consumption quintiles, urban residence and the girls' enrollment in school. These bivariate cross tabulations are intended to supplement the multivariate analyses that are presented in the next section and put the results in context by first examining purely numeric differences in the outcomes. Pearson's Chi-squared tests are used to determine whether differences between these groups are statistically significant. All results are shown in Table 4, in which clear patterns of differences are evident. As the Pearson's Chi-Squared test confirms, the distribution of the outcome varies significantly and statistically by all groups tested. Here, I discuss some of the more distinct patterns of differences seen in these analyses.

Substantial differences by household and individual characteristics are evident in outcomes for marriage and for school enrollment and economic activity when each occurs independently and not simultaneously. A considerably higher proportion of girls who lived in disadvantaged households (relatively speaking compared to the converse) i.e. households that were poor, in the poorest consumption quintile, or in rural areas, were married by NLSS II. Similarly, a smaller proportion of girls in such households were enrolled in school (and not employed) and a larger proportion was active in the labor force when compared to households that were non-poor, households that were not in the poorest 20% population and in urban areas.

Trends were similar for individual characteristics for girls. Of those girls who were enrolled in school in NLSS I, a higher proportion were enrolled and not working in NLSS II, while a smaller proportion were working and not enrolled. In terms of marriage outcomes, a significantly lower proportion of girls who were enrolled in school in NLSS I were married by NLSS II. This is consistent with the larger literature that posits a systematic positive association between girl's acquisition of formal education and delayed marriage (Singh & Samara, 1996; Mensch et al. 2005; Lloyd, 2005). The

complex relationships among these variables are explored further in the multivariate analyses described in the following section.

Multinomial Logistic Regression Analyses for NLSS II Outcome predicted by NLSS I Variables

Table 5 and Table 6 present results from the multivariate analyses of the NLSS II work, school and marriage outcome for girls using multinomial logit regressions as outlined earlier. In the analyses, an adjustment is made in the outcome variable to account for the very small number of girls who were either only involved in domestic work or were idle. This category is merged with the category of girls for whom information was not available on their wave II activities, yielding five categories in place of the six originally described in the Measures section. The merging of these two categories essentially distinguishes it as the "other" category in a set of mutually exclusive categories which now represent combinations of schooling, work and marriage for these girls as young adults. In each table, analyses from the final specification in which all individual and household control variables are included is presented. Interpretations, as noted earlier are based on relative risk ratios, which simply are exponentiated forms of the parameter estimates obtained from the multinomial logit regressions and were obtained directly using the *mlogit* command in STATA with the "*rrr*" option.

Table 5 presents results from the model in which the poverty status indicator dummy is the main explanatory variable. The results show household poverty status is significantly associated with the multinomial outcome in schooling, work and marriage. In Table 5, we see that girls who lived in poor households in NLSS I are significantly more likely to be married by NLSS II (by a factor of 3.765, $p<0.01$) compared to girls from non-poor backgrounds relative to the reference category of being enrolled in school, when all other variables are held constant. This result clearly indicates a direct association between experiencing poverty in childhood with a higher likelihood of the incidence of early marriage, since all girls in the sample are under the age of 18 even at the follow up survey. Similarly, girls from poor households also were significantly more likely to be working and not enrolled in school in NLSS II (by a factor of 2.383; $p<0.05$) relative to only being enrolled in school. These results provide important evidence of the significance of the role of household poverty on not only marriage decisions, but also on economic activity of girls as young adults relative to a desired outcome of continuously being enrolled in school.

Among the control variables included in the regressions, a considerable number showed significant associations with the marriage, work and school outcome. As expected, an increase in age is associated with a significantly higher likelihood of marriage compared to being enrolled in school. An increase in age by 1 year was associated with a 2.183 times higher risk of being married for girls

between the ages of 13 and 17 (significant at the 1% level). This is a striking result considering that all of these marriages are early marriages, both conceptually and by Nepalese law regardless of whether parental consent is present. On the contrary, living in an urban area is associated with a lower risk of being married and a lower risk of being enrolled in school and working simultaneously compared to being just enrolled. Having a head of the household who has ever attended school also indicated positive outcomes for marriage, showing a lower risk of marriage by the follow up. It also showed associations with a lower risk of the girl only participating in the labor market relative to being only in school. Interestingly, the household head's involvement in the paid economy or non agriculture showed significant associations with the girl's work related outcomes but not with the marriage category. When household heads of these girls were involved in the formal economy, they were less likely to be either only working or working and enrolled simultaneously in NLSS II relative to only being enrolled. These results could indicate the potential positive income effects of the household head's involvement in the formal economy and its impact for girl's schooling. Indications of such effects have been noted in previous research on work patterns in Nepal in Bajracharya (2008) and in the larger literature for developing countries (e.g. Glick and Sahn, 1998). Another significant result among control variables seen in the results was for variables indicating ethnicity. Low caste Hindu ethnic groups or the occupational castes were seen to have a risk of being married relative to being only enrolled in school by NLSS II that was 7.568 times higher ($p<0.01$) than that for high caste Hindus (the reference category) relative to being only enrolled in school. Lower caste Hindu groups were also seen to have a higher risk of only working relative to being enrolled, by a factor of 8.124 ($p<0.01$) and a higher risk of being in the other category (rrr = 5.004, $p< 0.10$). These results however are hardly surprising as these groups, who have traditionally been disadvantaged, are among the poorest and most marginalized groups in Nepal and have been documented to have common early marriage practices and all round poor outcomes (see Bista, 1972, Thapa, 1997 and Thapa, 1989).

