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Cost of Inaction

Child and Adolescent Marriage in Nepal

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Nepal Country Office

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Executive Summary

Nepal's transitioning population pattern has produced favourable demographic conditions characterized by declining dependency ratios and expanding working-age population. This demographic environment represents a window of opportunity for Nepal's long-term path of economic growth. However, acceptable levels of investments and a mix of sound policies are required to improve productivity and upward mobility in the production chain for Nepal to reach its full potential.

With a prevalence of child and adolescent marriage at 28.8 percent in Nepal, this paper examines and estimates the national economic loss in terms of potential cash flow from the labour market that could have been generated had girls delayed their marriage until the age of 20. The model developed for this purpose traces a cohort of married girls age 15-19 over the next 36 years. Under a set of conservative assumptions, the cost of child marriage considered only from the labour market perspective is estimated to amount to 74,498.53 million Nepalese rupees (NRs). This represents 3.87 percent of Gross Domestic Product (GDP) in 2014.

It is important to understand how this number can be interpreted. It does not mean that if Nepal's girls delay their marriage until age 20 the country will immediately gain 3.87 percent of GDP. However it does suggest that if girls delay their marriage until 20 years, the possible cash flow over their productive years will be on average higher than seen in the current situation. Discounting the differential between these cash flows amounts to 3.87 percent of GDP, a very large number in economic terms.

As education contributes to increasing the productivity of the labour force, child marriage - a significant constraining factor to education outcomes - has substantial policy implications. Consequently the study focused on educational deprivation and consequent loss in earnings as a result of child and adolescent marriage. However, child and adolescent marriage has other important costs in the areas of health, mortality, psychological deprivation among others. This fact, coupled with the conservative assumptions used in the study, give grounds that the study's estimate only represents a lower bound to the possible far higher cost of child and adolescent marriage in Nepal.

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List of Acronyms

GDP	Gross Domestic Product
ICRW	International Centre for Research on Women
IMP	International Monetary Fund
NMICS	Nepal Multiple Indicator Cluster Survey
NAR	Net Attendance Ratio
NDHS	National Demographic and Health Survey
NRs	Nepalese rupees
TFR	Total Fertility Rate
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund

1. Introduction

Defined as formal marriage or informal union before the age of 18 (UNICEF, 2012), child marriage affects millions of people around the world. United Nations Population Fund (UNFPA) estimates that one girl out of three in developing countries (except China) will most likely be married before the age of 18 and one out of nine will be married before the age of 15 (UNFPA, 2012). Each day as many as 39,000 girls under the age of 18 are married (UNFPA, 2012).

Girls who are married at adolescence encounter dismal socio-economic and physical consequences (Field, 2004). Besides the likelihood of loss in schooling, marriage before the age of 20 has negative implications on health and psychological wellbeing (UNFPA, 2012). It constitutes a threat to a girl's life, as complications of pregnancy or childbearing represent the leading cause of mortality for girls aged 15-19 (UNFPA, 2007). In addition, infants born to adolescent mothers are more likely to encounter health complications or to die than infants born to mothers older than 20.

Nepal is ranked as seventh among the top 20 countries identified as hotspots for child marriage (Jain & Kurz, 2007). The prevalence of child and adolescent marriage in Nepal, albeit on a declining path, is still high and stood at 28.8 percent in 2011 (Government of Nepal, 2012).

The literature on the effects of child and adolescent marriage is generally consistent; these include poverty, illiteracy and lack of education, gender inequality with violence and abuse, reproductive health issues, and psychological trauma at the individual and family level (Plan, 2011; UNFPA, 2012; Hervish, 2011; Field, 2004, ICRW, 2006). At the national level, child marriage is recognised as a barrier to economic development due to loss in productivity, economic hardship, and health service costs (Jain & Kurz, 2007; UNFPA, 2012).

