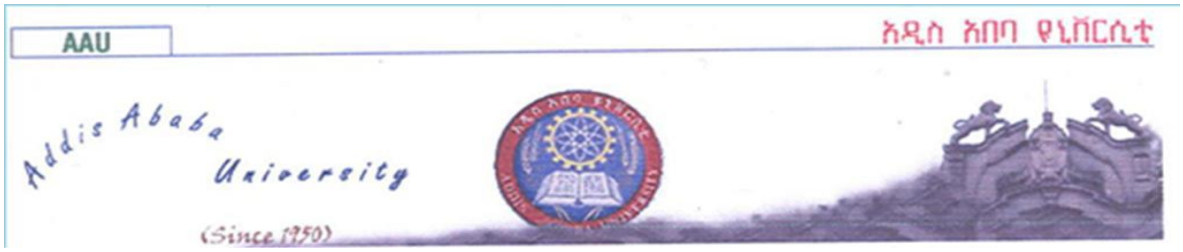


ADDIS ABABA UNIVERSITY
COLLEGE OF DEVELOPMENT STUDIES
CENTER FOR POPULATION STUDIES

YOUTHS' TRANSITION TO ADULTHOOD IN OROMIA REGION, ETHIOPIA: REPRODUCTIVE ENDEAVORS AND SUCCESSES

BY

TARIKU DEJENE (MSc)

SUPERVISOR

ESHETU GURMU (PhD)

MARCH 2024

ADDIS ABABA

ADDIS ABABA UNIVERSITY
COLLEGE OF DEVELOPMENT STUDIES
CENTER FOR POPULATION STUDIES

YOUTHS' TRANSITION TO ADULTHOOD IN OROMIA REGION, ETHIOPIA: REPRODUCTIVE ENDEAVORS AND SUCCESSES

BY

TARIKU DEJENE (MSc)

SUPERVISOR

ESHETU GURMU (PhD)

A DISSERTATION SUBMITTED TO THE CENTER FOR POPULATION STUDIES, COLLEGE OF DEVELOPMENT STUDIES, ADDIS ABABA UNIVERSITY FOR THE FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN POPULATION STUDIES

DECLARATION

I, the undersigned, declare that this dissertation entitled "***Youths' transition to adulthood in Oromia Region, Ethiopia: Reproductive endeavors and successes***", is my original work and has not been presented for a degree in any other University or organization, and that all sources of materials used for the thesis have been duly acknowledged.

Declared by:

Name: **Tariku Dejene**

Signature: _____

Date: **March 25, 2024**

Publications

1. **Chapter 2. Reproductive Transition Trajectories**:

   Dejene, T., & Gurmu, E. (2022). Exploring reproductive trajectories of youths of Oromia, Ethiopia: A life course approach. *Plos one*, *17*(12), e0279773. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0279773

2. **Chapter 4. Gender Gap in Reproductive Transition**:

   Dejene, T., & Gurmu, E. (2023). Explaining the gender gap in reproductive transition of Ethiopian youths: A decomposition analysis. *International Journal of Population Studies, 9(2)* https://doi.org/10.36922/ijps.476.

Submission

3. **Chapter 3. Correlates of Reproductive Transitions**:

   Dejene, T., & Gurmu, E. (2023). Correlates of timing and intensity of reproductive transition among Ethiopian youths: A multistate multilevel analysis. *Journal of Population Research*.

Table of Contents

Table of Contents (Continued)

Table of Contents (Continued)

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ABBREVIATIONS AND ACRONYMS

AHR	Adjusted Hazard Ratio
AIDS	Acquired Immunodeficiency Syndrome
ASW	Average Silhouette Width
ASWw	Average Silhouette Width (weighted)
CI	Confidence Interval
CIFs	Cumulative Incidence Functions
CSA [Ethiopia]	Central Statistical Agency [Ethiopia]
DHD	Dynamic Hamming Distance
DHS	Demographic and Health Survey
EAs	Enumeration Areas
EDHS	Ethiopian Demographic and Health Survey
EPHI	Ethiopian Public Health Institute
FDRE	Federal Democratic Republic of Ethiopia
HIV	Human Immunodeficiency Virus
HR	Hazard Ratio
ILO	International Labor Organization
LCT	Life Course Theory
PAM	Partition Around Medoids
PBC	Point Biserial Correlation
PMS	Premarital Sex
RMST	Restricted Mean Survival Time

SDG	Sustainable Development Goals
SHR	Sub-Hazard Ratio
STIs	Sexually Transmitted Infections
TFR	Total Fertility Rate
TGE	Transitional Government of Ethiopia
UN	United Nations
UNDESA	United Nations Department of Economic and Social Affairs
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations International Children's Emergency Fund

ACKNOWLEDGEMENTS

I want to express my sincere gratitude and appreciation to Prof. Eshetu Gurmu for his invaluable guidance, support, and mentorship throughout my academic journey. His dedication, expertise, and unwavering commitment to my success have significantly impacted my personal and professional growth. Prof. Eshetu's deep understanding of the subject matter, insightful perspectives, and ability to challenge and inspire me have shaped my research and pushed me to exceed my expectations. His encouragement to explore new avenues of knowledge and his willingness to listen and provide constructive feedback have been invaluable assets that have fueled my intellectual curiosity.

I would like to express my heartfelt appreciation to Dr. Kassahun Asres and Dr. Chalachew Getahun for taking the time to read my Ph.D. proposal. I truly appreciate the time and effort you have dedicated to providing me with comprehensive and thoughtful feedback. I appreciate Dr. Dula Etana's time and effort for reviewing the Afaan Oromo translation of the interview guide for the qualitative study. My sincere appreciation also goes to Dr. Nega Mihret for supporting the initial coding of the qualitative data analysis, which allowed me to refine and enhance the presentation of my research findings. I would also like to express my sincere appreciation and gratitude to Dr. Tesfaye Zeleke for his instrumental contribution in providing constructive criticism on the final draft of my research. I want to extend my gratitude to Bichaye Tesfaye for his invaluable encouragement throughout the qualitative data analysis process. Additionally, I want to express my gratitude for offering a platform for the language edition, which has been instrumental in ensuring the clarity of my report.

I want to express my sincere appreciation and gratitude to the dedicated team of data collectors Hawi Goshu, Derartu Worku, Kassahun Shiferaw, and Lijtalewayker Gualu, who contributed their time, effort, and expertise to the successful completion of my Ph.D. dissertation. Their invaluable contributions in gathering and compiling the qualitative data have been instrumental in achieving my research goals. I would like to express my sincere gratitude and appreciation to Dame Kedir for his vital contribution in checking the translation of the transcriptions for my research project. His meticulousness and dedication to ensuring accurate translations have been instrumental in maintaining the integrity of the research data.

I would like to extend my heartfelt gratitude and appreciation to the College of Development Studies of Addis Ababa University for the generous support and sponsorship throughout my academic journey. Beyond financial assistance, the College of Development Studies has created a nurturing and conducive learning environment. I want to extend my sincere appreciation to all the individuals who tirelessly work behind the scenes to make the College of Development Studies a nurturing and thriving educational institution. I am also grateful for the Consortium of Reproductive Health Associations' (CORHA) financial support provided to me as part of the professional development and networking scheme. Your belief in the importance of my research and your financial backing has empowered me to pursue my academic goals.

ABSTRACT

The transition from childhood to maturity is a journey, not a destination. It is a time of exploration, growth, and transformation. Young people's transition to adulthood entails managing a number of changes as they choose their future paths and adjust to these life-changing events. As a result, it is a crucial phase in human development wherein youths transition from childhood and take on new roles and responsibilities. The study differentiates between reproductive endeavors and the reproductive successes of youths as they can have different implications for youths. By considering the life course theory as a framework, the study attempted to assess youths' reproductive endeavors and success in the Oromia National Regional State of Ethiopia. The interest in the life course theory is to investigate how people's lives progress over time. The theory contends that various factors shape people's lives, including individual characteristics, familial and social networks, and the historical and cultural context in which they live.

The study employed a mixed-method approach; while the quantitative data were drawn from 2005, 2011, and 2016 Ethiopian Demographic and Health Surveys, the qualitative data were collected from youths residing in the Oromia regional state using an in-depth interview. The study used a variety of analysis techniques. First, sequence analysis was employed to identify the reproductive trajectories of youths and make an inter-cohort comparison of these trajectories on three different synthetic cohorts. Secondly, flexible parametric survival models were fit to explore the factors that shaped the reproductive trajectories. Thirdly, a decomposition analysis was employed to explain the gender gap in the reproductive transition of youths. Finally, the qualitative data were analyzed using thematic analysis using MAXQDA software.

First, the study focused on identifying the patterns of reproductive trajectories among youths in Oromia, Ethiopia. Three reproductive role indicators were utilized, and four different typologies of reproductive trajectories among the youth were identified. The study's findings are noteworthy, as they suggest that changing norms in reproductive behavior are occurring among less educated youth. Thus, the study provides valuable insights into the changing patterns of reproductive behavior among youth in Ethiopia and highlights the importance of education and targeted interventions in promoting positive reproductive health outcomes.

Secondly, the timing and intensity of reproductive transitions among youths and their correlates in Oromia, Ethiopia, were analyzed. The use of data from multiple demographic health surveys spanning over a decade allows for a robust analysis of trends and changes in reproductive patterns. Regardless of the changing pattern in the reproductive transition of youths, the study finds that family formation takes the major share of the transition. However, early premarital sexual initiation is rising as a competing risk to the marital union over time, which is considered as the main precursor to social ills such as early and single parenthood.

The persistence of a gender gap in reproductive transition highlights the need to address the excessive risk female youths face. Education, although not found to reduce the risk of sexual debut significantly, remains an essential tool for empowering youths, particularly females, to make informed decisions about their reproductive health. Thus, the study provides insights into the reproductive behavior of youths, underscoring the importance of policy revisions and interventions that consider these gender gaps in reproductive transitions to encourage positive reproductive transitions.

Thirdly, the study investigated the factors contributing to the gender gap in the reproductive transition of youths using data from the 2011 and 2016 Ethiopian Demographic and Health Survey. The results show that premarital sex prevalence increased with a delay in age at first marriage among youths. The gender gap in reproductive transition was found to be triggered by both compositional and structural effects of covariates such as education, modern contraceptive use, and media exposure. The study recommends addressing structural components in addition to reducing inequalities in education, media exposure, and deprivation between male and female youths to close the gender gap in reproductive transition.

Finally, the study investigated the perception of youths about a successful transition to adulthood, the challenges, and the required social support to overcome the challenges. The study's findings suggest that reproductive transition is a crucial indicator of a successful transition to adulthood. The challenges identified, such as unpreparedness, health risks, and erosion of cultural norms, should be addressed through policies and strategies that promote access to accurate information and resources and emotional and financial support. Additionally,

the importance of community and family involvement in supporting young people during their reproductive transition is highlighted.

CHAPTER 1. INTRODUCTION

1.1. Background

According to the United Nations (UN), the youthful age distribution of the world population will drive two-thirds of the predicted population growth between 2020 and 2050 (UNDESA, 2021). While the number of young people in industrialized nations has decreased since 1980, the number of young people in developing countries has increased. It is anticipated to continue to grow in the coming three to four decades. For example, in 2019, youths comprised sixteen percent of the global population, with the majority (88%) living in developing nations (UNDESA, 2019). Consequently, developing countries continue to contribute to a disproportionately higher number of future global population growth due to the youthful structure of their population.

If managed properly and effectively, the growing youth population of developing counties can be converted into an opportunity for sustainable economic development. The ability of countries to reap the benefits of their youthful population age structure, however, is vitally dependent on the ability to promote young people's health and well-being, provide adolescents and youths with quality education and decent work, and remove barriers that hinder young people from fully engaging in society (Bloom, Kuhn and Prettner, 2017; UNDESA, 2021). As one in every five global youth population (21.3% in 2020) currently lives in Africa, unemployment and inadequate human capital investment are among the continent's most significant challenges (African Development Bank Group, 2016; UNDESA, 2019). Progress in youth employment across the continent is sluggish, with a considerable disparity in unemployment rates between men and women (ILO, 2020).

