AGE STRUCTURAL IMPACT OF ADOLESCENT AND YOUTH ON FERTILITY TRANSITION IN NEPAL

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Nepal is in unique period of demographic situation. The age structure of population is gradually shifting upwards producing a historical large proportion of young population. Given the early age at marriage and childbearing, this population may continue to dominate fertility transition process. Interaction between improvement in the characteristics of this population and recently started declining fertility is expected to push fertility transition at a faster rate until mid of this century before entering to the lowest level marginal decline or stagnation. The young 1population itself are in social, economic, cultural and demographic transition which is sandwiched with generation gap. Demographic analysis should factor their needs and interests to project the future fertility discourse.

Keywords: Age structure, adolescent, youth, fertility and transition.

BACKGROUND

As of 2011 National Census adolescent (10-19 years) and youth (15-24 years) comprise one-third of the total population (CBS, 2012)in Nepal, probably the highest proportion before it begins to decline in the succeeding years as in the global demographics (United Nations, 2012). It hada steady growth by around one percent than 2001, two percent than 1991, three percent than 1981 and four percent than 1971(CBS, 2002). The shift in age-structure is result of an interaction between fertility and mortality patterns. This interaction produces multiple implications in future demographic dynamics particularly in fertility characteristics.Fertility and age structure have cause and effect relationship. Changes in fertility rates bring structural changes in the age structure of population (Weeks, 2008) which further impacts on the fertility trend.

Objective, methods and materials

This article basically intends to analyze the age structural impact adolescent and youth in fertility transition in Nepal. It will mainly highlight the shift in age-structure of population and its consequent effect on fertility behaviour drawing data from United Nations, Department of Economic and Social Affairs, Population Division 2013, Nepal Population Census 2011 and Nepal Demographic and Health Survey 2011. This paper uses structural adjustment framework to identify the impact of age structural change in fertility of Nepal.
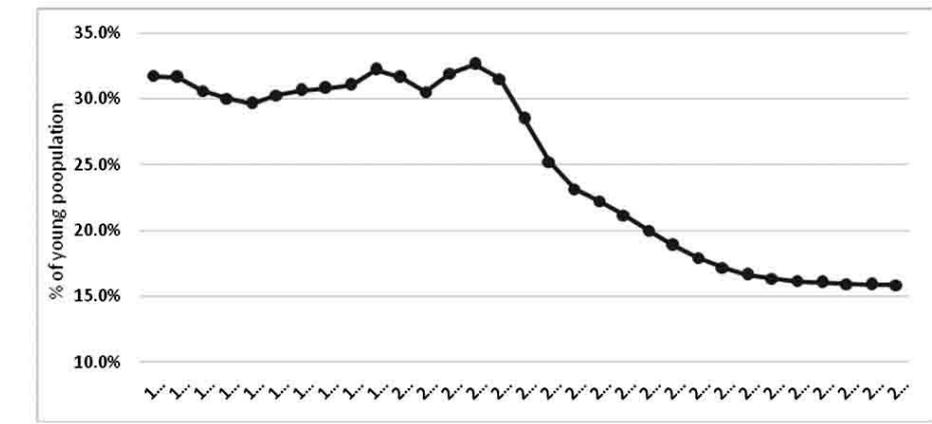
Changing demographic structure

Nepal is experiencing structural change in age composition of population as elsewhere.Change in structure of young population has been of particular interest having multiple consequences. Proportion of young population remained roughly constant above 30 percent of total population until 2015 throughout the history. The steady decline is projected from 2020 responding to the decline in fertility and changing age structure of population. This decline may be rapid before being stable around 15 percent after 2070 (Figure 1). The high proportion of young population is

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generally the result of high fertility and low life expectancy in the past. The consequent decline in the size represents the fertility transition occurring in the population thereby producing a new demographic structure.
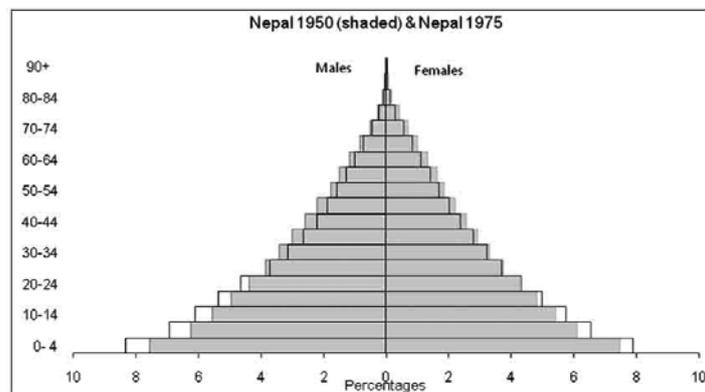
Figure 1: Proportion of young population (10-24 years), 1950-2100, Nepal

Source: Calculated from United Nations, Department of Economic and Social Affairs, Population Division (2013).