There is a high correlation between poverty and child and adolescent marriage. Poverty is considered to be both the cause and consequence of child marriage (Dahl, 2010; Maharjan et al., 2012). Prolonged lack of income and poverty can have a significant impact on household decision-making, where a girl child is viewed more as a liability than an asset. In global terms, child marriage is more common among the poorest countries, and within those countries again it is most prevalent among the poorest families (ICRW, 2006). When an underage girl is married and/or becomes pregnant, there is a high probability that she will drop out of school, limiting her employment opportunities and consequently diminishing her potential lifetime earnings. Thus the practice perpetuates an intergenerational transmission and cycle of poverty and constrains upward social mobility. A study conducted in Bangladesh found that with each additional year that marriage is delayed, girls receive an additional 0.22 year of schooling and 5.6 percent higher rate of literacy (Field, 2004). In many communities, schooling and marriage do not go together as a married girl is expected to assume a wife's role to stay home, perform household chores and care of young children.

Literature on child marriage is largely focused on prevalence, geographic distribution, causes, consequences and possible solutions. Yet there is a dearth of research that depicts the costs of child marriage, especially at the national level. This paper presents the financial loss Nepal is incurring in terms of the potential cash flow that could have resulted were female marriage delayed until girls reach the age of 20.

2. Socio-Economic Situation in Nepal

2.1 Demographic and Economic Profile

The most recent population census of 2011 estimated Nepal's population at 26.5 million. Between 2005 and 2010, Nepal's population is estimated to have increased at an average annual rate of 1.2 percent (UNDESA, 2013). The pattern of natural population growth (excluding migration) can be explained by two underlying factors: fertility rates and mortality rates. Since 1980, Total Fertility Rate (TFR) decreased by almost half, from 5.65 children per woman in early 1980 to 2.99 children per woman in 2005-2010 (UNDESA, 2013). The second factor, the mortality rate, has shown significant improvement over the same period. The infant mortality rate declined from a rate of 124.4 infant deaths per 1,000 live births in early 1980s to 44.7 infant deaths per 1,000 live births in 2005-2010. The crude death rate was estimated at 7.3 deaths per 1,000 live in 2005-2010, more than half the rate of 16.1 deaths per 1000 in the early 1980s. Life expectancy at birth, therefore, increased steadily and reached 65.9 years in 2005-2010, compared to 49.4 years in 1980-1985 (UNDESA, 2013). As a result of declining fertility rates, improved mortality and increased life expectancy, the population structure has changed notably over the past few decades. The median age in Nepal increased from 19.2 in 1980 to 21.3 in 2010 (UNDESA, 2013).

Figure 1: Population pyramid, 1980 - 2050



Source: Own calculation based on data from on UNDESA, 2013

The broadening midsection of Nepal's population pyramid presents a favourable demographic environment in which the working age population has expanded at a higher rate than that of the general population, which is widely referred to as a *demographic window of opportunity*. Nepal must overcome two main challenges to translate this favourable demographic window of opportunity into a sustained long-term path of economic growth. These challenges include:

1. Create adequate jobs to absorb the rapid entry into the labour market by new participants.
2. Productivity improvement.

Data from the labour market in 2008 suggests that labour force participation rate is relatively high (87.5 and 80.1 percent for male and female population age 15 or more respectively). Unemployment is also contained at a very low level (2.2 and 2 percent for male and female labour force participants respectively). However, the labour underutilisation rate is significantly high and stood at 36 percent for male and 20.8 percent for female labour force participants (Government of Nepal, 2009). Coupled with an aging infrastructure, this translates into constrained productivity and