Among family characteristics, while the number of children present in household showed a negligible number of significant results, family structure on the other hand, particularly living in an intact nuclear household showed a significant association with higher risks of either being employed in the labor market or being employed and enrolled at the same time relative to only being enrolled. This result maybe indicative of the potential likelihood of smaller nuclear households being constrained for resources compared to extended households. In such households, girls may be required to drop out and enter the labor market or work while attending school to make up for deficits in income or other resources in the household. Finally women in the Mountain region were observed to have a

significantly higher likelihood of being employed in the labor force and not in school while women in the Terai had a significantly lower likelihood of being both enrolled and working relative to only being enrolled in school.

In Table 6, I present results from models in which consumption quintile based measures are used as explanatory variables. In these regressions, the highest consumption quintile, or households that fell in the richest 20% of the overall NLSS sample, is used as the reference category while the first four quintiles are entered into the regression equation as dummy variables. The multinomial logit regressions are conducted in an identical fashion to the previous models using the same set of control variables. The results from this specification are analogous to the results seen in the previous models showing a near identical pattern of results both for the welfare indicator explanatory variable and the control variables. The results in Table 6 show that living in households that are in the lowest two consumption quintiles during NLSS I is associated with a higher likelihood of being married and of only being employed relative to being enrolled in school in NLSS II, compared to the richest quintile. While one would expect that girls whose households fell in the poorest consumption quintile (the bottom 20%) would yield the strongest and largest associations with these outcome categories, the results however reveal an interesting and unexpected pattern of non linear results. While we find that the size of the relative risks for girls in the poorest 20% of households are considerably large, 4.101 ($p<0.05$) for being employed relative to just being enrolled and 4.238 ($p<0.05$) for being married, the size of the associations with the same two categories (marriage and employment), were significantly larger for girls who lived in households that fell in the second poorest quintile (second poorest 20%). For these girls, the size of the relative risks were 6.621 ($p<0.05$) for being employed and 5.442 ($p<0.05$) for marriage by NLSS II, relative to being enrolled in school. These non linear results are quite unique in that they potentially indicate that the association between economic deprivation and the vulnerability of girls of being married early or having to drop out of school to earn livelihoods may not be the highest at the most extreme levels of poverty but rather at the margin of the poor vs. non poor divide. Because these findings are relatively new, one can only speculate on why such a pattern is observed. One possibility is that this observation is a reflection of the characteristics of and the opportunities available to people who are considered poor but are not extremely poor. Such a group, who are most likely represented in the second wealth quintile in our sample, may still retain access to opportunities in the labor market and for schooling, even while being classified as poor. In addition, they are more likely to enjoy wider access to favorable social networks that facilitate upward mobility, even out of poverty. For them, the influence of household welfare status is thus likely to be of more consequence to the

competing decisions of schooling, work and marriage compared to the extremely poor, who in contrast are likely to lack these networks and opportunities altogether and for whom the competing choices discussed above are likely to be non-existent. In other words, the competing decisions are more likely to be sensitive to changes in welfare for a group for whom these choices are actually tangible than for a group for whom they are not, resulting in larger association sizes for the second wealth quintile group compared to the poorest quintile. Given however that this discussion is only speculative, only further rigorous analyses of these constructs can provide adequate insights into these associations that would allow for any concrete inferences to be made.

The pattern of results for the control variables in this model were near identical to those seen in models with the poverty indicator. As in the previous models, age, was associated with a higher likelihood of marriage relative to schooling but not with other categories. Living in urban households reduced the likelihood of both marriage, and working and being enrolled in school simultaneously. Similarly, girls living in households that were headed by females or those who worked in the paid economy or the non agriculture sector had a significantly lower likelihood of being married or only being employed by NLSS II. Like in the previous model, being from the low caste occupational groups showed large and significant associations with being married by NLSS II and of only being employed relative to schooling compared to the high caste Hindu groups. Associations with number of children in the household, family structure and region were also identical with the earlier models. The size of each of the associations noted here was also near identical with models for the poverty status indicator dummy for all statistically significant results showing only minor differences in sizes of the relative risks.