Changes in age structure of young population are not independent to entire population structure. It is explains changes in fertility and mortality pattern. Nepal is graduating from high fertility to low fertility and corresponding mortality pattern. In 1950 Nepal's population was predominantly young with high fertility (crude birth rate 43 per 1,000 population) and high mortality (crude death rate 26 per 1,000 population). This structure remained constant until mid-1970s before fertility started declining. By them mortality was already declining. This gap produced a large population at the bottom (Figure 2).

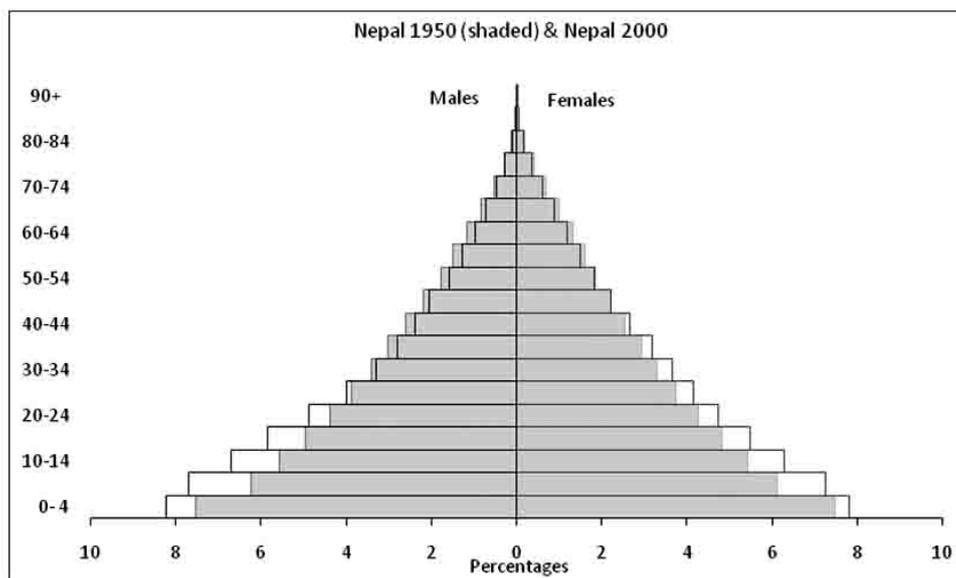Figure 2: Age-sex structure of population, 1950 and 1975, Nepal

Source: Same as Figure 1.

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There is only marginal difference in the age structure of population during the period of 1950-1975 but a noticeable increase in population below 30 shows improvement child survival and considerably high fertility. By then, the population below 30 was at the position to have age structural effect in fertility in consequent years which would have been observed until next point of inflexion. The year 1975 is considered as the first point of inflexion as fertility began to decline thereafter.

Fertility impact of age structure may appear for the longer period of time. Population with potential large youth bulge may predict higher future fertility(Daumerie & Madsen, 2010) as shown in Figure 3. The 'youthquake'(Guillebaud, 2007)as a result of second stage of demographic transition after 1970s continued to produce large number of children thereby promoting the increase of young population. By 2000, the proportion of young population further increased considerably with an extended potentiality of keeping population momentum even-though age specific fertility rates decline. This composition has a specific future impact in the demographic discourse of the country.