Although several youth development policies and programs have been implemented at the continental level to ensure that the benefits of the demographic dividend are realized, the packages are inadequate and incomplete. For example, youth health and engagement in all levels of society are among the top priority focus areas of the African Youth Charter (African Union Commission, 2006). Despite the enactment of this policy, most African youths lack secure economic opportunities, with significant variation by nation (African Development Bank Group, 2016). This condition will translate to poor living conditions, trapping the continent in a

self-reinforcing cycle of poverty.

Since the 1960s, Ethiopia has undergone socio-demographic, economic, and political changes. During the last century, the country underwent political turbulence, which resulted in regime changes (Clapham, 2019; Schewel and Asmamaw, 2021). Although less than half of the students enrolled in primary school progress to the secondary level of education, achievement in increasing primary school enrollment rate has been recorded. Gender disparity in primary school enrollment has also progressively narrowed over time (Donnenfeld *et al.*, 2017). In terms of population, Ethiopia is one of Africa's giants in population size, contributing 10% per year to sub-Saharan Africa and 3.5% per year to the global population growth. A considerable majority of its population (61 percent) is under the age of 25, and Ethiopia's youth population accounts for one in every five (21 percent) of the population (UNDESA, 2019). The size of the country's population increases at a rate of 2.5% annually (World Bank, 2020), owing in significant part to the continual rise in life expectancy as a result of improvements in child health (Deribew *et al.*, 2016; Doherty *et al.*, 2016; Mehretie Adinew *et al.*, 2017; Jembere, Cho and Jung, 2018), and moderately high fertility levels (CSA [Ethiopia] and ICF International, 2016).

The Ethiopian government has been trying to address the challenges of youths' livelihoods in the country. The first attempt, regardless of its criticism, was enacting the national youth policy in 2004. This policy promotes the engagement of the youth in political, economic, social, and cultural endeavors (Ministry of Youth Sports and Culture, 2004). In contrast, following Ethiopia's 2005 election, the state saw the youth as culprits and unproductive as a result of the widespread youth dominated post-election protests (Debele, 2018). Regardless, after a lengthy period of time, a Rural Job Opportunity Creation Strategy has been adopted in light of the vast number of adolescents who live in rural areas of the country and the unique challenges that rural youths face. It seeks to help rural youths with entrepreneurship training, connect rural and urban areas for job prospects, and stimulate rural industrial investment for wage employment (Ministry of Agriculture and Natural Resources, 2017).

To sustain past improvements and harness the benefits of the youthful population structure, ensuring the expansion of employment opportunities and greater social and political

participation among young citizens is crucial (Donnenfeld *et al.*, 2017). A recently conducted national survey on labor force and migration in 2021, for example, reported that the unemployment rate in Ethiopia was the highest among youths. The rate was relatively higher among female youths than males, reaching a peak at the age of 20 to 24 for both sexes. Worryingly, the rate was higher among urban youths (23.1%) than rural counterparts (8.1%) (Ethiopia Statistics Service, 2021). To address the glaring inequality in youth unemployment, investment in human capital and quality of education is required to direct the population toward human development.

According to a recent report, women's median age at sexual debut and childbearing in Ethiopia was still lower (19 years or less) in 2019. It has been stable for a long time, with a one in ten (10%) prevalence of teenage motherhood in 2019 (Ethiopian Public Health Institute (EPHI) [Ethiopia] and ICF, 2021). Men, on the other hand, begin sexual relations later in life than women. For example, among men aged 25 to 49, the median age of first intercourse is 21.2 years. Only 2% of men have their first sexual encounter before age 15 (CSA [Ethiopia] and ICF International, 2016). Although various initiatives, such as youth-friendly services, can potentially improve young people's reproductive health outcomes in Ethiopia, their use is limited (Belay *et al.*, 2021).

1.2. Statement of the problem

Youth is a stage in an individual's life course when the passing from a stage of childhood to maturity happens. It is a relational concept whose meaning is dependent mainly on the idea of adulthood. As a result, the concept of youth is fluid, with no fixed and universally accepted definition. The definition of youth varies across demographic, economic, and cultural contexts. For instance, for planning and accounting, the United Nations defines youth as those between 15 and 24 (United Nations, 2020). On the other hand, the UNICEF definition of a child extends to age 18 (UNICEF, 2022). In contrast with these definitions, the African Youth Charter recognizes the age range 15 to 34 as a youth (African Union Commission, 2006). Similarly, the Ethiopian Youth Policy defines youth as part of the society between 15 and 29 (Ministry of Youth Sports and Culture, 2004).

For young people, transitioning into adulthood involves several changes in various facets of their lives, including the establishment of a source of income (Wyn and White, 1997; Gill, 2003). As a result, rather than a single event, participation in various activities that include socioeconomic and demographic events defines adulthood. The completion of schooling, entry into the workforce, gaining financial stability, entering into marriage, and starting a family are often considered essential milestones that indicate the transition to adulthood (Gill, 2003; Aronson, 2008; Settersten, Ottusch and Schneider, 2015).

Transition can be a challenging time for both youths and their families. Young people's transition to adulthood entails managing a number of changes as they choose their future paths and adjust to these life-changing events. As a result, it is a crucial phase in human development wherein youths transition from childhood and take on new roles and responsibilities. Generally, the productive and reproductive roles youths grow into are incompatible; the transition to adulthood was explored regarding the timing, duration, and sequencing of these roles (Gomes, 2013; Eliason, Mortimer and Vuolo, 2015). The importance of researching the timing and sequence of roles and the transition to adulthood stems from the fact that each role depends on achieving other adulthood transition markers. It has been shown that education and increased economic opportunity are highlighted as explanations for changes in nuptiality and fertility; conversely, taking on early reproductive roles is cited as one of the many reasons for the underperformance of youths in the labor force (Joshi, 2002; Sommer, 2018; Krafft, 2020).

Apart from individual and family characteristics of youths, the transitions to adulthood are shaped by many macro-level factors such as social, cultural, and economic processes (Fauske, 1996; Park, 2013). Life trajectories were predictable in the past because they were rooted in a stable and consistent societal framework. However, evidence from the developed world reveals that transitions to adulthood exhibited heterogeneity in trajectories and outcomes. The previously predictable life trajectories seen in succeeding generations have become unstable and prone to change as a result of ongoing cultural, social, and economic upheavals around the world (Fauske, 1996; Wyn and White, 1997; Gill, 2003; Park, 2013).

A growing body of literature from various parts of the developing world suggests that the age at

puberty for both boys and girls has gradually decreased over decades, owing primarily to improvements in nutrition. In addition, the average age at puberty showed a substantial inequality among the rich and the poor across world regions (Moodie *et al.*, 2020; Norris *et al.*, 2022). It has also been reported that the declining puberty age is linked to early sexual debut and early marriage (Ibitoye *et al.*, 2017). Thus, assessing the patterns and changes in youths' transition to adulthood regarding changing the age at puberty and inequality would be a timely and practical issue for settings with higher child marriage rates and adolescent fertility.

Ethiopia has undergone major changes in terms of access to and enrollment in primary and secondary education over an extended period of time. Notably, enrollment rates and gender disparities in primary schools have also improved. Furthermore, introducing free elementary education as a policy intervention has helped lower dropout rates (Oumer, 2009). In a related vein, in a recent examination of Ethiopia's return to education, education yielded an encouraging result, revealing that even first-cycle primary education produced the highest rate of return in earnings (Desalegn, 2018). Education serves as a transformative journey that enhances young individuals' understanding of various potential paths in life. As a consequence of the improved income prospects that come with education, youths are more likely to be motivated to delay their involvement in reproductive roles until a later stage in their lives in the long term.

A plethora of evidence points to a deviation from the traditional pattern in the transition to adulthood; additionally, it is reported that the transitions to adulthood follow varying patterns (Kassahun, 2010; Eliason, Mortimer and Vuolo, 2015; Schwanitz, 2017). In Ethiopia, attempts have been made to navigate the transition pattern of youths and determinants to adulthood. Some studies took a myopic view of the transition to adulthood, focusing on only one of the transition markers rather than using multiple markers (Arega, Zewale and Bogale, 2019; Crivello, Boyden and Pankhurst, 2019; John *et al.*, 2019; Gobena and Berelie, 2022). On the other hand, few others used multiple markers, either separately or in specific combinations. Although the timing and sequence of events were considered in these studies, the timing and sequence were not treated either concurrently or properly (Lindstrom, Kiros and Hogan, 2009; Reda and Lindstrom, 2014). Furthermore, these studies differed in scope, study population, and method used to produce the results; however, they are similar in that all of these studies mainly focused

on women's experience except for one study.

Kassahun (2010) used a diverse set of transition markers and status combinations, taking the experiences of both men and women; however, the choice of marker combinations was limited to education, employment, and marriage. Another endeavor made on a large scale was from longitudinal research by Young Lives Ethiopia (Pankhurst *et al.*, 2018). Although Young Lives Ethiopia collected data on household poverty and transition markers to adulthood for two cohorts, the reports and publications lacked the sophistication required for longitudinal data, and the data was underutilized.

In 2007, the population of the Oromia National Regional State accounted for 36.6% of the overall national population of Ethiopia. Similarly, the region's youth population (age 15 – 29) contributed 35.2% to the national youth population (CSA [Ethiopia], 2007). The medium variant projected population of Oromia in 2022 approximates 40 million, with 82.8% of the population residing in rural areas. At the same rate, the projections show that the region's youth population contributed to 39.5% of the national youth population of Ethiopia in 2022 (CSA [Ethiopia], 2013). Regarding fertility, the recent fertility decline in the region is sluggish, with a total fertility rate (TFR) of 5.6 in 2011 to 5.4 in 2016, highly contributing to Ethiopia's slow progress in fertility transition (CSA [Ethiopia] and ICF International, 2012, 2016). Recent evidence points to the fact that both the quality of youth-friendly services (Amenu, Negash and Demeke, 2022) and the rate of utilization (Demeke *et al.*, 2022; Tsegaw, Kassie and Alemnew, 2023) were generally suboptimal in Ethiopia and particularly in Oromia.

In the transition to adulthood study, concentrating on only one transition marker does not adequately represent the interdependence between various markers of adulthood. Similarly, employing status combinations will not allow us to study the multidimensional associations between the various transition markers. Previous works conducted in Ethiopia's context ignored excavating these multidimensional associations between the different markers due to the unavailability of pertinent data or the inability to use appropriate statistical analytic strategies. As such, very little is known about youths' progression to adulthood and an objective assessment of highly persisting gender disparity in transition to adulthood in Ethiopia.

When family formation processes were culturally embedded, they were highly standardized, with events and sequences occurring in a reasonably similar way everywhere (Park, 2013; Fasang, 2014). In the Ethiopian context, for instance, marriage and parenthood used to happen at an early age. Due to shifts in education and urbanization, today's young individuals possess greater autonomy and decision-making power compared to previous generations when it comes to their reproductive choices (Pankhurst, 2021). Diverse transition pathways to adulthood in developed and developing countries, including Ethiopia, have been documented (Schoon, 2015a, 2015b; Pankhurst, 2021). Regardless, the types of reproductive transition patterns to adulthood have not been explored in Ethiopia.

As mentioned previously, the Oromia National Regional State of Ethiopia is home to a significant portion of the country's youth population. In addition to its sizeable youth population, the region has gained recognition for its comparatively slow rate of fertility transition in recent years. Because of this noteworthy characteristic, the study aimed to specifically examine and delve deeper into the reproductive dynamics of youths of the Oromia National Regional State of Ethiopia (CSA [Ethiopia] and ICF International, 2016). Thus, this study assessed the varying patterns of transition to adulthood using reproductive roles by comparing experiences of different age cohorts by sex of youths focusing on Oromia Regional State, Ethiopia.