Discussion and Conclusions

This study presented a concurrent examination of the competing choices of marriage, schooling and work during young adulthood for girls in Nepal and its potential relationship with poverty experienced during childhood or adolescence. The dependent variable was measured as a composite of these three decisions and modeled against household welfare as measured by a) a measure of household poverty status and b) by consumption expenditure quintiles, controlling for an extensive set of individual and household level variables. The multinomial logit analysis presented in this study revealed several clear patterns in the relationship between poverty and young adult outcomes in the results, particularly so for early marriage among girls.

First of all, the results appear to provide strong indication that poverty and deprivation during childhood is associated with poor outcomes in young adulthood, especially for girls and when it is experienced as 5 to 9 year olds. For these children, both the poverty indicator and quintile based indicators are seen to be of significant consequence for a girl's likelihood of a) only participating in the work force and not being enrolled or married or b) being married before the age of 18, relative to being only enrolled in school in early adulthood, showing very similar results. The large and strong statistically significant associations seen of both welfare indicators with these outcomes even after controlling for a host of variables that have previously been associated adolescent wellbeing in the context of Nepal provides clear evidence that the connection between these constructs is non-trivial. The pattern of results seen with the control variables in each of the models were also near identical as well with little or no difference in the sizes of the associations. This pattern of results also provides an indication that both constructs of the explanatory variable are in essence estimating the same effect, despite being conceptualized somewhat differently. The pattern of results however suggests that the quintile based measure may be preferable to a poverty status indicator as it is able to delineate effects of consumption, a proxy for welfare, more precisely and elucidate more accurately the associations between these factors at different levels of consumption. For example, the estimates with quintile based measures revealed a non linear pattern of results where girls who were in the second poorest 20% of households had the worst outcomes, even though theoretically, the expectation would have been that the worst effects would manifest in the outcome of girls in the poorest 20% of the population. These results potentially reveal relationships among these constructs that have previously not been observed or explored using rigorous methods. As discussed at length in the previous section, while we can only speculate on why such a relationship is observed, these results may have significant implications not only for policy and interventions, but also for the direction that future research on poverty and adolescents takes in the developing world

These non trivial associations between poverty and early adolescent outcomes also provide potential indications that macro-level economic factors maybe be the fundamental link between these constructs. While much of the emerging research in Nepal has sought to tie individual factors such as non family experiences including as schooling, employment, or exposure to media (Yabiku, 2004; Ghimire et al., 2006) with marriage timing and other adolescent outcomes or factors like ethnicity (Thapa, 1997; Thapa 1989), economic decisions may still ultimately be at the core of how these outcomes are determined. Associations observed in these studies, for instance that of the proximity and utilization of cinemas or bus stops (Yabiku, 2004) or that of the exposure to television and movies

(Yabiku, 2005) with delayed marriage, may thus be secondary manifestations of the economic considerations of families and households or a function of the welfare of their neighborhoods. It is therefore likely that the link between welfare and adolescent outcomes is ultimately the more important association of interest, particularly when the policy relevance of this research is considered. The natural next step for this research would thus be to delineate the mechanisms through which poverty or deprivation may affect adolescent outcomes, particularly those that are related to early marriage. Such research would allow for targeted policy instruments to be formed and implemented so that the problem may be addressed at its roots. One such potential mechanism that comes to mind is that of marital financial transfers, which in Nepal occurs mainly in the form of dowry (groom wealth). The economic burdens levied by dowry costs to families and households increases as girls grow older, attain higher levels of education or become more economically self sufficient, particularly in households that are economically vulnerable. Such pressures provide strong disincentives to poor families to invest in their daughters' human capital or to postpone marriage beyond their teen years. The issue of the cost of marriage thus is embedded within the broader question of how poverty affects marriage timing. Beyond a handful of studies conducted primarily in South Asia (e.g. Caldwell, Reddy & Caldwell, 1983; Amin, Mahmud & Huq, 2002), rigorous quantitative analysis on the costs of dowry and its relationship with marriage timing among women has largely remained absent primarily because of the lack of adequate data on this subject. Future research should thus strive to explore these relationships further in order to better understand the links that have been established here. Given the limitations in data, initiatives to collect detailed data on marital financial transfers may be the first steps in moving this line of research forward. The availability of such data are likely to open possibilities to research that illuminate not only the link between poverty and marriage timing, but also provide insights into the social, economic and gender-related implications of dowry in countries like Nepal, where it has become increasingly more pervasive and detrimental to young girls.