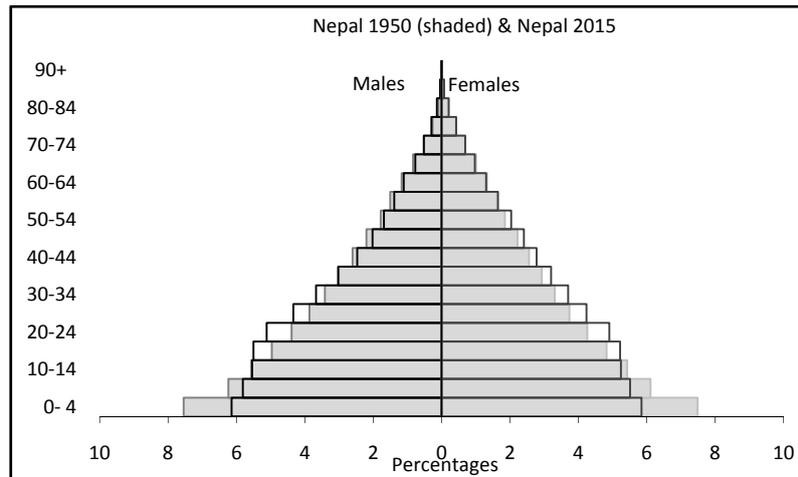Figure 3: Age-sex structure of population, 1950 and 2000, Nepal

Source: Same as Figure 1.

Nepal's demographic structure appeared in new characteristics after new millennium. As a result of declining fertility from late 1970s, proportion of population below 25 years declined considerably compared to the past (Figure 4). It was an indication of declining fertility to the possible lower level of the time. The structural displacement of fertility to the some specific age groups changed pattern of age-specific fertility. Figure 4 compares age-sex structure of population between 1950 and 2015. It shows considerable decline in child population while a marginal increase in old-age population. This period is characterized with a dominant young population throughout the history. Although fertility declines, because of large youth bulge, effect of population momentum may continue for several years before it comes into a new setting.
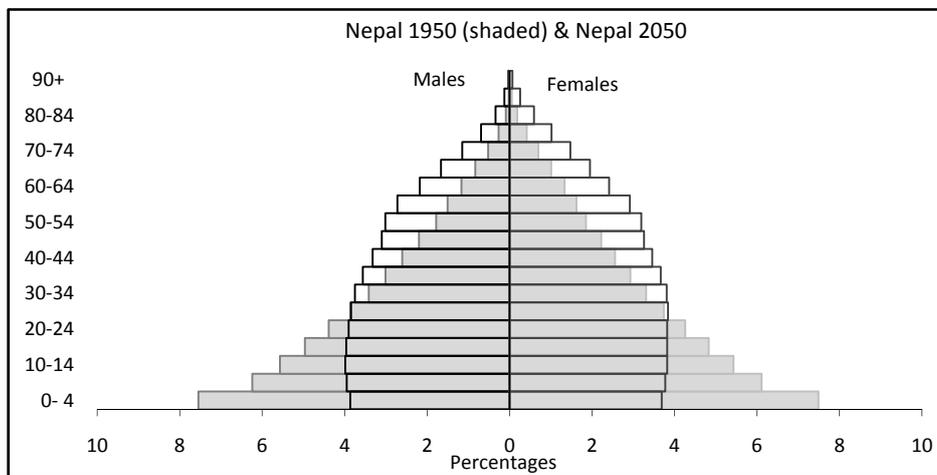
Figure 4: Age-sex structure of population, 1950 and 2015, Nepal

Source: Same as Figure 1.

Projected population with assumptions of the medium variant shows that Nepal will progress towards relatively stable population structure by 2050. It is projected to have unchanged fertility and mortality rates. It would produce a completely different demographic structure than a century back. Figure 5 compares demographic structure of Nepal for a period of 100 years (1950-2050). It is notable to see how the age structure of population being changed from young dominant to higher age dominant population. Additional fact to consider is fertility behaviour of young population as of now to their generation's arrival to childbearing ages. It will determine whether demographic structure of Nepal follows as projected.

Figure 5: Age-sex structure of population, 1950 and 2050, Nepal

Source: Same as Figure 1.

Fertility decline may not be linear neither be constant. It may move in different ways. There are different interpretations of this movement. One popular proposition is of Easterlin (1961, 1966) who assumes fertility may have cyclic movement and therefore produces 'baby boom- baby bust sequence'. It implies that baby-boom generation would prefer below the average fertility while baby bust generation may have higher than average fertility. If this proportion stands 'fertility level will be positively related to the ratio of the parental generation size and the size of the younger generation in its childbearing stage. This ratio describes the age structure of a population and is frequently referred to as 'relative cohort size' '(Waldorf & Byun, 2005). Evaluating Nepal's demographic structure under this proposition, it is yet to ascertain whether Nepal's fertility will have steady decline and the current large youth cohort may not show 'relative cohort size' effect in fertility. It remains a potential area of further study in future. But a generic conclusion can be derived that it is always worth considering the movement of young population and their childbearing behaviourto analyze fertility discourse.