1.3. Literature review

1.3.1. Theoretical underpinning of the research

The transition of youths to adulthood is regarded as a milestone in their lives, during which they experience significant changes in their social ranks and take on new responsibilities that pave the way for adulthood. In studying the transition to adulthood, along with its variable nature and heterogeneity of pathways to adulthood, subjective perceptions and interpretations of youths' life experiences are also the focus of studies (Eliason, Mortimer and Vuolo, 2015). This study adopts the post-positivist viewpoint, which asserts that reality can only be understood imperfectly and probabilistically. While retaining the concept of objective reality, post-positivists believe that quantitative and qualitative methods are valid approaches (Carpiano and Daley, 2006). Modernization theory, life course theory (LCT), and emerging adulthood theories were dominantly used to explain and aid in understanding the changing transition patterns to

adulthood in developed nations. Following are descriptions of the main concepts of the theories, their differences, and their relevance to the present study.

Modernization theory: The modernization process constitutes cultural and industrial components. While growth in literacy, an increase in the proportion of the population living in urban areas, and purposeful control of fertility fall under cultural aspects, increases in per capita gross national product and modern production processes are examples of the industrial element (Agyei, 1978). According to modernization theory, changes in the pathway to adulthood started to occur in chaotic order. They became complex and diverse as a result of changes in the level of literacy, urbanization, and industrialization. These modernization processes led to the autonomy of individuals, which in turn was linked to changes in demographic phenomena such as cohabitation, divorce, late marriage, and duration between first marriage and first birth (Agyei, 1978; Bianchi, 2014; Gurmu and Etana, 2014; Xu, Li and Yu, 2014; Wang and Zhao, 2021).

One of the criticisms of the theory is that it focuses solely on macro-level factors and processes that influence dichotomous transition experiences, that is, disruption of the traditional transition experiences versus continuity of traditional practices. Focusing on a dichotomy of experience ignores differences in transition experiences, particularly among intermediate groups that fall between disruption and continuity. Moving toward a more flexible and dynamic understanding of transition experiences allows for a more thorough understanding of the various pathways that lead to successful adulthood transition (Schoon, 2015a).

Life Course Theory: Previous research has also utilized a more comprehensive approach to studying the transition of adulthood. Various forms of LCT have been applied in this approach to examine the timing, duration, and order of life events that are affected by shifts in the social and economic landscape (Schoon, 2015a; Boisvert *et al.*, 2020; Wang and Zhao, 2021). LCT aims to understand the multitude of influences that shape individuals' lives from birth to death. It achieves this by placing individual and family development within the broader cultural and historical contexts (Hutchison, 2011). By considering the life course as a cohesive entity comprising multiple status transitions over time, this perspective surpasses the constraints of

research that solely focuses on single transition events.

In the life course approach, a cohort effect, timing of lives, interdependent lives, human agency, and diversity in life course trajectory were considered central themes of the theory. Individuals born in different periods experience different historical times; as a result, cohort effects are likely to emerge due to the interaction between historical times and human lives. The age-graded roles and behaviors expected by society also receive particular emphasis in LCT. Thus, the age at which specific life events and transitions happen is the focus of investigation for life course scholars (Hutchison, 2011).

The capacity of LCT to include the identification and analysis of various patterns of paths to adulthood makes it an ideal choice in transition to adulthood research. Scholars observed that the trajectories in the life course exhibited diversity by not only cohorts but also social status, place of residence, and gender within a cohort (Schoon, 2015a, 2015b; Boisvert *et al.*, 2020; Wang and Zhao, 2021). Evidence shows that human agency, socioeconomic contexts, and prevailing government policy aided the emergence of diverse pathways to adulthood in China. That is, the timing of life events requires making reasonable choices and arrangements under the constraint of the prevailing government policy (Wang and Zhao, 2021).

Emerging adulthood model: Another tool used in adulthood transition research is the emerging adulthood model. It falls under the LCT category, focusing on individuals' experiences between adolescence and young adulthood. Emerging adulthood is a period of development marked by exploration, testing, uncertainty, self-focus, and a sense of being in between. The theory emphasizes the psychological and subjective experiences of people between 18 and 25, describing this time as one of identity exploration (Arnett, 2000; Boisvert *et al.*, 2020). Human agency is greater at this stage of development or for emerging adulthood. Human agency refers to the capability of individuals to influence their destiny intentionally. However, these choices of individuals are constrained by structural and cultural contexts. Thus, instead of personal agency, proxy and collective agency can be used as an alternative to individualism (Hutchison, 2011).

1.3.2. Empirical reviews

1.3.2.1 Pathways to adulthood

The transition to adulthood is a time of social, psychological, economic, and biological transitions. For many young people, it entails complex emotional challenges, and how successfully they navigate this critical period determines the nature and quality of their future lives (National Research Council and Committee on Population, 2005). Literature on the transition to adulthood focused on transitioning from the traditional to the newly emerging pattern characterized as late and complex. However, recently, researchers began to argue that focusing on a dichotomy of transition experience ignores variability in transition experiences, and they recommend an exploration of diverse pathways of the transition. Recent evidence suggests that various pathways to adulthood are emerging and that this variation is maturing into a global experience (Billari and Liefbroer, 2010; Schoon, 2015a, 2015b; Boisvert *et al.*, 2020; Santos, Queiroz and Verona, 2021; Wang and Zhao, 2021).

For researchers of youth transition to adult roles using a life course approach, the timing of life events, the sequence of life course states, and the duration between states are of critical interest. Billari and Liefbroer (2010), inspired by the second demographic transition perspective, demonstrated that union formation and entry to childbearing have all been delayed across cohorts in Europe. They also reported that the onset of postponement of these life events differed noticeably across countries. Furthermore, in terms of convergence of the newly emerging behavior between countries, the results support the divergence hypothesis for timing or sequence of life course states.

Drawing on the experience of Western countries, Wang and Zhao (2021) attempted to navigate patterns in family and labor force participation-related roles during the transition to adulthood among Chinese youths using LCT. In their endeavor, four family life course trajectories and four clusters of education and employment trajectories were identified. While more than half of the youths practiced the traditional and ordered types of roles, a third of the youths stayed single for a long. The results reflected the diversity of transition to adulthood, supporting the notion of new and diverse pathways to adulthood in China. Similarly, Boisvert and colleagues (2020) found that profiles of transition to adulthood in the urban region of Quebec were heterogeneous

and that the transition is intimately connected with the youth's contexts.

Pesando and colleagues (2021) analyzed data from 69 low-and-middle-income countries to study the timing and sequence of life events to learn more about the reproductive experiences of low- and middle-income female youths. They discovered regional variation in the transition to adulthood, suggesting that cultural factors shaped the transition to adulthood. Furthermore, they observed that the transition paths did not differ much based on place of residence classifications. Another research on the reproductive transition of females from the developing world showed a generally shifting pattern to late age; however, patterns of the shift were not investigated (Bongaarts, Mensch and Blanc, 2017).

1.3.2.2. Drivers of pathways to adulthood

The socioeconomic context of youths significantly impacts the occurrence and timing of major family life course events. Youths from higher socioeconomic backgrounds are more capable of setting and achieving realistic goals than those from lower socioeconomic backgrounds. Furthermore, youths from higher-income families differ from those from lower-income families not only in terms of capability but also in terms of opportunities and constraints. Thus, young adults with a higher socioeconomic status typically experience more life events later than those with lower socioeconomic status (Buchmann and Kriesi, 2011; Schoon, 2015a, 2015b; Sironi, Barban and Impicciatore, 2015; Billari, Hiekel and Liefbroer, 2019).

A recent publication based on data from Latin America attested that the transition to adulthood was postponed to late age. There has been an increase in the schooling of young Latin Americans starting from the 1960s. Thus, the postponement would have been due to the incompatibility between education and early family formation roles and an increase in the opportunity cost of alternative roles to schooling. Furthermore, delaying the transition to adulthood was much stronger for males than females (Santos, Queiroz and Verona, 2021). However, very little is known about what caused the disparity in the transition to adulthood between the two sexes. Another interesting conclusion from a study from developing countries is that female education levels were positively associated with the timing of reproductive events in all locations, with secondary education having a higher effect than primary education on the timing of events

(Bongaarts, Mensch and Blanc, 2017).

As a result of changes in the level of literacy in a population, urbanization, and industrialization, changes in the route to adulthood unfold in a complicated and diversified order. Individual autonomy was a result of these processes, which was linked to changes in demographic phenomena such as cohabitation, divorce, late marriage, and the time between first marriage and first birth (Agyei, 1978; Gurmu and Etana, 2014; Xu, Li and Yu, 2014; Wang and Zhao, 2021). Contrarily, according to findings of a study conducted in Low- and Middle-Income Countries, urbanization was a modest driver of changes in the transition to adulthood, resulting in an equivocal finding (Pesando *et al.*, 2021).

Members of a birth cohort share a common historical time frame. As a result, they experience similar sociocultural resources, constraints, and opportunities. These experiences can shape their development, behaviors, and attitudes in unique ways that differ from other cohorts. Thus, comparing birth cohorts reveals the impact of social change on the transition to adulthood (Buchmann and Kriesi, 2011). For instance, the trajectories to adulthood of different youth cohorts in China presented irregularities under the influence of policy factors. Further, researchers from different regions of the world reported that the pattern of adulthood transition among younger cohorts has become more convoluted than that of older cohorts (Buchmann and Kriesi, 2011; Pesando *et al.*, 2021; Wang and Zhao, 2021).

Pesando and colleagues (2021) observed the stability of cluster typologies of the transition to adulthood across different cohorts for the aggregate analysis of data from Low-and Middle-Income countries. Their research also showed the disruption of early transition to adulthood and the shift towards a gradual and delayed transition in East Africa and Southeast Asia. In Central Africa and West Asia, the absence of change in the transition to adulthood was the norm. This finding suggests that union formation and fertility practices in these countries may be impervious to socioeconomic changes because the practices are linked to social structure, such as religious beliefs and pervasive disparity in gender roles that are more resistant to change.

Premarital sexual behavior has grown widespread in African societies, and premarital pregnancy

occasionally leads people to marriage. Findings show that the risk of having a second premarital birth is becoming more common in various Sub-Saharan African nations, particularly among socioeconomically disadvantaged women. This practice has increasingly become a characteristic of rural resident women than urban residents in southern and western Africa (Odimegwu *et al.*, 2020). Either contraceptive failure or reluctance to use contraceptive methods and acceptance of single motherhood as a norm might have contributed to an increase in premarital childbearing and shorter duration between first and second premarital births. Some evidence suggests that the transition from debut to sex to first marriage is being prolonged among recent cohorts than earlier cohorts (Reda and Lindstrom, 2014).

Adolescent premarital childbearing has declined in several sub-Saharan African countries due to increased female education. A rise in the age of marriage puts an apparent positive pressure on premarital sex and fertility, whereas delayed sexual debut and contraceptive use work to offset this effect (Reda and Lindstrom, 2014; Clark, Koski and Smith-Greenaway, 2017). Women prioritize their education and financial stability over family formation; thus, premarital pregnancy and childbirth, if it happens, are usually unplanned. The practice is, however, acceptable for older women who are financially independent (Shangase, 2019). Generally, African women with premarital birth have later marriage transitions than their childless contemporaries. Besides, the duration between having a child and marrying for the first time has increased slightly (Smith-Greenaway and Clark, 2018).

Various studies have identified family structure and peer influence as drivers of reproductive transition. Youths raised in single-parent households or who have experienced parental conflict are more likely to participate in early sexual engagement. Strong parental ties and healthy family communication, on the other hand, have been shown to delay reproductive transition (Steele *et al.*, 2020). Furthermore, surrounding oneself with peers who favor early sexual behavior and childbearing has been linked to an increased risk of following suit (Bingenheimer, Asante and Ahiadeke, 2015; Peçi, 2017).

In Ethiopia, it was demonstrated that the duration between first marriage and first birth for women was longer for those who married early than those who married after the legal age.