Methodologically, this study makes significant contributions to the literature on marriage timing in Nepal by using a longitudinal panel from the NLSS. The NLSS has significant advantages over other datasets for the analysis presented here. First and foremost, as a dataset that is primarily geared at measuring living standards and how the dynamics of income and consumption of households and people's living standards, it is data that is uniquely fit for an analysis of poverty based measures. Second, NLSS is the only longitudinal dataset with the range of measures of income, consumption, poverty, marriage, schooling and work participation of girls in Nepal that would allow for the longitudinal analysis presented here. Even if for descriptive purposes, the collection of data on the same

girls in two different points in time in the NLSS panel represents significant advantage in data availability in the developing world. Finally, one cannot over-emphasize the significance of longitudinal data for this research. Much of the literature's treatment of socio-economic or poverty variables and their associations with marriage and other adolescent outcomes has taken place using cross-sectional samples in the developing world. While these studies have established some concurrent links with adolescent outcomes, they are clearly unable to account for the fact that a measure of contemporary income or welfare is also inherently linked to other immediate household, family or individual factors that may simultaneously influence the outcome as well. This is a major source of simultaneity bias and it is because of this reason that the current body of research has not been able to adequately address the issues discussed in this paper. The approach used in this paper however provides stronger evidence of the link between poverty and adolescent outcomes by examining the longer term consequences of welfare for young women. The use of longitudinal data in this study, where the experience with poverty during childhood, a potential cause, and the subsequent adolescent outcome, a potential effect, can appropriately be time ordered and while controlling for a substantial number of background characteristics, represents a significant advance on previous methods that have been used to make causal arguments. This approach represents a far superior approach to answering these questions and making causal arguments and could serve as an impetus not only for future research on early marriage using longitudinal data but also contribute to the early childhood investment literature.

Even with such advantages, there are some limitations of the data that must be mentioned. While the strategy that is employed here of predicting young adult outcomes using adolescent poverty experiences using the panel survey is generally an improvement upon the cross sectional analyses that previous marriage timing studies have been based on, or even upon the largely retrospective life history calendar data from surveys like the CVFS, the analysis would have benefited greatly in teasing out true causal effects if data had been collected on a variety of individual, family and household characteristics in the follow up for *all* girls, which the NLSS panel was not able to do primarily due to out migration of girls for reasons outlined earlier. For girls who had married or migrated by the second wave, only limited information on their reason for leaving the household was available in the tracking instrument. While it is beyond the scope of a survey like the NLSS that covers so much ground to be able to do so, targeted and detailed datasets that are specifically designed to study the issues discussed here should collect data on women who migrate, particularly for those who marry, on their outcomes in schooling and work force participation, and consequently on child bearing and other demographic variables in their new households as well. Such data would allow for further rigorous analyses that can effectively

purge the models of the problems of simultaneity bias and selection bias. Methods such as fixed effects models or change models have been employed most effectively in estimating causal effects in the presence of such data. Time and financial constraints however probably present barriers to the collection of such data in large scale efforts such as the NLSS, which is not targeted specifically to one particular topic but aims to fulfill data needs of researchers from a diverse group of backgrounds.

Regardless of these issues, this study represents important first steps into examining the association of poverty and adolescent outcomes, in particular of early marriage. But as discussed at different points in this paper, the decisions that households make in determining how and in what sequence girls make their transition from being children into becoming adults depends a great deal on a number of complex and interconnected factors. In order to elucidate such factors, the task of data collection would be complex as it would need to be collected not only on social and economic factors that affect the life choices and decisions of young people, but also on context specific variables that denote culture, attitudes, customs and perceptions. Even with such data, delineating associations of these variables with marriage timing and the competing decisions that young people face during adolescence and young adulthood would still be challenging. This study is intended serve as an impetus for such studies that illuminate further what specific circumstances of poverty affects marriage, schooling and work decisions among adolescents. Nuanced data that will help delineate mechanisms will go a long way in enhancing our knowledge about one of the most important and universal components of girls' transition into adulthood and put it in context of other fundamental transitions that ultimately determines their success as healthy, productive and contributing members of society as adults.

References

Amin, S., Diamond, I., Naved, R., & Newby, M. (1998). "Transition to Adulthood of Female Garment Factory Workers in Bangladesh."*Studies in Family Planning*, Vol.29, No.2.

Amin, S., Mahmud,S., & Huq, L. (2002). "Kishori Abhijan: Baseline Survey Report on Rural Adolescents in Bangladesh." Dhaka: Ministry of Women and Children Affairs, Government of Bangladesh (Supported by UNICEF Bangladesh).

Bajracharya, A. (2008). "Essays on the Influence of the Nature and Conditions of Parental Work on the Wellbeing of Children and Adolescents: Perspectives from the United States and Nepal". Unpublished Ph.D. Dissertation. Cornell University.

Bista, D.B. (1991). *Fatalism and Development*. New Delhi: Orient Longman

Bista, D. B. (1972). *People of Nepal.* Kathmandu: Ratna Pustak Bhandar.