Marital status

Nepali cultures, social values and legal practices prefer childbearing within a marital union(Maitra, 2004). Fertility theories also confirm that age at sexual union has important implication in number of birth(Davis & Blake, 1956; Bongaarts, 1978). Nepal celebrates a remarkable improvement in age at marriage in the last few decades. In the past, marriage at an early age was almost universal and culturally motivated. Early marriage is still prevalent in many sub-groups of population in Nepal(Suvedi & Thapa, 2014). The recent improvement in age at marriage is attributed to socio-economic development, particularly in women's access to education, employment and other social factors(Pokharel, Lamichhane, & Adhikari, 2012).

In early 1970s, around a quarter male aged 15-19 were married whereas the corresponding proportion for females was as high as 60 percent. As the age progressed to 20-24, proportion of currently married males increased by around two and half folds while the corresponding ratio for females was only one and half. The proportion of married male at the age of 15-19 only marginally declined in 1980s before recording a rapid decline in 1990s, 2000s and 2010s. However, the decline was marginal for the age group 20-24. During the period of 1971 to 2011, males observed a decline of 74 percent and 32 in the proportion of currently married for age group 15-19 and 20-24 respectively whereas the corresponding decline for females was only 52 percent and 16 percent respectively (Table 1).

Table 1: Proportion of currently married adolescent and youth, 1991-2011, Nepal

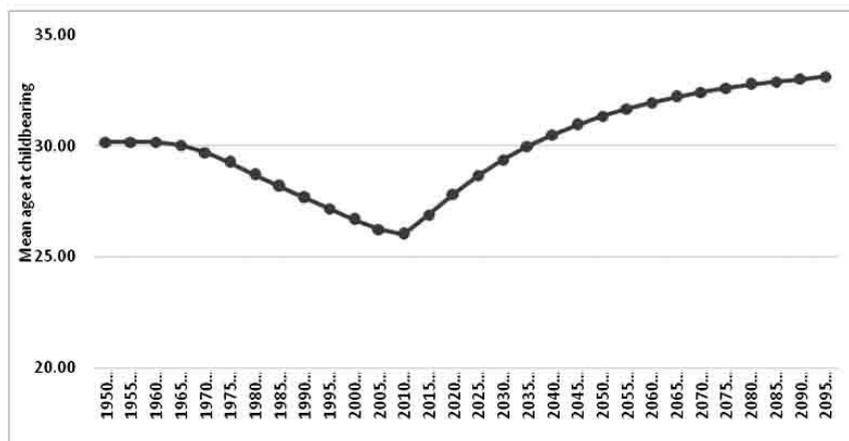| Year	15-19		20-24	
	Male	Female	Male	Female
1971	26.6	60.2	65.6	91.1
1981	25.1	50.0	57.8	85.9
1991	19.7	46.1	60.7	86.0
2001	11.8	33.4	49.0	78.5
2011	6.8	28.7	44.7	76.6

Source: United Nations,2013.

There are some important phenomena to observe in changing marital status. Age at marriage of young male has been displaced considerably to higher ages, probably beyond mid 20s whereas yet females marry at early ages(Suvedi & Thapa, 2014). Although due to several socio-economic

factors age at marriage has been improved, as Nepal observes universal marriage values, it cannot displace for indefinite period. Males have postponed age at marriage considerably but still a three-fourth of females marry before 25 years.There is a general practice that Nepali society prefers a gap in age between couples, elder male and younger female. This is one important reason to maintain gap between age at marriage for males and females. Next possible reason is Nepali society perceives daughter as liability, although gender roles and values are changed these days(Cameron, 1995; DFID,& World Bank, 2006), and want to release by sending them to bridegroom after marriage. This tendency also promotes early marriage for girls. This indicates, despite improvement, marriage is still a young phenomenon in Nepal.There is only marginal improvement in singulate mean at marriage (SMAM) in the period of 40 years. The SMAM was 21.1 years in 1971 for males which reached to 23.7 years in 2011 with a difference of 2.6 years in four decades while corresponding figures for females were 17.5 years and 19.9 years respectively with a difference of 2.4 years(United Nations, 2013). Young people getting married before than 20 years cite reasons as parent's wish, own desire and traditional practices (MoHP, 2012). But to note that the changing marriage practices indicate Nepal would be able to experience a new discourse in fertility impact of marital characteristics.