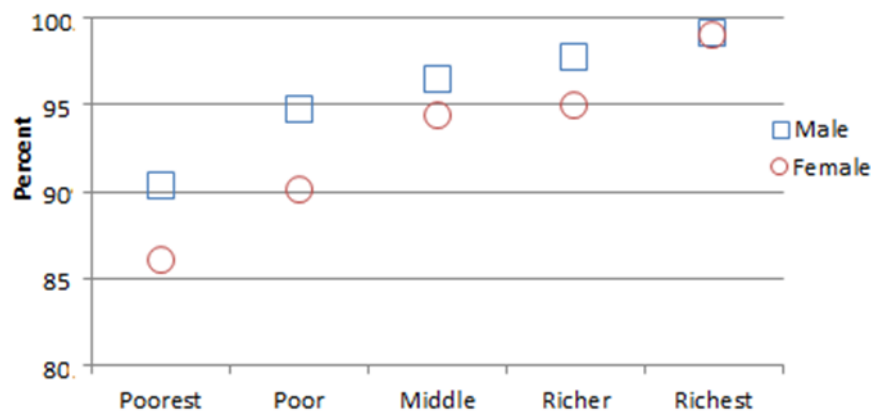
therefore creates an impediment for the local economy to reach its potential in terms of economic growth. From 2011 and 2013, Nepal’s economy grew at an estimated average annual rate of 3.97 percent in real terms, and is projected to grow at an average annual rate of 4.31 over the period between 2014 and 2018(IMF, 2013). This is significantly below what Nepal can reach if it utilises its demographic window of opportunity. The issue of education therefore needs further investigation as it has a strong potential for contributing to environments of improved productivity as well as tackling intergenerational transmissions of poverty.

2.2 Access to Education and Child Marriage

Access to education, defined as all persons between 5 and 14 who have ever attended school or college, has improved significantly over the past decade in Nepal. The flagship report of the Department of Education 2012/13 shows that Net Enrolment Rate (NER) at Grade One has reached 96 percent and the Gender Parity Index stands at 0.99 (UNDP, 2013). The National Demographic and Health Survey(NDHS) data shows that Net Attendance Ratio (NAR) at the primary level stood at 89.3 percent (92.2 male, 86.3 female) in 2011 (Government of Nepal, 2012). However, disaggregation of data on education deprivation by wealth quintile, gender, household characteristics, and place of residence suggests the existence of significant disparities and inequalities. Education deprivation in Nepal is strongly correlated with the wealth of a household; this is despite significant improvements in education enrolments over the past decades among children from the lowest quintile.

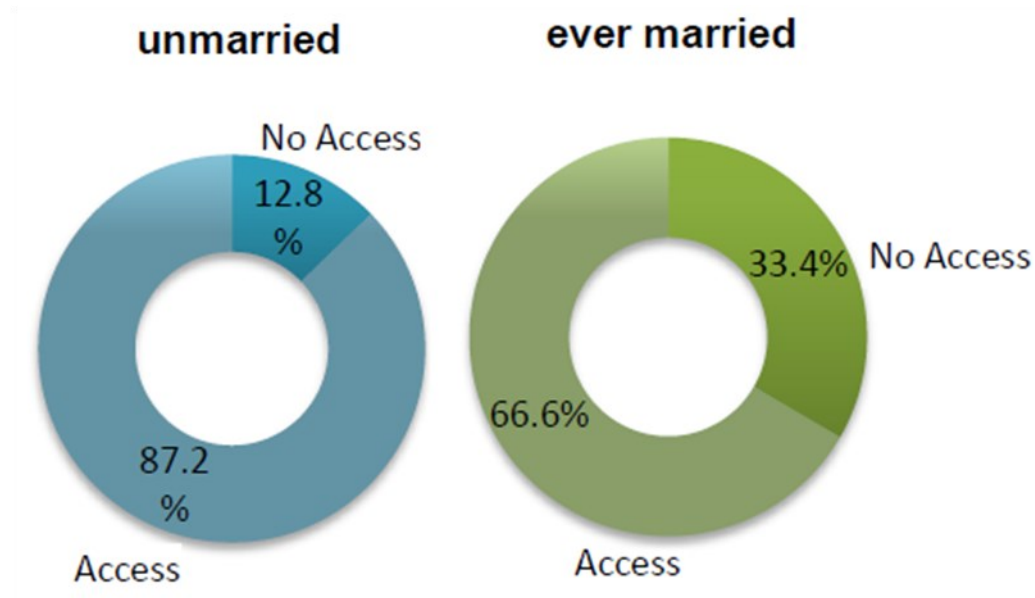
Major reasons why students leave school –poor academic progress, house chores and child marriage - remain constant across generations (Scheuermann, 2013). Getting married before the age of 20 directly interferes with girls’ schooling. The Nepal Multi Indicator Cluster Survey (NMICS) data showed that getting married at an age below 20 years significantly decreases girls’ opportunities in terms of access to education, with more than three out of 10 girls who have married below 20 years having had no access to education (Scheuermann, 2013).