Caldwell, J., Reddy, P.H., and Caldwell, P. (1983). "The causes of marriage change in South India". Population Studies, Vol. 37, No. 3: 343-361

Central Bureau of Statistics (2004). *Nepal Living Standards Survey: Statistical Report 2003/04 , Vol. I and II.* National Planning Commission/ His Majesty's Government of Nepal

Central Bureau of Statistics (1997). *Nepal Living Standards Survey: Statistical Report 1995/96 , Vol. I and II.* National Planning Commission/ His Majesty's Government of Nepal

Choe M., Thapa, S., & Mishra, V.(2005). "Early Marriage and Early Motherhood in Nepal." J*ournal of Biosocial Science*, Vol. 37: 143-162

Chowdhury, F. & Trovato, F. (1994)."The Role and Status of Women and the Timing of Marriage in Five Asian Countries." *Journal of Comparative Family Studies*, Vol. 25, No. 2: 143-157

Demographic Health Survey (2006). *Nepal Demographic and Health Survey 2006*. Ministry of Health and Population (MOHP) Nepal, New ERA, and Macro International Inc. Kathmandu, Nepal: Ministry of Health and Population, New ERA, and Macro International Inc.

Duncan, G., & Brooks-Gunn, J. (2000). Family Poverty, Welfare Reform, and Child Development. *Child Development.* Vol. 71, No. 1 (Jan. - Feb., 2000), pp. 188-196

Dahal, D., Fricke, T., & Thornton, A. (1993). "The Family Contexts of Marriage Timing in Nepal." *Ethnology*, Vol. 32, No. 4: 305-323.

De Silva, W. (1990). "Age at Marriage in Sri Lanka: Stabilizing or Declining?". *Journal of Biosocial Science.* Vol.22: 395-404

Duncan, G., & Brooks-Gunn, J. (Eds.). (1997). "Consequences of growing up poor". New York: Russell Sage Foundation.

Ghimire, Dirgha J., William G. Axinn, Scott T. Yabiku, and Arland Thornton. (2006). "Social Change, Premarital Nonfamily Experience and Spouse Choice in an Arranged Marriage Society." *American Journal of Sociology* 111: 1181-1218.

Glick, P., and Sahn, D. (1998). Maternal labor supply and child nutrition in West Africa. Oxford Bulletin of Economics and Statistics. 60(3), 325-355.

Gurung, H. (2001). *Nepal: Social Demography and Expressions*. Kathmandu: Himal Books

Jejeebhoy, S.J. (1995). Women's Education, Autonomy, and Reproductive Behavior: Experience from Developing Countries. Oxford: Clarendon Press.

Levine, R., Lloyd, C., Greene, M., Grown, C. (2008). *Girls Count: A Global Investment and Action Agenda.* Washington DC: Center for Global Development

Lindstrom, D.P., and Brambila Paz, C. (2001). "Alternative theories of the relationship of schooling and work to family formation: Evidence from Mexico." *Social Biology*, 48(3–4), 278–297.

Lloyd, C., (2005). Ed. *Growing Up Global: The Changing Transitions to Adulthood in Developing Countries.* Washington DC: National Academy Press

Lloyd, Cynthia B. and Barbara S. Mensch. (1999). "Implications of Formal Schooling for Girls' Transitions to Adulthood in Developing Countries," in Caroline Bledsoe, John B. Casterline, Jennifer A. Johnson- Kuhn, and John G. Haaga (eds.), *Critical Perspectives on Schooling and Fertility in the Developing World*, pp. 80-104. Washington, DC: National Academy Press.

Mahmud, S. & Amin,S. (2006). "Girls' schooling and marriage in rural Bangladesh," Emily Hannum and Bruce Fuller (eds.) *Research on the Sociology of Education*.

Malhotra, A. & Tsui, A. (1996). "Marriage Timing in Sri Lanka: The Role of Modern Norms and Ideas". *Journal of Marriage and Family*. Vol. 58, No.2: 476-490

Mathur, S., Greene, M., & Malhotra, A. (2003). "Too Young to Wed: The Lives, Rights and Health of Young Married Girls." Washington, DC: International Center for Research on Women

Mathur, S., Malhotra, A. & Mehta, M (2001). "Adolescent Girls' Life Aspirations and Reproductive Health in Nepal." *Reproductive Health Matters*, Vol. 9, No. 17: 91-100.

Mensch, Barbara S., Susheela Singh and John B. Casterline. (2005). "Trends in the Timing of First Marriage among Men and Women in the Developing World," in Cynthia B. Lloyd, Jere R. Behrman, Nelly P. Stromquist, and Barney Cohen (eds.), *The Changing Transitions to Adulthood in Developing Countries: Selected Studies* (pp. 118–171). Washington, DC: National Academies Press.

Singh,S. & Samara, R. (1996). "Early Marriage among Women in Developing Countries." *International Family Planning Perspectives.* Vol.22: 148-157 & 175.

Teachman, J., Day, R. and K. Carver. (1997). "Poverty During Adolescence and Subsequent Educational Attainment." Pp. 382-418 in G. Duncan and J. Brooks-Gunn (eds.), *Consequences of Growing Up Poor*. New York: Russell Sage Foundation.

Thapa, S. (1997). Timing of Family Formation in Ethnic Mosaic Nepal: A District-Level Analysis. *Asia Pacific Population Journal*, Vol. 12, No. 2.