Another phenomenon to highlight, Nepal observes very small gap between age at marriage and age at first birth. A large majority of couples begin childbearing within a couple of years of marriage. Having median age at 20.2 years, almost 60 percent women aged 20-24 years have first birth within this age interval (MoHP, New ERA,& IFC International Inc., 2012). It is only around 16 percent less than the proportion of currently married female. Nepal observed a decline in mean age at childbearing until mid-2010s. It could be due to the reduction in birth rates of higher age groups. Childbearing practices is being concentrated to the 20-30 age interval(Pokharel, 2013) which could possibly reduce mean age at childbearng.In the second stage of fertility transition, there could be displacement effect as the fertility in the young age group, particularly 15-24 age group, would considerably reduce. This effect will tend to displace mean age at childbearing to the higher ages. This movement indicates graduation in fertility transitionwhich requires reduction in adolescent and youth fertility(United Nations, 2009).

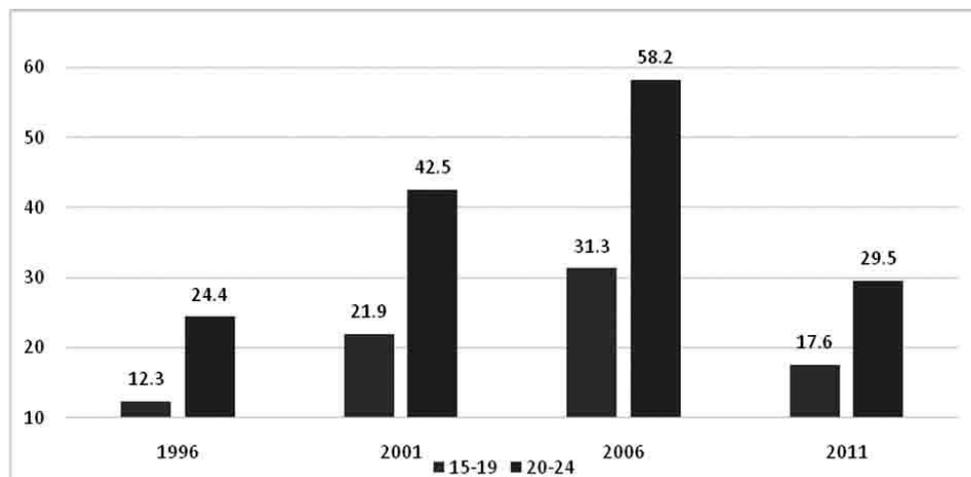Figure 6: Mean age at childbearing, 1950-2100, Nepal

Source: Same as Figure 1.

In a country like Nepal, where childbearing, in general, is not accepted beyond wedlock, analysts cannot ignore the marital status in fertility analysis. Marital behaviours are subjected to social, cultural and religious practices. Evidences show appreciating changes in marriage practices where the young people are practicing autonomy to take decisions on choices of marriage. This is gradually displacing at marriage and childbearing to higher ages.

Contraceptive prevalence

Use of modern contraceptive in Nepal has a history of around half a century. Nepal officially launched family planning program in 1959 through non-government effort which in 1969 was led by the government through 'Family Planning and Maternal and Child Health Project'. Since then Nepal has huge investment in family planning through multi-sector efforts. The contraceptive prevalence rate for modern method was as low as 3 in 1976 which reached to 29 in 1996 (Pradhan, Aryal, Regmi, Ban, & Govindasamy, 1997), an increase of 26 points in two decades. It further reached to 44 in 2006 (MoHP, New ERA, & Macro International Inc, 2007)before being stagnant thereafter. Reasons cited for stagnation could be legalization of abortion, out migration of reproductive age population for employment, increasing spousal separation(MoHP, New ERA,& IFC International Inc., 2012) for voluntary and involuntary causes among others.

Figure 7: Percentage of currently married young women using any method (modern/traditional)of contraceptives, 1996-2011,Nepal

my (1997); MoH, New ERA,& ORC Macro (2002); MoHP, New ERA, & Macro International Inc. (2007); MoHP, New ERA,& IFC International Inc. (2012).