Contrarily, women's educational achievement pushed the age at first marriage to a late age. However, the interval between first marriage and first birth is shorter for educated women than for illiterate women (Gurmu and Etana, 2014; Chernet, Shebeshi and Banbeta, 2019; Bitew, Habitu and Gelagay, 2021). Urban resident women had a relatively prolonged duration of transition to first birth after marriage than rural women. With this discrepancy existing, contraceptive use aided in extending the transition period similarly in urban and rural areas. Women's employment was also reported to lengthen the transition to childbearing after the first marriage (Gurmu and Etana, 2014; Chernet, Shebeshi and Banbeta, 2019).

The study attempted to extend previous works conducted in the context of Ethiopia by investigating changes in the timing of the transition to adult roles and undertaking an analysis of the movement of youths between different reproductive roles. An attempt was made to identify changes in the pattern of timing of the transition to adulthood using reproductive role indicators and exploring the transition drivers. Although researchers use a set of adult role indicators such as schooling, employment, family formation, and parenthood in the study of the transition to adulthood, there are no agreed indicators of a successful transition. In addition, this study explored the subjective expectations of youths regarding a successful transition to adulthood and the barriers to a successful reproductive transition. A successful transition to adulthood necessitates enough preparation for adult roles and the ability to make informed choices regarding the timing of significant life events (Bongaarts, Mensch and Blanc, 2017).

The holistic perspective, that is, LCT, enables us to investigate the multidimensional domains of the life course while simultaneously considering the timing, duration, and order of life events. Therefore, adopting a holistic approach, this study attempted to examine the variations and patterns in trajectories of youths' transition to adulthood and determinants of the transition through the lens of their reproductive roles. The study also attempted to explain gender inequality in the transition to adulthood by decomposing the inequality into differences in resources and discrimination between male and female youths.

1.3.3. Conceptual framework

This study utilized three reproductive role indicators, namely the initiation of sexual intercourse,

first marriage, and first birth, to evaluate the transition into adulthood. These indicators have significant implications for the long-term health and well-being of individuals in their adult lives (Bongaarts, Mensch and Blanc, 2017). Premarital sexual behavior has become relatively common among African societies (Neal, Chandra-Mouli and Chou, 2015; Casterline, 2017), while premarital pregnancy sometimes acts as a catalyst for marriage rather than the other way around. Furthermore, some studies have found a significant association between age at first marriage, sexual debut, and lifetime fertility (Ndahindwa *et al.*, 2014; Ariho, Kabagenyi and Nzabona, 2018; Alazbih *et al.*, 2021). This evidence suggests that the mutual relationship between these indicators is rather multifaceted and dynamic. For this study, the timing of these events, their sequencing, and the duration in between them is considered as one bundle to describe specific reproductive transition of youths (Figure 1-1). The comprehensive approach to be followed in this study will help to explore all possible transition pathways to adulthood among these three metrics of reproductive transition.

The changes in the reproductive roles of youths in the developing world are occurring due to changes happening at various levels of context. The changing global and national context, including political, economic, and demographic are the underlying forces shaping youth transition to adulthood. The influences of these international and national contexts on the reproductive transition are directed through particular local community contexts. Whereas, the relative importance of household and local community contexts in youths' decision-making varies from person to person (National Research Council and Committee on Population, 2005). Thus, the local contexts play a crucial role in mediating the impact of broader influences while resources and characteristics of individuals directly affect the dynamics of the reproductive transitions of youths (Figure 1-1).

The study is primarily invested in exploring changes in the reproductive transitions of youths across different historical periods. In this regard, the inter-cohort comparison enables to appraise the contribution of government policies in shaping the reproductive transitions of youths. Thus, the birth cohorts of youths is considered as one of the most important individual characteristics that were considered in the study. In addition, sex, education, beliefs and perception of youths as well as individual resources available to youths were among the immediate factors that

influence reproductive transition experiences of the youth (Figure 1-1). In summary, the innermost part of the conceptual framework portrays the components of the reproductive transition. The local community contexts, on the other hand, are presented as mediator variables transmitting the influences of broader underlying regional, national, and international contexts through individual attributes and resources.

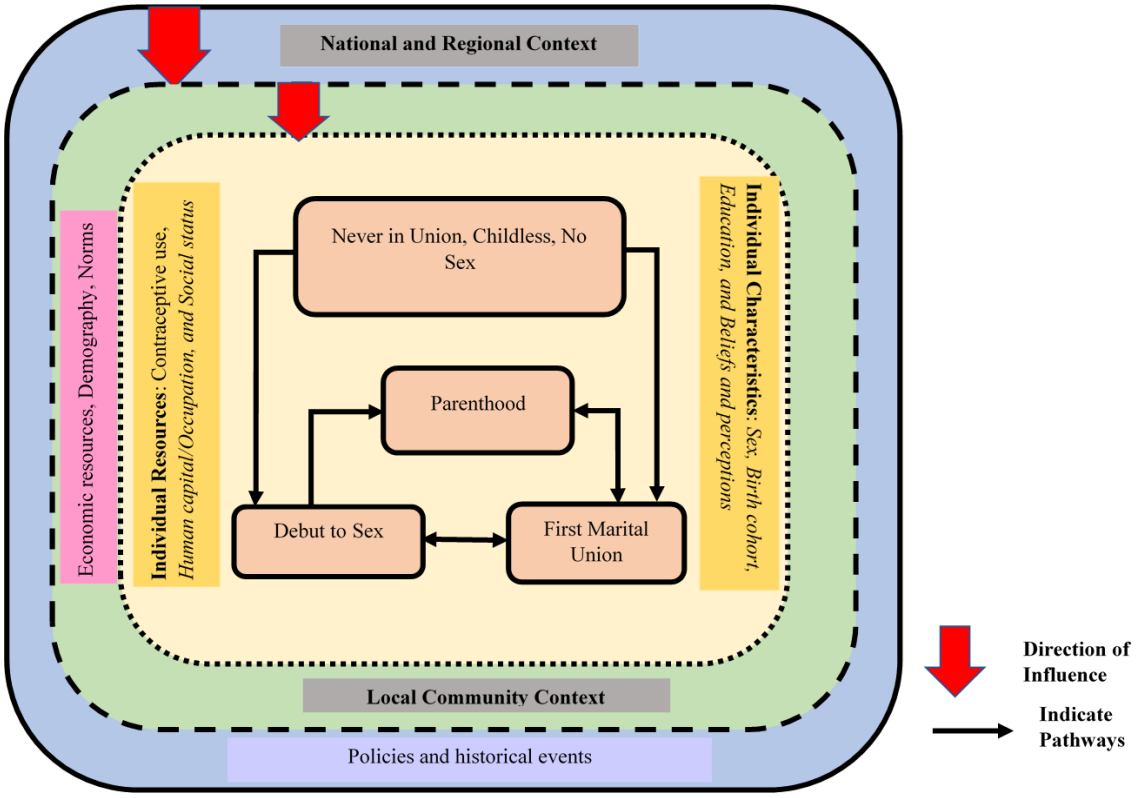


Figure 1-1. Conceptual framework showing state space for analysis of the transition to adulthood and layers of determinants

(**Source**: Developed by the researcher after reviewing related literature)

1.4. Research questions

The research attempted to answer the following questions;

1. Is there a standard reproductive trajectory of youths that obey some social norm? What patterns of youths' transition to adulthood and changes are observed over different age cohorts?

2. What demographic, socioeconomic, and geographic elements shape youths' reproductive transitions in the Oromia National Regional State?
3. Is there any disparity in the reproductive transition between male and female youths, and what are the sources of the disparity?
4. What do young people think constitutes a successful transition to adulthood? What are the barriers that limit the success of the transition? What potential social supports do youths need for a successful transition?

1.5. Objectives

1.5.1. General objective

The study's general objective is to uncover distinct patterns of and changes in reproductive transitions, identify the factors of the reproductive transitions as well as explore perceptions of a successful transition to adulthood of youths in the Oromia National Regional State of Ethiopia.

1.5.2. Specific objectives

Specifically, the study attempted to:

i. Identify and characterize patterns of reproductive trajectories of synthetic cohorts of youths using age at first sex, first marriage, and first birth as indicators,
ii. Evaluate the demographic, social, and geographical correlates of the transition of youths between different states of reproductive roles from an entry point,
iii. Assess gender disparity in youths' transition to adulthood and decompose the gap to differences in characteristics and changes in response to the behavior of male and female youths, and
iv. Explore the perception of youths on the subject of a successful reproductive transition and barriers to and required social supports for a successful reproductive transition.

1.6. Significance of the study

The transition to adulthood is an important moment in everyone's life. The transition is marked by significant economic, social, cognitive, and political changes. Complex and diverse problems frequently mark the transition to adulthood in developing nations. The challenges include access

to education, economic opportunity, and social services. Young people are a nation's future; hence, the transition phase is critical for governments. Understanding the experiences of young people throughout this period can provide insights into a country's prospects and challenges. Therefore, studying the transition to adulthood in developing countries has significant implications for policymakers and practitioners because it can help develop policies and interventions to help young people during this crucial period.

Another critical reason for studying the transition to adulthood in developing countries is the demographic shift observed in many countries. As birth rates decline and life expectancies increase, the proportion of young people rises. This dynamic creates what is often referred to as a youth bulge. In many developing countries, this youth bulge is accompanied by a mismatch between the number of young people entering the labor market and the number of available jobs. The mismatch, in turn, results in a high unemployment rate among the youth. At the same rate, many developing countries have strong expectations around marriage and parenthood, which can profoundly impact young people's educational and economic opportunities. By understanding the challenges and opportunities facing young people during this period, policymakers can design targeted policies and interventions to support them in achieving their goals and driving social and economic change.

1.7. Scope of the study

Conceptually, the study focused on the reproductive transition of youths. The school-to-labor force transition was not the subject of investigation in this study. In terms of geographical scope, the study was delimited to the experiences of male and female youths of the Oromia National Regional State.

1.8. Limitations of the study

The event history approach was used to collect Demographic and Health Survey data. Thus, the accuracy of information depends on the respondent's ability to recall the sequence of events, which a memory lapse may influence. Furthermore, event history data is gathered for individuals present during the survey. As a result, the analysis ignored or underrepresented the reproductive experiences of deceased and migratory teenagers. In addition, the analysis was carried out was

based on a relatively limited collection of variables that included youths' characteristics along with relevant household and community variables. These variables were carefully chosen, keeping in mind the study's practical constraints, available data sources, and specific research objectives. While the chosen set of variables provided valuable insights, it is possible that other variables not included in the analysis, such as parental traits, could have provided further depth and understanding.

1.9. Structure of the dissertation

The dissertation was structured into six chapters. The dissertation begins with an introduction in Chapter 1, providing an overview of the study on reproductive transitions among youths. The chapter outlines the significance of studying the reproductive transition as a marker of a successful transition to adulthood. It also highlights the research gap and purpose of the study.

Chapter 2 presents the study's results on youths' reproductive trajectories. The chapter explores the different pathways young people take in their reproductive transitions, such as early parenthood, being sexually inexperienced, and engaging in premarital sex. The chapter also highlights the importance of education in delaying the reproductive transition of young people.

Chapter 3 focuses on the correlates of the timing of the reproductive transition of youths. The chapter examines the various socioeconomic, cultural, and demographic factors that influence the timing of the reproductive transition. Chapter 4 delves into the decomposition of the gender gap in the reproductive transition of young persons. The chapter identifies the discriminatory impacts of socioeconomic factors that widen the gender gap in the timing of the reproductive transition.

Chapter 5 addresses the issue of the reproductive successes of youths, highlighting the challenges that young people face in achieving successful reproductive outcomes. The chapter emphasizes the need for reproductive health education and supportive social and cultural norms to promote successful reproductive transitions for young people. Finally, in Chapter 6, the dissertation synthesizes the findings of the dissertation, drawing conclusions and providing recommendations for policies and programs aimed at promoting positive reproductive transitions among young people.

CHAPTER 2. REPRODUCTIVE TRANSITION TRAJECTORIES

In the context of continuous cultural, social, and economic changes happening around the globe, the predictable patterns of the life course of the past observed over successive birth cohorts will not remain stable across generations. Three reproductive role indicators for three synthetic birth cohorts were used to identify and characterize the reproductive trajectories of youths. Our analysis identified four different typologies of reproductive trajectories among the youth. The sex of respondents was the primary discriminating factor of the typologies of reproductive trajectories. Normative reproductive practices are still common practices that require efforts of communities and local government bodies to ameliorate these practices.