Figure 2: Access to education by sex and wealth quintile, Ages 5-14, %, 2011



Source: Scheuermann, 2013, based on NDHS 2011

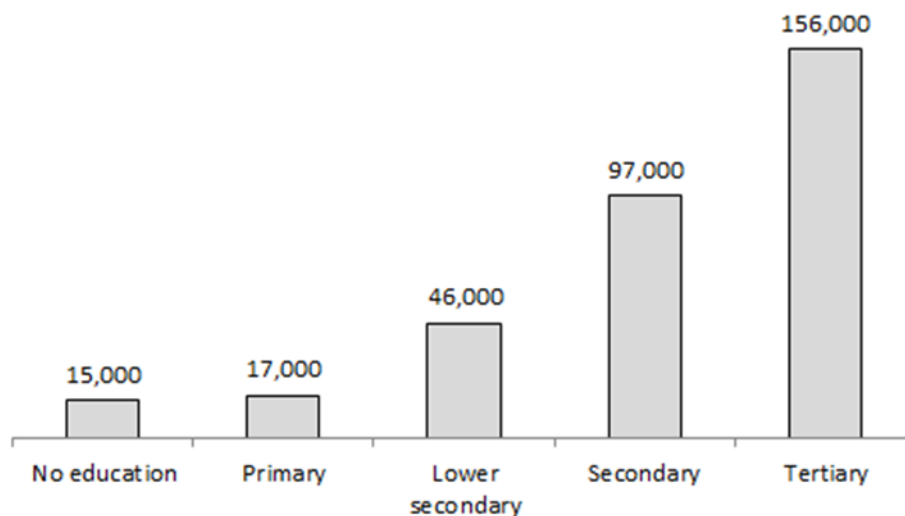
Figure 3: Differences in access to education due to girls (aged 15-19) being married, 2010



Source: Scheuermann, 2013, based on NMICS 2010

The high prevalence of education deprivation among girls who married below 20 years has a poverty implication. Evidence from the labour market is clear in the case of Nepal where wages for female labour force participants increase progressively with better educational attainment. For instance, an employed female with a tertiary education enjoys a wage that is more than 10 times that for a female worker educationally deprived (World Bank, 2013).

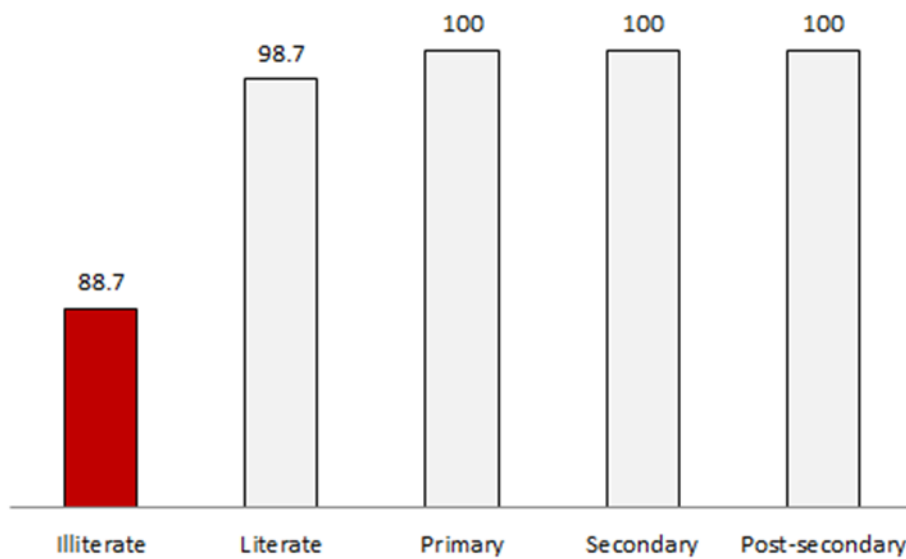
Figure 4: Nominal average yearly wage for employed females by education level, NRs, 2010



Source: World Bank, 2013, based on NLSS 2010/11

The issue of education also has strong potential for tackling the intergenerational transmission of poverty. While the above discussion shows that girls married before the age of 20 are at significantly higher risk of experiencing education deprivation and the subsequent lower income levels, illiterate mothers are more likely to have a negative impact on the education of their children, which perpetuates the cycle of education deprivation and impedes the upward intergenerational social mobility.