It is interesting to note irregular trend of contraceptive prevalence rate among young population in Nepal. The linear increase until 2006 dramatically declined in the subsequent year 2011. Most studies cite generic reasons for but fail to specify why it declined to young people. It requires further analysis for precise reasons. Some assumptions could beon spousal separation, use of abortion and use of emergency contraception (Shrestha, Shrestha, & Ghimire, 2012). Important to note is seriously high unmet need for these groups. The unmet need for 15-19 years currently married women was reported to be 42 percent while the percentage was 37 for aged 20-24 (MoHP, New ERA,& IFC International Inc., 2012). This indicates for a controversy between expansions of family planning programs and stalemate in use of contraception (Pathak & Pokharel, 2012). Use of

contraceptions further declines for the first sexual intercourse and the proportion is higher for young females compared to young males (MoHP, 2012).
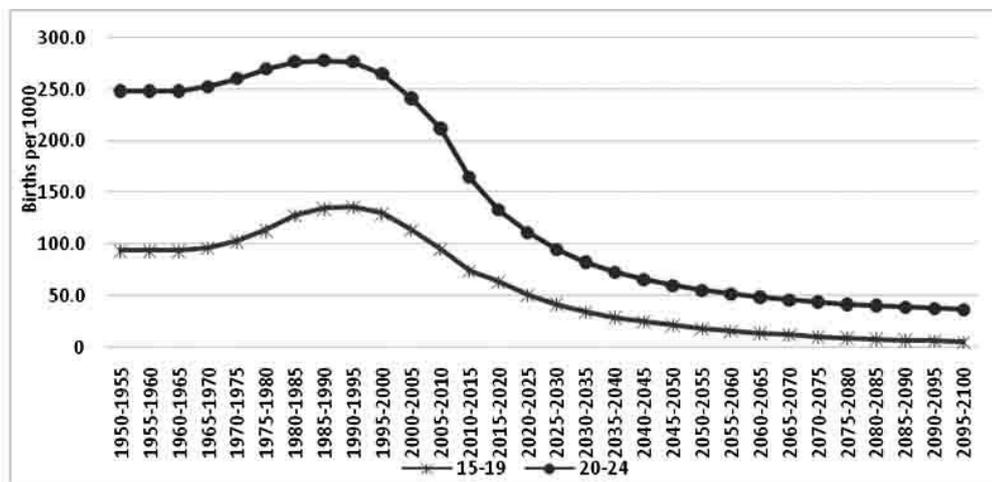
Fertility impact of family planning is an established framework in fertility analysis (Pokharel, 2012) as family planning methods are considered to have considerable affect in averting the births (Bongaarts, Maludin, & Phillips, 1990). Low contraception prevalence rate accompanied with high unmet need in young people may have impact on uninted fertility having multiple socio-economic and health consequences. In order to achieve fertility tranistion in these population, intervetions to improve use of contraception at least for delay in the first birth until they become physically, socially and economically prepared is required.

Adolescent and youth fertility levels and trends

Adolescent and youth fertility is a matter of concern for different reasons as it may have impacts on overall development (McQuestion, Silverman, & Glassman, 2012). Studies show complicated social, economic and health impacts of young-age fertility (Benton, Gordon, & Norton, 1996).Responding to the huge public spending on reducing young age fertility over a considerable period, Nepal has started showing a decline of adolescent and youth fertilityespecially after new millennium. It is expected to be rapid for next three decades before it reaches to low level.

Adolescent and youth fertility followed increasing path until 1990-1995with a highest point of age specific fertility 136 per 1000 (15-19 years) and 276 per 1000 (20-24 years). Decline rates for both age groups will be almost identical throughout the transition. With the change in context, meaning and value of marriage and birth, young age fertility will decline at a rapid rate until 2040 before it slows down. With the decline in fertility rates, the gaps between 15-19 and 20-24 climb down to the lowest level. In response to this decline, the fertility rates of higher ages, particularly, 25-29 and 30-34 years women exceed all other age groups, thereby, taking control on fertility from young population. However, it requires still a long way to travel and continuous investment in development of young people, particularly on women (Pokharel, Lamichhane, & Adhikari, 2012).

Figure 8: Age specific fertility rate of young women, 1950-2100, Nepal

Source: Same as Figure 1.