One.

2.1. Introduction

A clear distinction between children and adults can be made based on biological and psychological characteristics. Children progress through stages in their life course and eventually assume adult roles. Although children are perceived to be apolitical and unengaged in economics, this image of innocence will not be held in the case of youths (Ansell, 2005). Youth is a stage in an individual's life course where transitioning from childhood to adulthood happens. The transition period is a time of change in which young people make choices about their future and respond to these changes (Wyn and White, 1997; Gill, 2003). Thus, youth is a critical stage in human development, during which a young person leaves childhood behind and assumes new roles and responsibilities. In our analysis, youth is defined as groups of people between the ages of 15 and 24. This age range was purposefully chosen to ensure our results can be meaningfully compared with the extensive global literature on the subject.

Young people's journey to adulthood involves transitions in many aspects of their lives. Here, rather than a single event, boundary crossing to adulthood is defined by participation in various activities. These activities include a range of socioeconomic and demographic events. Finishing school, entering the labor force, becoming financially secure, getting married, and becoming a parent are significant events commonly used as markers of transition to adulthood (Gill, 2003; Aronson, 2008; Settersten, Ottusch and Schneider, 2015). Multiple processes, such as productive and reproductive, occur in the lives of individuals in such a way that the processes themselves interact with each other (Lindstrom, Kiros and Hogan, 2009; Fasang, 2014).

Ethiopia has undergone a demographic, social, and political transformation since the 1960s. The country had experienced political upheaval that led to regime changes during the previous century. For instance, the end of the imperial era in 1974 ushered in a period of political and social change in Ethiopian history (The Provisional Military Administration Council of Ethiopia, 1975; Clapham, 2019; Schewel and Asmamaw, 2021). Two decades later, the country adopted a formal population policy recognizing the interdependence among population, resources, the environment, and development (Hailemariam, Alayu and Teller, 2011). In the MDG era, between 2000 and 2010, several policies and strategies regarding adolescent and youth reproductive health were introduced. These policies and strategies aimed to regulate and govern family relations and improve access and utilization of reproductive services (Federal Democratic Republic of Ethiopia, 2000; Ministry of Youth Sports and Culture, 2004; Federal Democratic Republic of Ethiopia Ministry of Health, 2006).

Over a long period, dramatic changes occurred in Ethiopia regarding access and enrollment in primary and secondary education. Enrollment and gender parity in primary school, for example, have both improved. Furthermore, the dropout rate has slowed down due to the introduction of free primary schooling as a policy intervention (Oumer, 2009). With the changes in education and urbanization, young people have acquired increased agency, enabling them to make decisions better than the previous generation regarding their reproductive behavior (Pankhurst, 2021). In this study, we attempted to investigate the reproductive trajectories of youths using debut to sex, entry to marriage, and parenthood as markers of reproductive transition in the context of a changing policy environment and productive roles of youths.

Life events' timing, duration, and sequence have been studied using the life course approach in a changing social and economic environment (Schoon, 2015a; Boisvert *et al.*, 2020; Wang and Zhao, 2021). By situating individual and family development in cultural and historical contexts, the theory seeks to discern the various factors that shape people's lives from birth to death (Hutchison, 2011). This perspective extends the limitations of research focusing on a single transition event by viewing life course as a unit composed of various status transitions over time. This study used this theory to evaluate the hypothesis that the interaction of individual life and historical time, known as the cohort effect, shapes the reproductive trajectories of youths. In the

current study, we attempted to explore the reproductive trajectories of three birth cohorts of youths born between 1975 and 1989. Each of these birth cohorts represents a group that grew up in a different historical period and policy context, which may have influenced their lives.

The table below (Table 2-1) summarizes the birth cohorts as well as the historical context in which they grew up (Federal Democratic Republic of Ethiopia, 2000; Ministry of Youth Sports and Culture, 2004; Federal Democratic Republic of Ethiopia Ministry of Health, 2005, 2006; Hailemariam, Alayu and Teller, 2011; Wang *et al.*, 2016).

Table 2-1. Definition of birth cohorts and historical contexts, Ethiopia

Birth Cohorts	**Birth year**	**Year Age 15**	**Year Age 25**	**Historical and Policy Context**
Cohort 1	1975 – 1979	1990 – 1994	2000 – 2004	1991 End of Civil War 1993 National Population Policy
Cohort 2	1980 – 1984	1995 – 1999	2005 – 2009	1993 National Population Policy 1997 Health Sector Development Program I 2000 Revised Family Code 2002 Health Sector Development Program II 2003 Health Extension Program 2004 National Youth Policy
Cohort 3	1985 – 1989	2000 – 2004	2010 – 2015	1993 National Population Policy 2000 Revised Family Code 2002 Health Sector Development Program II 2003 Health Extension Program 2004 National Youth Policy 2006 National Adolescent and Youth Reproductive Health Strategy 2007 - 2015

2.2. Methods

The data for the study was extracted from Ethiopian Demographic and Health Surveys (EDHS). The EDHS sample was designed to provide estimates of key demographic and health variables for the entire country, urban and rural areas separately, and each of Ethiopia's nine regions and two city administrations separately. A residence-stratified and two-stage cluster sampling technique was used to collect the data. Enumeration areas (EAs) from urban and rural areas were initially chosen randomly. A complete listing of the selected EAs' households was conducted in stage two selection. In the second round of the selection process, a predetermined number of households per EA were chosen from the list of households (Central Statistical Agency [Ethiopia] & ORC Macro, 2006; CSA [Ethiopia] and ICF International, 2012, 2016).

Synthetic birth cohorts for birth years 1975 – 1979 from the 2005 survey, 1980 – 1984 from the 2011 survey, and 1985 – 1989 from the 2016 survey were constructed. The reproductive experiences of these three birth cohorts of youth were investigated using debut to sex, entry into marital union, and parenthood as indicators of reproductive transition. The reproductive trajectory of youths was constructed by ordering the timing of debut to sex, age at first marriage, and age at first birth in their life course before the age of 25 years. Thus, the reproductive trajectory is made up of four potential categorical states. The initial state for all observations is *single*: never had sex, unmarried, and didn't start having children. Youths may stay at this initial state or advance to either *premarital sex* or *marriage*. The final potential state is becoming a *parent* before age 25 or otherwise.

The complexity of the trajectories arises from the sequencing of the states, the timing, and their duration of stay in the various states. The sequence data was prepared only for ages starting from age 15 to 24. Potential demographic and socioeconomic determinants of reproductive trajectories were also extracted. The list included sex (1 = male and 2 = female), educational attainment at the time of the survey (1 = no education, 2 = primary, and 3 = secondary and above), place of residence (1 = urban and 2 = rural), and household wealth (1 = lower and 2 = higher).

Sequence analysis is best suited to investigate the occurrence and timing of events and the

duration between events by focusing on the trajectories rather than the occurrence of a single event. The analysis uses a range of algorithms that attempt to quantify dissimilarities between life-course trajectories. The algorithms compute pairwise dissimilarities between sequences and then use these dissimilarities to identify trajectory typologies by clustering the sequences (Brzinsky-Fay, Kohler and Luniak, 2006; Studer and Ritschard, 2016; Halpin, 2017). While some measures are highly sensitive to sequencing, some others are exceedingly sensitive to timing, and the remainder emphasize the importance of spell duration (Studer and Ritschard, 2016). For this study, the choice of type of algorithm was dictated by the fact that sensitivity to the timing of life events is more highly relevant than sensitivity to ordering or spell lengths.

A Dynamic Hamming Distance (DHD), a measure highly sensitive to the timing of life events in sequence analysis, was used to compute the dissimilarities. These are then used to group similar trajectories using a partition around medoids (PAM) algorithm. When compared to hierarchical clustering, PAM has the advantage of maximizing a global criterion rather than just a local criterion. In addition, the choice of an optimal number of partitions and quality assessment of the partitions were made through the aid of an Average Silhouette Width (ASW) and Point Biserial Correlation (PBC) measures (Studer, 2013).

After the groups had been identified, an assessment of the association between clusters of trajectories and factors such as birth cohort, sex, place of residence, educational attainment, and household wealth was made using a multifactor discrepancy analysis. Discrepancy analysis computes a covariate's contribution to the dissimilarity in the reproductive trajectory. Thus, it allows for ranking factors based on their relative importance in explaining the disparity in reproductive trajectory. A regression tree method was also utilized to discover the most significant discriminant covariates and their interaction (Studer *et al.*, 2011).

The regression tree-growing process starts with all individuals being put in one node. Then, a recursive partitioning based only on significant factors was done. In the process of partitioning, the predictor and the split are selected to maximize the dissimilarity between the resulting nodes (Studer *et al.*, 2011). This recursive process was repeated until the last partition step captured a minimum of 5% of the total weighted cases. Split significance was assessed at a p-value of 5%

for an F-test with five thousand permutations.

The data management, editing, and data preparation for the analysis were done using STATA 14.0 (StataCorp, 2015). The analysis, however, was carried out in R software version 4.2.0 (R-Core Team, 2022; RStudio Team, 2022) using *TraMineR* and *WeightedCluster* packages. *TraMineR* package was used to analyze and visualize state sequences, including the multifactor discrepancy analysis and sequence regression tree. In contrast, the *WeightedCluster* package was used to partition sequence dissimilarity and assess the quality of the partition (Gabadinho *et al.*, 2011; Studer, 2013). The analysis was carried out using weighted cases.

The study used secondary data from the Demographic and Health Surveys Program. Procedures and questionnaires for standard Demographic and Health Surveys have been reviewed and approved by the ICF/ORC Institutional Review Board. In addition, the study protocols obtained ethical clearance from the Institutional Review Board offices of the Ministry of Science and Technology of Ethiopia and the Ethiopian Health and Nutrition Research Institute. Interviews were conducted after securing oral consent from respondents. Furthermore, the names of respondents and individual identifiers were not included in the final data to ensure respondents' anonymity.

2.3. Results

The first birth cohort (births from 1975 – 1979) constituted 1083 respondents, 1775 respondents were used for the second birth cohort (births from 1980 – 1984), and the last birth cohort considered (births from 1985 – 1989) was made up of 1753 respondents. Rural respondents comprised a considerable share of the samples throughout all birth cohorts: 86.3% of the first birth cohort, 85.9% of the second, and 88.4% of the third birth cohort samples were from rural areas. Nearly three-quarters of the samples of the first birth cohort (74.4%) were female youths. This percentage gap resulted from the difference in sampling strategy for male and female samples during the 2005 survey. In the second and third birth cohorts, female youths accounted for 56.3% and 57.2% of the sample (Table 2-2).

Table 2-2. Background characteristics of respondents, Oromia - Ethiopia

Birth Cohorts	Sex (%)		Residence (%)		Total (Number)
	Male	Female	Urban	Rural	
1975 – 1979	25.6	74.4	13.7	86.3	1083
1980 – 1984	43.7	56.3	14.1	85.9	1775
1985 – 1989	42.8	57.2	11.6	88.4	1753

The analysis identified four types of reproductive trajectory typologies for youths of Oromia. The partitioning around medoids (PAM) algorithm was used to identify these typologies. Various quality assessment indicators were used to evaluate the partition's quality. An average silhouette width (ASW = 0.53) and its weighted version (ASWw = 0.53) statistics suggested a partition of two typologies that somewhat oversimplified the pattern of reproductive transition to adulthood. However, the point biserial correlation (PBC = 0.72 and ASW = 0.52) suggested a solution of four typologies as appropriate, yielding diverse pathways of youth's reproductive trajectories. The ASW values indicate the presence of an underlying reasonable structure (Figure 2-1). The typologies are depicted using a chronogram plot (Figure *2-2*), and descriptions of the typologies are provided hereunder.