Thapa, S. (1996). Girl Child Marriage in Nepal: Its Prevalence and Correlates. *Contributions to Nepalese Studies*. Vol. 23, No. 2: pp. 361-375

Thapa, S. (1989) The Ethnic Factor in the Timing of Family Formation in Nepal. *Asia Pacific Population Journal*, Vol. 4, No. 1: pp. 3-34

UNICEF (2005). "Early Marriage; A Harmful Traditional Practice: A Statistical Exploration 2005". New York, NY: UNICEF

United Nations Children's Fund (UNICEF). (2001). Early Marriage: Child Spouses. Florence, Italy: UNICEF, Innocenti Research Center.

Yabiku, Scott T. (2005). "The Effect of Non-family Experiences on Age of Marriage in a Setting of Rapid Social Change." *Population Studies*. 59: 339-354.

Yabiku, S. (2004). Marriage Timing in Nepal: Organizational Effects and Individual Mechanisms. *Social Forces*, Vol. 83, No. 2: 559-586

Table 1. Retention and Attrition of Girls in the NLSS Sample Panel Households between NLSS I and NLSS II

	Girls Aged 5 to 9	
	N	**%**
Total Number of Unmarried Girls in NLSS I	414	100
Total Number of Girls for whom NLSS II information is available	400	96.62
Girls Remained in Household in NLSS II	289	69.81
Girls No Longer in Household in NLSS II but with information	111	26.81
Reason No Longer in Household		
Married and Moved Away	61	14.73
Migrated for School	8	1.93
Migrated for Work	1	0.24
Household Split	31	7.49
Died	9	2.17
Other Reason	1	0.24
Girls Missing/Not Followed in NLSS II (no information retained, even of absence)	14	3.38

Table 2. Table of Means of Girls' Aged 5 to 9 Years old and Household Characteristics in the Sample Panel Households of NLSS I (1995/96) (NLSS I individual weights used)

	Girls Aged 5 to 9 Years Old				
Variable	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**
Child Characteristics in NLSS I					
Age of Child	414	6.885	1.410	5	9
School Attendance	409	0.488		0	1
Household Characteristics in NLSS I Panel					
Household is Poor (per capita consumption exp < poverty line for HH size)	414	0.427		0	1
Consumption Expenditure in Quintiles					
First Quintile	414	0.254		0	1
Second Quintile	414	0.200		0	1
Third Quintile	414	0.271		0	1
Fourth Quintile	414	0.147		0	1
Fifth Quintile (Reference Category)	414	0.129		0	1
Household is Urban	414	0.042		0	1
Characteristics of Head of Household					
Age	414	44.282	13.019	18	81
Ever Attended School	411	0.358		0	1
Works in Paid Economy or Non Agriculture	405	0.366		0	1
Is Female	414	0.064		0	1
Caste/ Ethnicity					
High Caste Hindu (Brahmin/Chettri) (Reference Category)	405	0.212		0	1
Low Caste Hindu (Occupational Castes)	405	0.229		0	1
Newars	405	0.028		0	1
Tibeto Burmese of Hill Origin (Magar, Gurung, Rai)	405	0.121		0	1
Tibeto Burmese of Terai Origin	405	0.168		0	1
Other Castes	405	0.242		0	1
Household Composition (Number of Children)					
Aged 0 to 4 years	414	1.388	1.226	0	5
Aged 5 to 9 years	414	2.306	1.268	1	7
Aged 10 to 14 years	414	1.069	0.954	0	5
Aged 15 to 19 years	414	0.598	0.935	0	5
Family Structure					
Intact Nuclear	414	0.372		0	1
Intact Multigenerational Lineal	414	0.396		0	1
Reference Categories :					
Non Intact Nuclear	414	0.027		0	1
Two Generational with Parents	414	0.003		0	1
Multigenerational Collateral	414	0.089		0	1
Other	414	0.113		0	1
Region of Residence					
Mountain	414	0.052		0	1
Hill (Reference Category)	414	0.337		0	1
Terai	414	0.610		0	1

Table 3. Table of the Distribution of Unmarried Girls Aged 5 to 9 years old in NLSS I in School, Work and Marriage in NLSS II

Girls Aged 5 to 9 Years Old in NLSS I (Aged 13 to 17 years old in NLSS II)	DK Activity or Died	In School Only	Econ. Active Only	Both in School and Working	Idle or HH Work Only	Married and Moved	Total N
Frequency (N)	42	88	92	102	15	61	400
Percentage (%)	10.50%	22%	23%	25.50%	3.75%	15.25	100%

Table 4. Table of NLSS II Schooling, Work and Marriage Outcome by NLSS I Characteristics of Unmarried Girls Aged 5 to 9 years old in 1995/96