Fertility rate of young people should be analyzed relating to their corresponding age structure. The decreasing proportion of young people and declining fertility rates are not coincidence. These trends indicate progression in fertility transition that will be completed in next few decades achieving low fertility. By 2050, Nepal will arrive to the lowest fertility in young population which marginally declines or stabilizes thereafter. This period will also notice the lowest proportion of young population ever before and will continue to decline as a response to already declining fertility. This transition would be accompanied by the expansion in education(Bongaarts, 2003), employment (Pokharel, 2013)andwomen's control in fertility decisions (Pokharel, Lamichhane, & Adhikari, 2012). There some noticeable characteristics of young population that combine together to induce fertility transition.Fertility differentials based on background characteristics like education, economic status, urban-rural residence and changing values of marriage and birth (MoHP, 2012), access to communication and increasing mobility would facilitate the transition in young population. The projected age structural change as a result of declining fertility and increasing life expectancy will push Nepal to almost an inverted age structure with expanded top and shrunken base at the end of this millennium.

There are some other factors to consider. Young women prefer less than two children compared to little higher than two children by young men. The proportion varies with the background characteristics like education, economics status and urban-rural residence(MoHP, New ERA,& IFC International Inc., 2012). As the decisions on fertility is being escaped from traditional social and cultural values (Pokharel, 2013), women tend to dominate decisions on childbearing.

CONCLUSION

Adolescent and youth fertility has been always a critical discipline of analysis. This population may have both immediate and future impacts in fertility transition. If a large number of young people engage in childbearing at early age, it may restrict to complete fertility transition at early. On contrary, if age at marriage and childbearing increases faster as a result of changing in social, economic and cultural context, fertility transition in young population can be completed faster. Nepal stands in cross-roads of both possibilities. Redefining meaning, purpose and utility of marriage and birth in new generation is likely to change the acceleration of fertility transition. There is division in characteristics of young population. A remarkable proportion has been exposed to education and communication; enjoying freedom; engaged in redefining sexual values and perception towards marriage and birth. This group has a choice to postpone marriage and childbearing process to later age and engage in career development. Evidences approve an increasing trend of young population in this category which may make differences in the fertility transition.

On the other hand, still a considerably large proportion of young people have limited options to define their sexual orientation and reproductive practices, particularly among girls having specific disadvantages in terms of education, communication and autonomy. The progress is marginal in this group. Marriage and childbearing are not too flexible options and may depend on decisions some external actors and factors. Progress of privileged group can be stalled by the low performance of this disadvantaged group.

Between the conflicting characteristics, Nepal is progressing towards completing fertility transition in near future. It mainly depends on the combined intervention to address the specific needs of young people especially on education, communication, employment, mobility and reproductive health services. It also depends to what extent young people are capable of taking independent decisions on matters related to marriage and childbearing. Adolescents and youth at this time are themselves in transition. They are contesting the traditional norms, values and practices of sexuality (Pathak & Pokharel, 2012) and trying to make their own definition. The age structural change combined with the characteristics of young people would define length of fertility transition in Nepal, which, if assumptions made in the analysis remain valid, will be achieved in the next three decades.

REFERENCES

Benton, B., Gordon, N.M., & Norton, A.J. (1996). *Trends in adolescent fertility and contraceptive use in the developing world.* Washington DC: U.S. Bureau of the Census. Retrieved on 8May 2015 from https://www.census.gov/population/international/files/ipc95_1.pdf

Bongaarts, J. (2003). Completing the fertility transition in the developing world: The role of educational differences and fertility preferences. *Population Studies, 57*(3), 321-335.

_____ (1978). A framework for analyzing the proximate determinants of fertility. *Population and Development Review*, 4(1), 105-132.

Bongaarts, J., Maludin, W.P., & Phillips, J.F. (1990). The demographic impact of family planning programs. *Studies in Family Planning*, 21(6), 299-310.

Cameron, M.M. (1995). Transformations of gender and caste divisions of labour in rural Nepal: Land, hierarchy and the case of untouchable women. *Journal of Anthropological Research*, 51(3), 215-246.

Central Bureau of Statistics (CBS). (2015. *National population report 2001.* Retrieved from http://cbs.gov.np/wp-content/uploads/2012/Population/National%20Report%202001/tab10.htm

_____ (2012). *National population and housing census 2011: National report.* Kathmandu: CBS.

_____ (2002). *Population census 2001: National report.* Kathmandu: CBS.

Daumerie, B., & Madsen, E.L. (2010). *The effects of a very young age structure in Uganda: Country case study.* Washington D.C.: Population Action International. Retrieved on 7 May 2015, from http://pai.org/wp-content/uploads/2011/12/SOTC_Uganda_CCS.pdf.