1.) **Sexually inexperienced**: These groups of youths exhibited a typical characteristic of abstaining from sex, marriage, and having their first child before 24 years of age. This typology ranks third in magnitude, constituting 1086 respondents (23.6% of total respondents of all birth cohorts). A small proportion of these youths marry after the age of 20, and the likelihood of transitioning from marriage to having a child was slimmer as sex before marriage is considered taboo in major parts of Ethiopia.

2.) **Adolescent parent:** This typology ranks first, encompassing 1762 youth respondents of all birth cohorts (38.2%). Youths of this cluster characteristically get married too early and become a parent. Nearly all of the youths of this group got married by age 16 and became a parent by age 18.

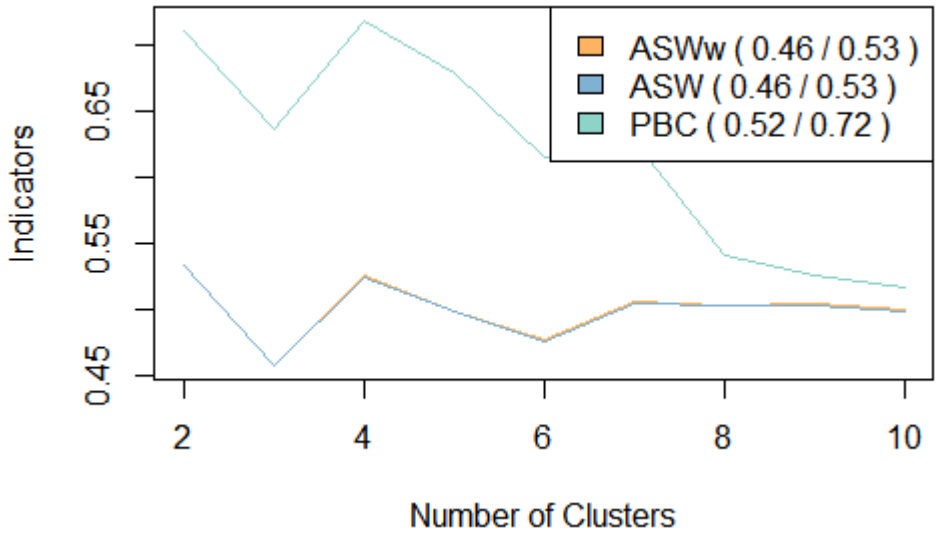


Figure 2-1. Choosing an Optimal Number of Clusters

(ASW= Average Silhouette Width, ASWw = Average Silhouette Width (weighted)**,** PBC = Point Biserial Correlation**)**

3.) **Adult Parent**: This group accounted for 1323 youths of all birth cohorts (28.7%), making the cluster the second most popular typology of youth's reproductive pathway to adulthood. Contrary to the characteristic of an adolescent parent, these groups of youths, on average, postpone marriage until around age 18. Further, for this cluster, the transition from marriage to the birth of the first child takes an average of two years.

4.) **Premarital sex** is the least prevalent typology of youth's reproductive transition to adulthood, accounting for 9.5% of respondents of all birth cohorts. Two characteristic features define this group of youths: *i*) transition to marriage and parenthood before 24 was less likely, and *ii*) youths' debut to sex begins before age 18.

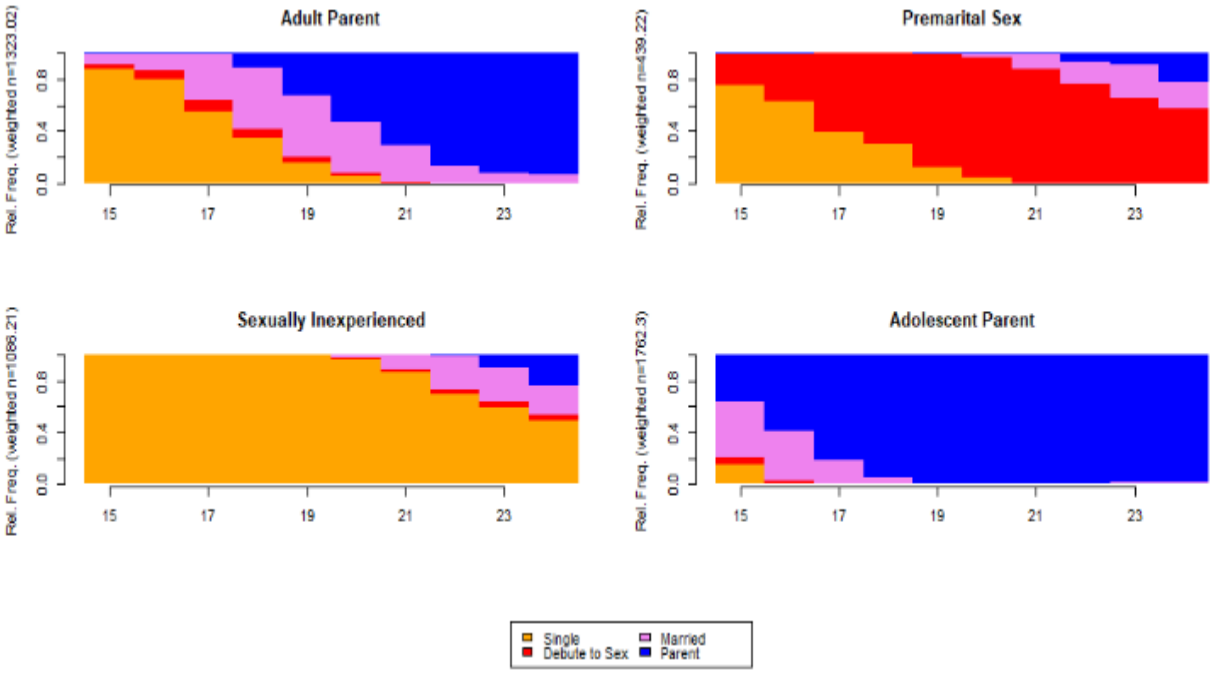


Figure 2-2. Typology of youth's reproductive trajectories, Oromia – Ethiopia

The multifactor discrepancy analysis revealed that the reproductive trajectory youths assume in their life course before age 25 was shaped by multiple factors, each contributing differently to the overall pattern of reproductive transition trajectory. The global F statistics and R-squared value show that the model explains a significant proportion of the trajectory discrepancy (F = 51.7, $R^2 = 0.174$, and p-value = 0.000). As seen from the table below (Table 2-3), socioeconomic status, as measured by household wealth, didn't have an independent significance in explaining the discrepancy in the reproductive trajectory of youths ($R^2 = 0.001$ and p-value=0.133).

The sex of respondents was the most significant factor that shaped the discrepancy in reproductive trajectory, having the largest share of R-square value ($R^2 = 0.099$ and p-value = 0.000). This significant portion of the discrepancy in reproductive trajectory demonstrates the presence of gender disparity in terms of the reproductive transition of youth. In addition to sex, in order of their relative importance in explaining the discrepancy of the reproductive trajectory of youths, we found the level of education of youths ($R^2 = 0.011$ and p-value = 0.000), birth cohort ($R^2 = 0.004$ and p-value = 0.001), and place of residence ($R^2 = 0.002$ and p-value = 0.005) (Table 2-3).

Table 2-3. Multifactor discrepancy analysis of reproductive trajectory, Oromia - Ethiopia

Variables	Pseudo F	Change in R^2	P-value
Sex	205.7	0.099	0.000
Education	11.5	0.011	0.000
Birth cohort	3.9	0.004	0.001
Residence	3.5	0.002	0.005
Wealth	1.6	0.001	0.133
	Pseudo F	**R^2**	**P-value**
Global	51.7	0.174	0.000

Although the multifactor discrepancy analysis permitted an assessment of factors' effect on the reproductive trajectory's discrepancy, it didn't allow us to evaluate how the trajectories get modified as these factors change. A sequence regression tree analysis result portrays not only the effect on the discrepancy of the trajectory but also the interaction of covariates that weren't accounted for in the multifactor discrepancy analysis. The results indicate that the regression tree explained 17.6% of the total discrepancy observed, showing that the evolution of the reproductive trajectories of youths in the life course significantly differed between groups. The global Pseudo-F and Levene's tests also attested that the trajectories varied significantly more between groups than within groups (Figure 2-3).

Sex was the first covariate to significantly contribute to the between-group discrepancy in trajectory, accounting for 14.3% of the total between-group discrepancy. While female youths transition to marriage and parenthood before the age of 24 with a relatively higher magnitude than male youths, premarital sex was a characteristic feature that identified the trajectory of male youths. Education was the second most significant factor that contributed to the discrepancy in trajectory in both male (R^2 = 1.96%) and female (R^2 = 3.72%) youths. The results portray that those female youths with no formal schooling transition to marriage and parenthood the earliest than those with at least a primary level of schooling. Additionally, male youths with secondary and above levels of education were much more likely to engage in premarital sex and delay getting married and having children until later in life. Contrarily, premarital sex is rare among male youths with no formal education or only a primary level of education (Figure 2-3).

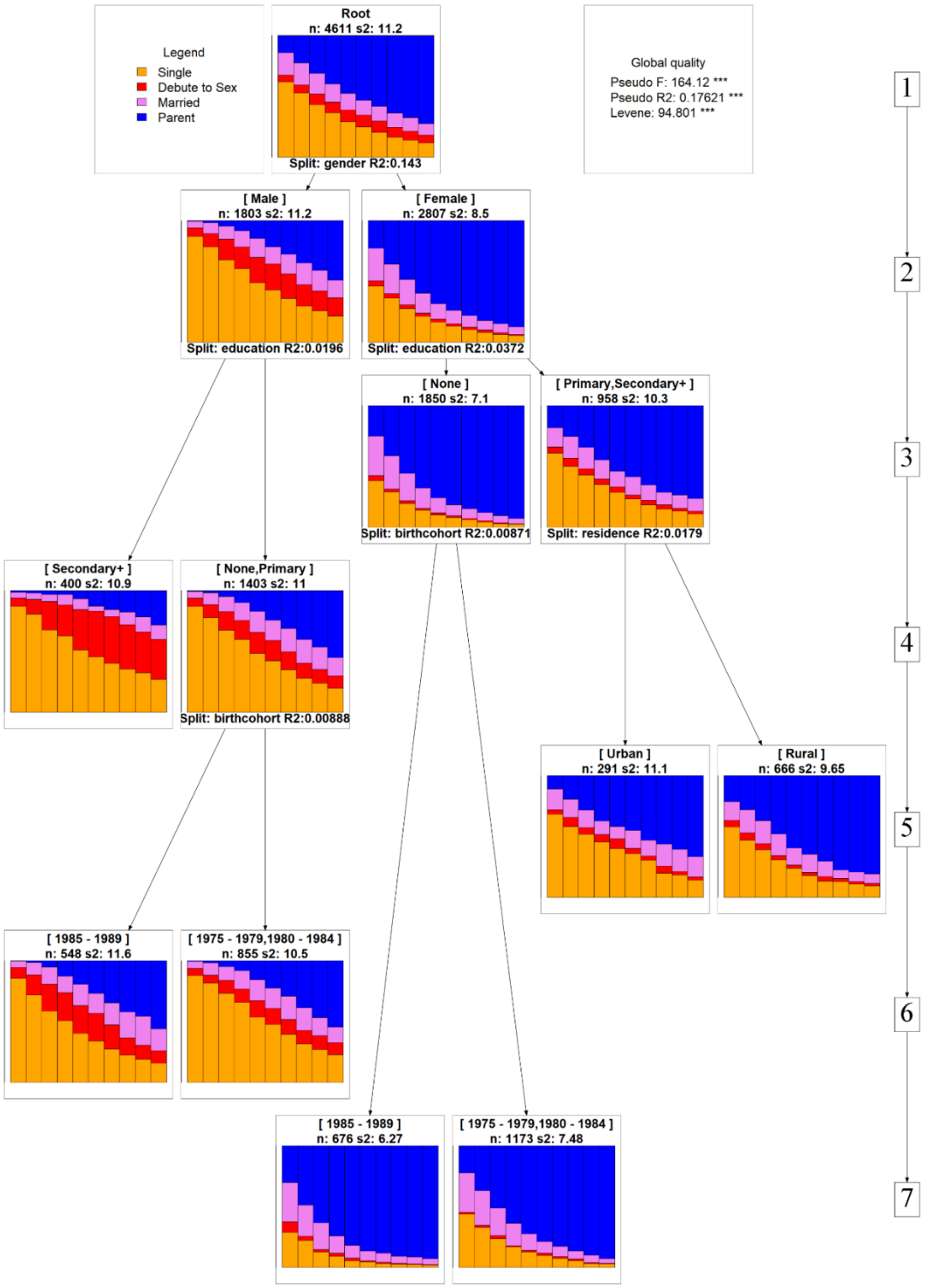


Figure 2-3. Sequence regression tree, Oromia – Ethiopia

Another intriguing finding from the regression tree analysis was that the trajectory pattern did

not remain stable across birth cohorts among male youths who did not complete primary school (R^2 = 0.89%). Transition to sex, marriage, and parenthood happened earlier for the recent birth cohorts of males (1985 – 1989) than in previous birth cohorts. Regardless of its small contribution to the discrepancy (R^2 = 0.87%), birth cohorts differentiated the trajectory of female youths without formal schooling. Transition to marriage and parenthood occurred at an earlier age for females of recent birth cohorts (1985 – 1989) having no formal education as compared to females of older birth cohorts (1975 – 1979 and 1980 – 1984) without formal schooling (Figure 2-3).