Figure 5: Access to education of children (ages 5-14) by mother's education, %, 2010/11

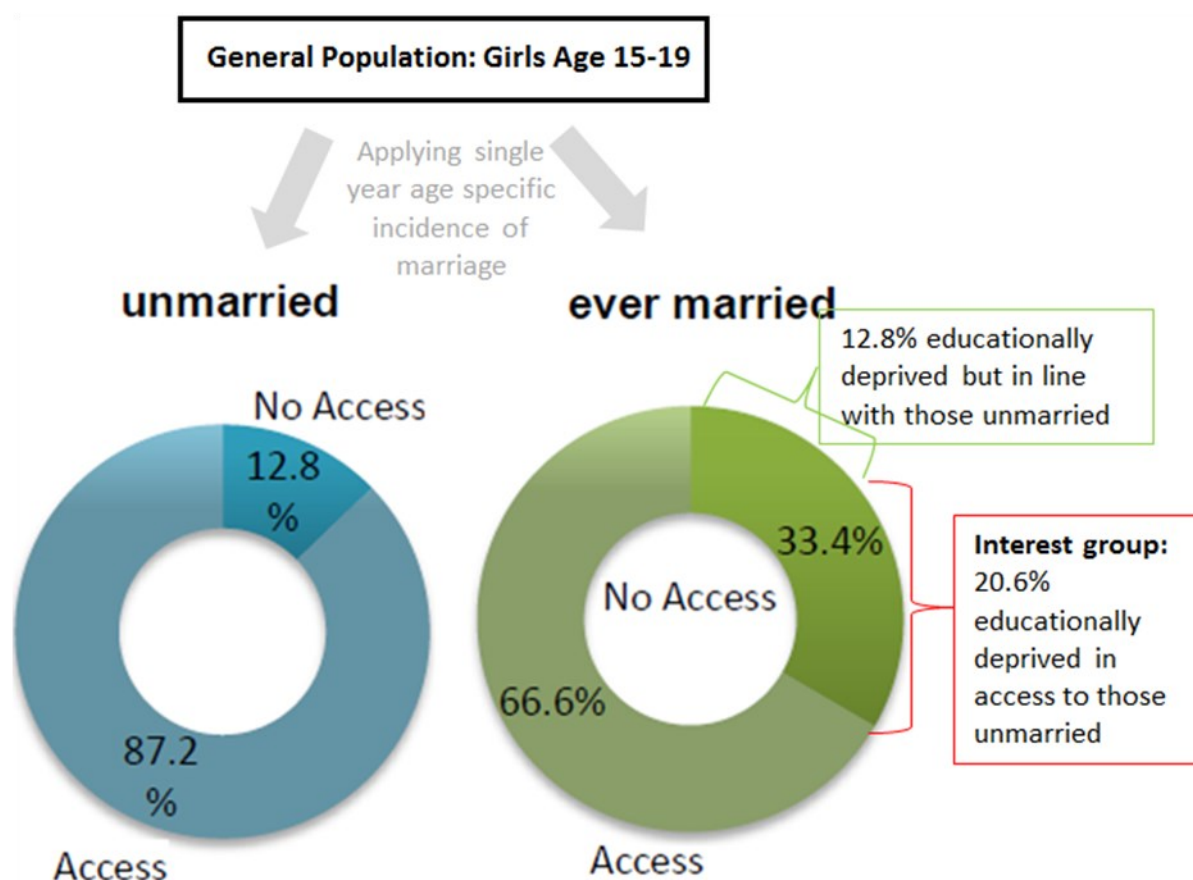


Source: Scheuermann, 2013, based on NDHS 2011

3. Costing Female Marriage Before the Age of 20

This projection model is built on a logical approach that starts with a cohort of 5-years age groups of girls aged 15-19. Using the most recent data of the NDHS 2011 on the incidence of child marriage by single age, this cohort is then decomposed into two parts: married and unmarried. The two groups are compared in terms of access to education using the most recent data shown earlier in Figure 3. The study further decomposed the educationally deprived married group into two parts: first, the educationally deprived group in line with those comparable unmarried girls. The second group is the educationally deprived group in excess of the pattern among those unmarried girls. The latter group is of the study's interest for further treatment.