Girls Aged 5 to 9 Years Old (N=400)	NO							YES							
Household and Girl Characteristics	**DK Activity or Died**	**In School Only**	**Econ. Active Only**	**Both in School and Workin**	**Idle or HH Work Only**	**Married and Moved Away**	**N**	**DK Activity or Died**	**In School Only**	**Econ. Active Only**	**Both in School and Working**	**Idle or HH Work Only**	**Married and Moved Away**	**N**	**Pearson's Chi-Squared Test (Difference Signifcant?)**
Household was Poor in NLSS I	24	66	46	62	8	28	234	18	22	46	40	7	33	166	***
	10.26	28.21	19.66	26.5	3.42	11.97	100	10.84	13.25	27.71	24.1	4.22	19.88	100	
Household is in Lowest Consump. Quintile in NLSS I	32	77	64	87	10	38	308	10	11	28	15	5	23	92	***
	10.39	25	20.78	28.25	3.25	12.34	100	10.87	11.96	30.43	16.3	5.43	25	100	
Household is Urban	37	63	87	95	13	60	355	5	25	5	7	2	1	45	***
	10.42	17.75	24.51	26.76	3.66	16.9	100	11.11	55.56	11.11	15.56	4.44	2.22	100	
Girl was Enrolled in School in NLSS I	29	18	68	36	9	33	193	13	70	24	66	6	28	207	***
	15.03	9.33	35.23	18.65	4.66	17.1	100	6.28	33.82	11.59	31.88	2.9	13.53	100	

Frequencies and percentages provided for each category
Pearson's Chi-Squared Significance Levels: * Significant at 1%, ** Significant at the 5% and * Significant at the 10% Level**

Table 5. Multinomial Logistic Regression of NLSS II Marriage-Work-Schooling Outcome predicted by NLSS I HH Poverty Status & Characteristics for Girls Aged 5 to 9 years old in 1995/96

Relative Risk Ratios reported; Reference Category: In School Only; Robust Standard Errors (cluster= PSU)				
NLSS I Characteristics / NLSS II Outcome	**Don't Know Activity/ Died**	**Working Only**	**Both Working and in School**	**Married and Left the Household**
	Relative Risk Ratios			
Household is Poor	1.638	2.363**	1.727	3.765***
	(0.842)	(0.932)	(0.576)	(1.677)
Age of Child	0.875	1.045	0.916	2.183***
	(0.138)	(0.133)	(0.099)	(0.435)
Household is Urban	0.426	0.833	0.147***	0.085**
	(0.442)	(0.606)	(0.097)	(0.105)
Head of Household's Age	1.018	0.994	0.984	1.014
	(0.018)	(0.017)	(0.019)	(0.021)
Head of Household Ever Attend School	0.183***	0.103***	0.818	0.307**
	(0.101)	(0.049)	(0.325)	(0.157)
Head of Household Works in Paid Economy or Non Agriculture	1.260	0.449*	0.500*	0.951
	(0.591)	(0.187)	(0.199)	(0.468)
Head of Household is Female	0.642	0.371*	0.184**	0.531
	(0.499)	(0.212)	(0.128)	(0.376)
Ethnicity: Low Caste Hindu (Occupational Castes)	5.004*	8.124***	1.142	7.568***
	(4.502)	(4.854)	(0.827)	(5.569)
Ethnicity : Newars	3.954	0.629	2.350	1.572
	(4.711)	(0.664)	(2.212)	(1.805)
Ethnicity: Tibeto Burmese of Hill Origin	0.227	1.073	1.279	0.541
	(0.241)	(0.636)	(0.670)	(0.347)
Ethnicity: Tibeto-Burmese of Terai Origin	2.597	3.043	2.927	2.165
	(2.467)	(2.563)	(2.148)	(1.841)
Ethnicity : Other	0.797	2.127	1.118	1.774
	(0.730)	(1.425)	(0.614)	(1.340)
Number of Children Aged 0 to 4 years in HH	1.709**	1.065	0.914	1.247
	(0.412)	(0.217)	(0.171)	(0.415)
Number of Children Aged 5 to 9 years in HH	0.634*	0.567**	0.916	0.737
	(0.168)	(0.152)	(0.155)	(0.182)
Number of Children Aged 10 to 14 years in HH	0.688	1.031	1.124	0.797
	(0.160)	(0.252)	(0.239)	(0.237)
Number of Children Aged 15 to 19 years in HH	1.430	1.106	1.078	1.060
	(0.369)	(0.314)	(0.282)	(0.310)
Family Structure: Lives in Intact Nuclear Two Generational HH	0.287*	4.778***	2.750*	1.723
	(0.193)	(2.676)	(1.500)	(0.982)
Family Structure: Lives in Intact Multigenerational Lineal HH	0.360*	1.320	1.165	0.880
	(0.199)	(0.867)	(0.652)	(0.503)
Region: Mountain	0.343	4.805**	1.169	1.698
	(0.531)	(3.496)	(0.727)	(1.829)
Region: Terai	1.019	0.977	0.217***	1.136
	(0.659)	(0.635)	(0.106)	(0.708)
Constant	2.975	1.205	6.956	0.001***
	(4.777)	(1.826)	(8.946)	(0.002)
Observations	382	382	382	382
Log-Likelihood	-459.6	-459.6	-459.6	-459.6
DF	80	80	80	80
Chi-Squared	5585	5585	5585	5585