Davis , K., & Blake, J. (1956). Social structure and fertility: An analytical framework. *Economic Development and Cultural Change*, 4(3), 211-235.

Department for International Development (DFID),& The World Bank. (2006). *Unequal citizens: Gender, caste and ethnic exclusion in Nepal.* Kathmandu: DFID & The World Bank.

Easterlin, R.A. (1966). On the relation of economic factors to recent and projected fertility changes. *Demography*, 3(1), 135-153.

_____ (1961). The American baby boom in historical perspective. *American Economic Review*, 51(5), 869-911.

Guillebaud, J. (2007). *Youthquake: Population, fertility, and environment in the 21st century.* London: Optimum Population Trust. Retrieved on 8 April 2015, from http://www.popoffsets.com/pdf/Youthquake.pdf

Maitra, P. (2004). Effect of socioeconomic charactersitics on age at marriage and total fertility in Nepal. *Journal of Health, Population and Nutrition*, 22(1), 84-96.

McQuestion, K., Silverman, R., & Glassman, A. (2012). *Adolescent fertility in low and middle-income countries: Effects and solutions.* Washington D.C.: Centre for Global Development. Retrieved on 10 May 2015, from http://www.cgdev.org/files/1426175_file_McQueston_Silverman_Glassman_Adolescent Fertility_FINAL.pdf

Ministry of Health and Population (MoHP) [Nepal]. (2012). *Nepal adolescents and youth survey 2010/11.* Kathmandu: MoHP.

Ministry of Health and Population (MoHP) [Nepal], New ERA,& IFC International Inc. (2012). *Nepal demographic and health survey 2011.* Calverton, Maryland: MoHP, New ERA,& IFC International Inc.

Ministry of Health and Population (MoHP) [Nepal], New ERA, & Macro International Inc. (2007). *Nepal demographic and health survey 2006.* Kathmandu: MoHP, New ERA, & Macro International Inc.

Ministry of Health [Nepal], New ERA,& ORC Macro. (2002). *Nepal demographic and health survey 2001.* Calverton, Maryland, USA: MoH [Nepal], New ERA,& ORC Macro.

Pathak, R.S., & Pokharel, T. (2012). Sexual and reproductive health status of adolescents and youth in Nepal. *Nepal Population Journal*, 17(16), 127-138.

Pokharel, T. (2013). *Economic analysis of fertility decline in Nepal.* Kathmandu: Central Department of Population Studies.

_____ (2012). *Fertility impact of family planning program in Nepal: Evaluation of family planning program using prevalence model.*2nd Asian Population Association Conference. Bangkok: Asian Population Association.

Pokharel, T., Lamichhane, K., & Adhikari, S.H. (2012). *Fertility transition in Nepal: Role of women's autonomy.* Bhaktapur,Nepal: University Grant Commission.

Pradhan, A., Aryal, R.H., Regmi, G., Ban, B., & Govindasamy, P. (1997). *Nepal family health survey 1996.* Kathmandu, Nepal and Calverton, Maryland: MoH [Nepal], New ERA, & Macro International Inc.

Shrestha, D.R., Shrestha, A., & Ghimire, J. (2012). Emerging challenges in family planning program in Nepal. *Journal of Nepal Health Research Council*, 10(21), 108-112.

Suvedi, B.K., & Thapa, A. (2014). Adolescents, youth and young population. In *Population monograph of Nepal: Social demography*.Kathmandu: CBS2, 273-292.

United Nations. (2013). *World population prospects: The 2012 revision*, DVD Edition.

_____ (2013). *World marriage data 2012 (POP/DB/Marr/Rev2012).* Retrieved on 10 May 2015   from http://www.un.org/en/development/desa/population/publications/dataset/marriage/wmd2012/Data/UNPD_WMD_2012_MARITAL_STATUS.xls

_____ (2012). *World population monitoring: Adolescents and youth.* New York: United Nations.

_____ (2009). *Completing the fertility transition.* New York: United Nations.

Waldorf, B., & Byun, P. (2005). Meta-analysis of the impact of age structure on fertility. *Journal of Population Economics*, 18(1), 15-40.

Weeks, J.R. (2008). *Population: An introduction to concepts and issues.* Belmont, CA, USA: Thomson Higher Education.