Figure 6: Decomposition of educationally deprived girls among married girls aged 15-19



Now using this decomposition, the following table gives a summary of the three groups (females aged 15-19, married girls aged 15-19, and the interest group: excess of educationally deprived married girls over the unmarried girls aged 15-19)

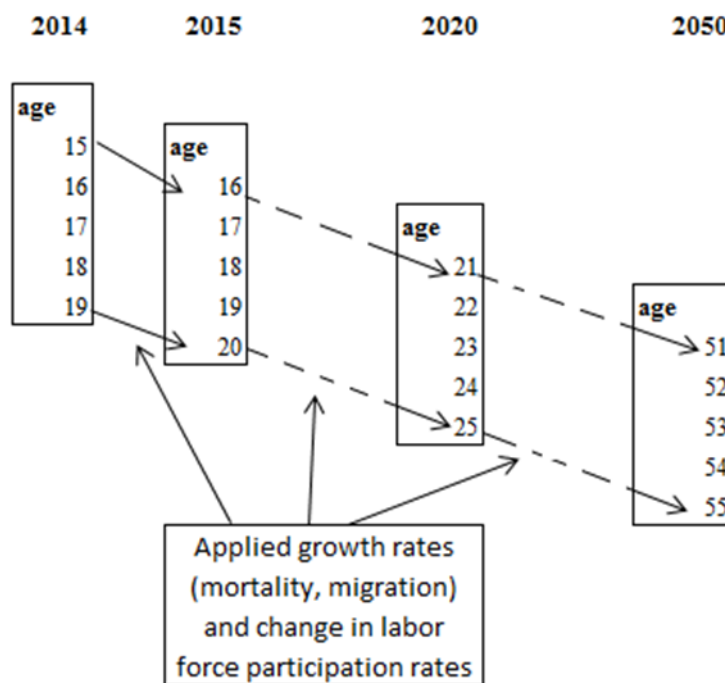
Table 1: Female population aged 15-19, married girls aged 15-19, and excess of educationally deprived married girls over the unmarried girls aged 15-19, 2014

Age	Female population	Married girls	Excess of educationally deprived married girls over the unmarried girls age 15-19	
			Number	% of female pop (same age)
15	326,225	34,254	7,193	2.21
16	321,598	61,160	12,844	3.99
17	316,390	87,119	18,295	5.78
18	310,683	112,010	23,522	7.57
19	304,250	161,520	33,919	11.15

Source: Own calculation passed on data from UNDESA, 2013; NDHS, 2011; NMICS, 2010.