Robust Standard Errors in Parentheses (clustered by Primary Sampling Unit in NLSS I)
*** p<0.01, ** p<0.05, * p<0.1

Table 6. Multinomial Logistic Regression of NLSS II Marriage-Work-Schooling Outcome predicted by NLSS I Consumption Quintiles & Characteristics for Girls Aged 5 to 9 years old in 1995/96

Relative Risk Ratios reported; Reference Category: In School Only; Robust Standard Errors (cluster= PSU)				
NLSS I Characteristics / NLSS II Outcome	**Don't Know Activity/ Died**	**Working Only**	**Both Working and in School**	**Married and Left the Household**
		Relative Risk Ratios		
HH Consumption in First Quintile	2.753	4.101**	1.418	4.238**
	(2.119)	(2.897)	(0.886)	(2.930)
HH Consumption in Second Quintile	2.784	6.621**	2.320	5.442**
	(2.299)	(4.974)	(1.529)	(4.595)
HH Consumption in Third Quintile	2.516	1.601	1.048	1.336
	(1.714)	(1.046)	(0.485)	(0.735)
HH Consumption in Fourth Quintile	1.627	1.328	0.387	0.716
	(1.137)	(0.758)	(0.241)	(0.492)
Age of Child	0.871	1.065	0.961	2.218***
	(0.139)	(0.138)	(0.108)	(0.435)
Household is Urban	0.532	1.035	0.124***	0.091**
	(0.602)	(0.745)	(0.083)	(0.110)
Head of Household's Age	1.017	0.991	0.982	1.013
	(0.019)	(0.017)	(0.019)	(0.021)
Head of Household Ever Attend School	0.192***	0.112***	0.802	0.332**
	(0.110)	(0.055)	(0.323)	(0.169)
Head of Household Works in Paid Economy or Non Agriculture	1.341	0.426**	0.447*	0.895
	(0.633)	(0.180)	(0.187)	(0.460)
Head of Household is Female	0.602	0.330*	0.159***	0.488
	(0.499)	(0.187)	(0.110)	(0.351)
Ethnicity: Low Caste Hindu (Occupational Castes)	4.771*	8.536***	1.486	7.870***
	(4.410)	(5.299)	(1.123)	(6.066)
Ethnicity : Newars	4.019	0.594	2.893	1.625
	(5.041)	(0.588)	(2.873)	(1.835)
Ethnicity: Tibeto Burmese of Hill Origin	0.216	1.078	1.337	0.531
	(0.232)	(0.649)	(0.667)	(0.354)
Ethnicity: Tibeto-Burmese of Terai Origin	2.054	2.585	2.970	1.818
	(2.158)	(2.344)	(2.252)	(1.724)
Ethnicity : Other	0.652	2.173	1.224	1.721
	(0.623)	(1.576)	(0.675)	(1.345)
Number of Children Aged 0 to 4 years in HH	1.705**	0.989	0.889	1.202
	(0.416)	(0.194)	(0.164)	(0.385)
Number of Children Aged 5 to 9 years in HH	0.604*	0.553**	0.871	0.707
	(0.166)	(0.144)	(0.148)	(0.169)
Number of Children Aged 10 to 14 years in HH	0.697	1.032	1.188	0.803
	(0.163)	(0.252)	(0.244)	(0.246)
Number of Children Aged 15 to 19 years in HH	1.442	1.035	1.013	1.008
	(0.385)	(0.295)	(0.269)	(0.296)
Family Structure: Lives in Intact Nuclear Two Generational HH	0.275*	5.196***	2.867*	1.827
	(0.185)	(2.923)	(1.624)	(1.060)
Family Structure: Lives in Intact Multigenerational Lineal HH	0.373*	1.506	1.132	0.919
	(0.211)	(0.966)	(0.633)	(0.528)
Region: Mountain	0.310	5.333**	1.157	1.947
	(0.488)	(3.645)	(0.683)	(2.074)
Region: Terai	0.940	0.822	0.189***	1.000
	(0.645)	(0.546)	(0.095)	(0.638)
Constant	2.215	0.895	7.523	0.001***
	(3.921)	(1.338)	(9.361)	(0.002)
Observations	382	382	382	382
Log-Likelihood	-452.8	-452.8	-452.8	-452.8
DF	82	82	82	82
Chi-Squared	e(chi2)	e(chi2)	e(chi2)	e(chi2)

Robust Standard Errors in Parentheses (clustered by Primary Sampling Unit in NLSS I)
*** p<0.01, ** p<0.05, * p<0.1