Place of residence was also found to be a discriminating factor. However, the discriminatory power was significantly higher among educated females, contributing to a 1.79% trajectory discrepancy. Unlike this, the benefit of educational attainment of female youths in postponing reproductive roles to later in life was not evenly distributed among urban and rural residents. The advantage of female education, primary and above level, in pushing reproductive roles to later in life was better translated in urban areas than in rural settings (Figure *2-3*).

2.4. Discussion

The study aimed to identify youths' underlying reproductive transition patterns in the Oromia National Regional State of Ethiopia. In addition, the sources of the diversity of the reproductive life trajectory of youths were also investigated. Instead of focusing on a single transition event, the research considered life course as a unit composed of various status transitions over time. Thus, the analyses used three reproductive role indicators: debut to sexual intercourse, first marriage, and first birth. These indicators were selected as these events are known to have a far-reaching impact on an individual's health and well-being in adulthood (Bongaarts, Mensch and Blanc, 2017).

This study has identified four typologies of the reproductive trajectories of youths. The first is a transition to family formation and parenthood early in adolescence, which was the most prevalent typology. The second most common typology was characterized by deferring marriage and parenthood until age 18 but before 20. The third and fourth typologies account for one-third of the youths having common characteristics of postponing marriage and parenthood beyond

age 24. However, youths in the third cluster were found to refrain from sex, marriage, and parenthood before 24. In contrast, those who belong to the last cluster were characterized by postponing marriage and parenthood to later ages. However, they were engaged in sexual activity at a young age.

Traditional norms and values are still dominating youths' reproductive trajectories: Numerous research outputs reported the emergence of multiple reproductive trajectories with heterogeneous patterns in various locations (Schoon, 2015a, 2015b; Boisvert *et al.*, 2020; Santos, Queiroz and Verona, 2021; Wang and Zhao, 2021). The results of this study add to the body of youth reproductive health research demonstrating the existence of diverse reproductive trajectories in the study setting. The findings indicate that many youths engage in the traditional type of reproductive role; they marry and have children at an early age. However, the identified patterns of reproductive behaviors also demonstrate that youth's reproductive behavior was diverging from the tradition of getting married and having children early.

In our analysis, we made an effort to map the continuation and patterns of divergence of reproductive practices from normative roles. Consistent with our findings, others have also reported the continuation and discontinuity of these traditional reproductive practices. The discontinuation was a result of a variety of factors, such as the expansion of formal education, better employment opportunities, and urbanization (Nguyen and Wodon, 2015; Crivello, Boyden and Pankhurst, 2019; Getu, Emirie and Habtamu, 2021; Scott *et al.*, 2021). The findings strongly suggest that male and female youths' reproductive trajectories differed substantially. In line with this, earlier studies have shown that, compared to male youths, female youths typically transitioned to marriage and took on parental roles early in their lives (CSA [Ethiopia] and ICF International, 2016; Allendorf *et al.*, 2017). However, this pattern did not remain stable and varied across different characteristics of youths, indicating the presence of a strong interaction effect with the sex of youths.

Education appears to affect the sexual and reproductive behavior of young persons in Ethiopia: Education is a transformative experience that increases youths' awareness of alternative roles. As a result of increased earnings after schooling, youths will be encouraged to

postpone reproductive roles until later in life in the long run. For female youths, a primary level of education was a critical divide that significantly impacted delaying marriage and childbearing. Conversely, female youths without formal schooling assumed a traditional reproductive trajectory. This finding is not a novel discovery in and of itself. It has been noted that female education tends to delay the age of first marriage, leading to a delay in age at first birth for females. In this regard, female secondary education had an even stronger association with delayed entry to marriage and parenthood than primary education (Bongaarts, Mensch and Blanc, 2017; Marphatia *et al.*, 2020a; Rasul *et al.*, 2022). A rather intriguing finding reported in this work was that the postponement of reproductive role assumption was stronger among educated female youths living in urban areas than their rural counterpart. Female urban residents are more likely than rural ones to continue to secondary school (CSA [Ethiopia] and ICF International, 2016). The delayed entry to first marriage and childbearing of urban female youths compared to rural females could be attributed to the better progression of urban females to post-primary education. Similarly, it is possible to argue that rural female youths' early transition to reproductive roles sets the stage for their poor progression to post-primary education.

Gender disparity in reproductive trajectories: Male youths characteristically delay marriage and parenthood to later ages than female youths. Yet, postponing these reproductive roles to later life increased the entry rate to premarital sexual activity. The findings support previous research that reported male youths are more likely to defer their transition to marriage and parenthood than females (Allendorf *et al.*, 2017; Smith, 2020). In the cultural context of the study area and generally, in Africa, fatherhood entails ensuring the well-being of the family through financial provision; thus, fathers should fulfill the needs of both their children and the mother of their children (Dame, 2015; Lesch and Kelapile, 2016; Smith, 2020). Delaying marriage and fatherhood may not necessarily be linked to fertility decisions of male youths to have fewer children; rather, it might be a behavior induced by resource constraints and higher unemployment rates male youths are experiencing (Gibson and Gurmu, 2011; Smith, 2020; Ethiopia Statistics Service, 2021).

Male youths with secondary and above levels of education defer marriage and parenthood to an even advanced age while engaging in premarital sexual activity. Thus, first sex, marriage, and

fatherhood were unlikely to be closely tied for these groups of male youths. Several reasons, such as peer pressure, personal sexual desire, exposure to media, and culture, were cited in the literature as causes for engaging in premarital sex among adolescents and youths (Chihurumnanya *et al.*, 2016; Taye and Asmare, 2016; Waktole, 2019; Damtie *et al.*, 2022). Worryingly, the practices are likely to be unsafe, leading to unplanned pregnancy, premarital fertility, abortion, and sexually transmitted infections (STIs), including HIV/AIDS.

The results suggested that younger birth cohorts of male youths with less than a secondary level of education transition to marriage and parenthood sooner than older birth cohorts. Similarly, among female youths with no formal schooling, the recent birth cohorts were disadvantaged because the transition to reproductive role assumption occurred earlier than in older birth cohorts. Despite this, the changing sexual behavior and reproductive transitions across generations, irrespective of sex, have also been documented elsewhere (Techasrivichien *et al.*, 2016). Early transition to marriage and parenthood observed among the less educated younger birth cohorts of both sexes could potentially result from an increasing prevalence of premarital sex and unplanned pregnancy. Findings from Tanzania corroborate that the early transition of less educated females to reproductive roles was commonly practiced in response to the increased risk of premarital sex (Stark, 2018).

2.4.1. Strengths and limitations

Finally, it is worth mentioning the strengths and limitations of the present analysis. Identifying different types of trajectories was made possible by taking into account the timing, spacing, and sequencing of multiple reproductive events all at once, which is the major strength of this study. Another unique contribution of the present study is assessing the interaction of effects of variables through the application of multifactor discrepancy analysis and sequence regression tree analysis. Further, the study was conducted for male and female youths, enabling gender comparison of reproductive trajectories. Nonetheless, it should be noted that the data used for this study was gathered through retrospective reporting of events such as age at first sexual debut, age at first marriage or union, and age at first birth. The accuracy of data is dependent on the capacity of the respondents to remember the timing of the occurrences of the events that could be affected by a memory lapse. Thus, the results should be cautiously interpreted as the

data quality of these events might be affected by different reporting errors (Neal and Hosegood, 2015). Further, our analysis was focused only on significant covariates that discriminated the various reproductive trajectories observed and did not consider an exhaustive list of covariates.

2.4.2. Implications for research and practical applications

Given the limitation of the present work, we recommend that future researchers depart from the traditional binary classification of reproductive experiences and endeavor to explore reproductive trajectories through the lens of a holistic approach. Further, because sex accounts for a significantly larger portion of the diversity in reproductive trajectory, it follows that the possible reasons for the gender gap in the transition to family formation and parenthood trajectories require further investigation. Although education was found to be one of the trajectory discriminating factors for rural resident female youths, the nature of the relationship between secondary and above levels of educational attainment and transition to reproductive roles was not apparent.

Normative reproductive practices such as early marriage and adolescent fertility are still common practices (38.2%) that require efforts of the communities and local government bodies to ameliorate these practices. Although improvements are scored due to various interventions, premarital sex and its consequences are observed as worrisome emerging reproductive patterns among youths. This emerging reproductive pattern is especially prevalent among the younger birth cohort's less educated males and females, implying that lack of education still affects some aspects of their lives. They should be targeted in a program that aims to improve youths' empowerment by offering training and employment opportunities and widening their access to sexual and reproductive health services.

2.5. Conclusions

The study identified four different typologies of reproductive trajectories among youths. The sex of youths was the primary discriminating factor of the typologies of reproductive trajectories. Female youths transition to marriage and parenthood earlier than males; for male youths, however, first sex, marriage, and fatherhood were unlikely to be closely linked. The study also showed that the reproductive trajectories of the three birth cohorts who lived in

different cumulative historical time and policy environments exhibited slight but significant disparity. The findings support the notion of changing norms in reproductive behavior among the less educated male and female youths. Primary educational level attainment was an important factor in discriminating female youths into those who entered marriage and parenthood the earliest and those who postponed marriage and parenthood a little longer. The discriminating power of education was even stronger for female youths in urban areas than those living in rural settings.

CHAPTER 3. CORRELATES OF REPRODUCTIVE TRANSITIONS

Delaying the transition to marriage and parenthood among youths has been a policy priority in many countries. Reproductive transitions in the life course of individuals still attract the attention of social and health researchers and practitioners. The study analyzed the timing and intensity of reproductive transitions of three synthetic birth cohorts of youths and its correlates in Ethiopia. The results demonstrate that early premarital sexual initiation is the primary precursor to social ills such as early and single parenthood and their consequences among Ethiopian youths. Due to the excessive risk that female youths have been exposed to, a persistent gender gap in reproductive transition has also been observed. An attempt shall be made to lessen the impact of early premarital sexual initiation and to narrow the gender gap in reproductive transition that has been observed due to the excessive risk to which female youths have been exposed.

3.1. Background

Despite the variation of the concept of youth among cultures and various socioeconomic circumstances, the United Nations defines youth as groups of people between the ages of 15 and 24 for accounting and comparison purposes (United Nations, 1981). The concept of youth emerged due to the need for young people to be involved in politics and the economy as a distinct stakeholder group (Villa-Torres and Svanemyr, 2015). Youths are recognized as potential social progress and economic development agents, particularly in sub-Saharan Africa. As such, there are shifts in global policy thought over time regarding youths' participation in matters that affect all aspects of their life (United Nations, 1981; Ministry of Youth Sports and Culture, 2004; African Union Commission, 2006).