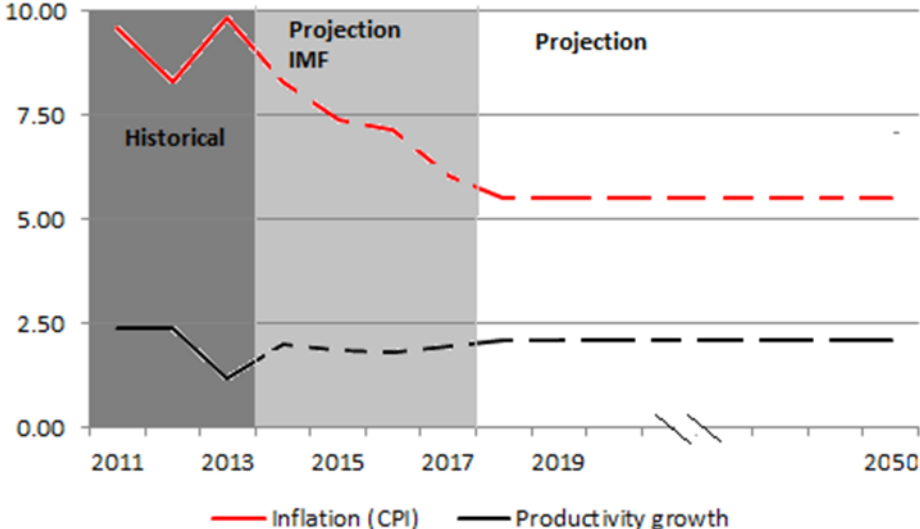
This new group of interest (excess of educationally deprived married girls over the unmarried girls aged 15-19) is traced for 36 years (from the year 2014 to the year 2050). The projection exercise follows the cohort method (single year and single age) employed by the projection made available by UNDESA Population Division under the medium-variant population projection. Applying age-specific labour force participation rates obtained from the labour force survey of 2008 on the projection of the cohort over the horizon produces a projection for the labour force participants among the group of interest over their career until the year 2050. The following diagram illustrates the method applied throughout the projection period.

Figure 7: Projection of the labour force participation among the group of interest, 2014-2050



For the macroeconomic model, the study uses the latest IMF’s medium-term forecast for real GDP growth rate and inflation rate, which covers up until 2018. The productivity growth for this period is calculated as the premium of growth of real GDP over the growth of the employed population. From 2018 onward, the productivity and inflation rates are fixed at that of the 2018 rate.

Figure 8: Macroeconomic model’s assumptions - Productivity Growth Rate and CPI Rate, %



Source: Own calculation based on data from IMF, 2013

Education deprivation, as explained earlier, reduces the future flow of potential income (please see Figure 4). The wage differential between the average wage for those females who never attended school and the weighted average for those females who ever attended school (excluding females with post-secondary education) is established for the base year of 2014. For the projection horizon, real wages are projected to grow with the rate of productivity. Including the inflation rate, nominal wages and nominal wage differentials are then calculated for the whole projection period.

Starting from age 20 and above, multiplying the yearly wage differential by the corresponding cohort of labour force participants of our interest group projected earlier produces the cash flow that could have resulted if married girls aged 15-19 in 2014 delayed their marriage until 20 years. The following table shows this cash flow:

Table 2: Future cash flow that could have been generated if married girls aged 15-19 in 2014 delayed their marriage until 20 years, million NRs

Age in 2014	2014	2015	2016	2017	2018	2019	2020	2025	2035	2049	2050
15	0	0	0	0	0	264	287	449	976	2,585	2,776
16	0	0	0	0	474	515	554	863	1,873	4,956	5,323
17	0	0	0	679	737	793	851	1,323	2,875	7,597	8,158
18	0	0	876	953	1,025	1,100	1,180	1,831	3,986	10,522	11,300
19	0	1,159	1,264	1,375	1,480	1,588	1,852	2,800	5,756	15,170	10,426
Total	-	1,159	2,141	3,006	3,716	4,260	4,725	7,266	15,466	40,829	37,983

The study uses a conservative social discounted rate of 10 percent to bring back the future flow in today's (2014) present value. Discounting the series of cash flow showed in Table 2 at 10 percent, the sum up of all values brings a total amount of 74,498.53 million NRs, which represent 3.87 percentage point of GDP in 2014.

It is important to understand how this number can be interpreted. It does not mean that if Nepal's girls delay their marriage until the age of 20 the country will immediately gain 3.87 percent of GDP. It only points out that if girls delay their marriage until the age of 20, the possible cash flow over their productive years will be on average higher than it is in the current situation. Discounting the differential between these cash flows amounts to 3.87 percent of GDP. In any case, this is a very significant number.

While the study focused on educational deprivation and consequent loss in earnings as a result of child and adolescent marriage, child and adolescent marriage has other important costs in the areas of health, mortality and psychological deprivation among others. This fact, coupled with the conservative assumptions used in the model, give grounds that the estimate above only represents a lower bound to the possible much higher costs of child and adolescent marriage in Nepal.

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