Transition to marriage and parenthood represents an inflection point for entry into a new social role and responsibility in the life course of individuals. During the transition period, youths are expected to adjust to physical, emotional, and relational changes (Åsenhed *et al.*, 2013; Entsieh and Hallström, 2016). Thus, understanding the reproductive transition of youths is crucial to achieving positive youth development, building youth resilience, and fertility control strategies (Plourde *et al.*, 2016; Bongaarts, Mensch and Blanc, 2017). Existing literature reveals that progress in delaying marriage and parenthood has been scored in the least and middle-income

countries over the past several decades. This progress is credited to a number of factors, including improved economic prospects, increased access to education, and the spread of knowledge and resources about reproductive health (Koski, Clark and Nandi, 2017; Menon *et al.*, 2018; Mohr, Carbajal and Sharma, 2019; Marphatia *et al.*, 2020b; Belachew *et al.*, 2022)

Despite the rising trends in the average age at marriage and parenthood in sub-Saharan Africa, early marriage remained highly prevalent, and the gains obtained earlier have not been sustained (Nguyen and Wodon, 2015; Koski, Clark and Nandi, 2017). Another emerging finding reported and discussed previously in this regard was the increase in early debut to sex observed following the declining trend in early marriage among adolescents of sub-Saharan Africa, leading to a slower decline in the rate of early childbearing (Dessalegn Y Melesse *et al.*, 2021). With an increase in the trend of separation of these events among adolescents, there is considerable interest among policymakers and researchers to better understand the timing of reproductive transitions and characterize the transition patterns.

A growing body of literature examining various aspects of adolescent reproductive transition reveals the intricate nature of adolescent reproductive transition. The findings reveal a combination of persistent traditional norms, such as early timing of marriage and childbearing, and the emergence of new patterns that diverge from established reproductive trajectories (Schoon, 2015a; Dejene and Gurmu, 2022). Considering the emerging competing nature between entry to marital union and debut to sex among adolescents of sub-Saharan Africa, it is essential to broadly assess the sequencing of these events and their relative influence on the timing of parenthood in the life course of youths.

To capture the changing pattern in the timing of reproductive transition, the study aims to compare the inter-cohort timing of reproductive transition experiences of males and females in their life course before reaching age 25. The life course perspective posits that behavioral changes over historical time are brought about by changes in the socio-cultural settings in which a person has been growing. Many scholars borrowed the concepts of life course theory to study variation in the timing of reproductive transition (Burton-Jeangros *et al.*, 2015; Fava *et al.*, 2016; Smith-Greenaway and Clark, 2018; Chang *et al.*, 2021). In this study, we attempted to compare

the timing and intensity of the reproductive transition of Ethiopian youths before turning 25 for three synthetic birth cohorts through the lens of the life course perspective using a competing risk perspective. We have also assessed identifying correlates of youths' reproductive transition timing and evaluated the relative strengths of competing attrition forces.

3.2. Methods

Reproductive experiences of the birth cohort for respondents born during 1975 – 1979, 1980 – 1984, and 1985 – 1989 were compared. The data for the present analysis was extracted from the recent three major Ethiopian Demographic and Health Surveys (EDHS) conducted in 2005, 2011, and 2016. The EDHS sample was designed to provide estimates of key demographic and health variables for the entire country, urban and rural areas separately, and each of the nine regional states and the two city administrations separately (Central Statistical Agency [Ethiopia] & ORC Macro, 2006; CSA [Ethiopia] and ICF International, 2012, 2016). The analysis for this study has focused only on the Oromia National Regional State. The region is home to a large number of youths population in the country (38.3%) who come from a variety of cultural backgrounds where the pace of fertility transition is sluggish (Yates, 2011, 2020; CSA [Ethiopia] and ICF International, 2016; Ethiopia Statistics Service, 2021).

An event history approach was used to prepare the data for analysis using age at first sex, age at first marriage, and age at first birth as markers of transition to adulthood. Consequently, the reproductive experience of youths is composed of four potential categorical states. The initial state for all observations is *single*, that is, never had sex, not married, and didn't start childbearing. Youths may stay at this initial state or advance to either *premarital sex (PMS)* or *marriage state*. The final potential state is that of becoming a *parent*. In our analysis, the first three states are regarded as transient, transition to premarital sex and entry into a marital union are taken as competing risks, and the final state is considered as an absorbing state.

The present work aims to estimate the transition rates between the different states and assess the transitions' elements. Here, four transitions are of great interest: from a single state to premarital sex *($h_1(t)$)*, from single to marriage *($h_2(t)$)*, from the onset of premarital sex to becoming a parent *($h_3(t)$)*, and from marriage to being a parent *($h_4(t)$)* (*see* Figure *3-1*).

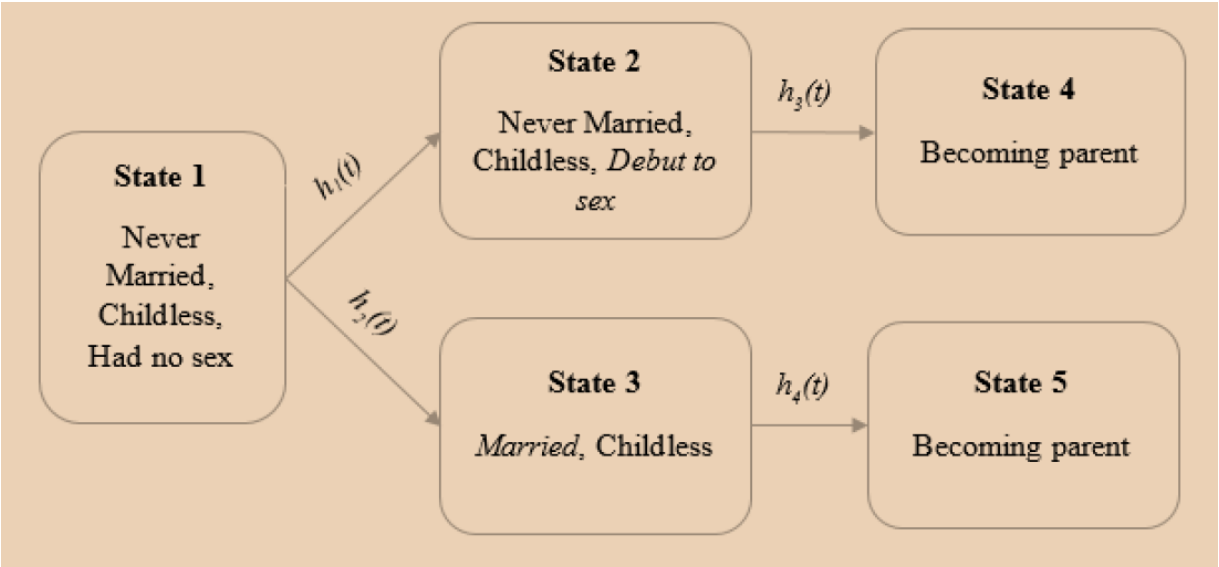


Figure 3-1. Reproductive transition model of youths in Ethiopia

Variables and Measurements

Since the main interest of this study is to compare the reproductive experiences of different cohorts, the birth cohort is taken as a control variable in all of our analyses. Both individual and group level variables, i.e., household and community levels, were considered as predictors. The descriptions of these variables are available in the standard recode manual of the demographic and health survey (DHS) (ICF, 2018). The list of variables and their coding are also shown in Table 3-1.

Table 3-1. Description of variables and their measurement used in the analysis

Type	**Name and label**	**Description and measurement**	**Source**
Control (categorical)	Birth cohort	Three groups of birth cohorts, those born in 1975-1979, 1980-1984, and 1985-1989, were used to compare transition rates between different states and factors associated with youths' transitions to adulthood. It was computed from the birth date data of respondents (v011/mv011).	Computed
Independent	Sex of respondents	This variable was created during the	Computed

Type	Name and label	Description and measurement	Source
(categorical)	(sex)	merging of the data of male and female respondents (0=Male, 1=Female).	
Independent (categorical)	Place of residence (v102/mv102)	Type of place of residence where the respondent was interviewed as either urban or rural (0=Urban, 1=Rural)	Individual interview data
Independent (categorical)	Educational level (v106/mv106)	Highest education level attended. This variable shows the level of education in the following categories: 0=No education, 1=Primary, 2=Secondary, and 3=Higher.	Individual interview data
Independent (categorical)	Occupation (v717/mv717)	Respondents occupation group classified as 0=Not working (example; student and pensioner), 1=Agricultural employee, 2=Non-agricultural employee	Computed from individual interview data
Independent (categorical)	Religion (v130/mv130)	The religious affiliation of respondents which was be recoded to 1=Christians (Orthodox, Protestant, and Catholic), 2=Muslim, 3=Others	Computed from individual interview data
Independent (categorical)	Contraceptive use (v313/mv313)	Current use of any modern contraceptive. It was computed from interview data and recoded as 0=No, not using any modern method, and 1=Yes, using any modern method.	Computed from individual interview data
Independent (numeric)	Community Level Youth Industry Employment (*centered at the mean, that is, 25%*)	Percentage of youths employed in an industrial sector (i.e., manufacturing and processing activities) of all youths in a community (enumeration area)	Computed from individual interview data
Independent	Community	Percentage of a population living in a well-	Computed

Type	Name and label	Description and measurement	Source
(numeric)	affluence (*typical households* or *centered at the median, that is, 33.3%*)	off household (i.e., richer and richest wealth categories) in a community (enumeration area)	from Household data
Independent (numeric)	Community literacy (*Centered at the median, that is, 5%*)	Percentage of population (age-appropriate, that is, age 15 and above) with at least a secondary level of education in a community (enumeration area)	Computed from Household data

Data Processing and Analysis

A multistate model is best suited to investigate transitions that occur across a series of states through time. Instead of focusing only on one transition, the model can handle a variety of complex causal relations, each with its appealing characteristics. For instance, transition-specific baseline hazards and transition-specific covariates can be entertained (Royston and Lambert, 2011; Metzger and Jones, 2016). Further, multilevel models are vital to handle such issues empirically to account for clustering youth respondents within an enumeration area or neighborhood (Owen, Harris and Jones, 2016). Therefore, in this work, we attempted to combine the benefits of multistate and multilevel models to produce the results.

The data management, editing, and analysis were done using STATA 14.0 (StataCorp, 2015). When data quality is an issue, median splining smoothing was used to generate plots of predicted values. A multi-level multistate model was fitted using the *merlin* command, which fits any number of outcome models, including flexible parametric survival models (Crowther, 2020). An assessment of the baseline hazard for all the transition models was made using the *Royston-Parmar* model for a range of degrees of freedom (Royston and Lambert, 2011). The selection of influential variables for all of the transition models was made using a multivariable fractional polynomial model. This procedure used a 20% nominal p-value for variable selection into a model and a 5% significance level for testing between fractional polynomial models of different degrees (Sauerbrei *et al.*, 2006). The time-dependent effects of variables were also assessed, and

only significant terms were included in the final model. All analyses were carried out using weighted cases, and a p-value of 5% was used to declare statistical significance in the final model.

The study relied on secondary data from the Demographic and Health Surveys Program. The ICF/ORC Institutional Review Board examined and approved the procedures and questionnaires for routine Demographic and Health Surveys. Furthermore, the Institutional Review Board offices of Ethiopia's Ministry of Science and Technology and the Ethiopian Health and Nutrition Research Institute ethically cleared the study protocols. Following the verbal consent of respondents, interviews were undertaken. Furthermore, to guarantee respondents' privacy, names and individual identifiers were removed from the final data accessible to the public.

3.3. Results

The sample constituted 1083 respondents from the first birth cohort, 1775 respondents from the second, and the last birth cohort comprised 1753 respondents. The overall pattern of reproductive transition generally remained consistent across birth cohorts. However, the transition to premarital sex recurred earlier with a larger magnitude among younger cohorts than those born earlier. Most youths' reproductive transition occurred because of marriage rather than PMS (Figure 3-2). Transition to parenthood after first marriage among youths was nearly universal. Regardless, almost 60% of the youths that started PMS became a parent except for the second birth cohort, which was about one-third (see Figure 3-2, second row).

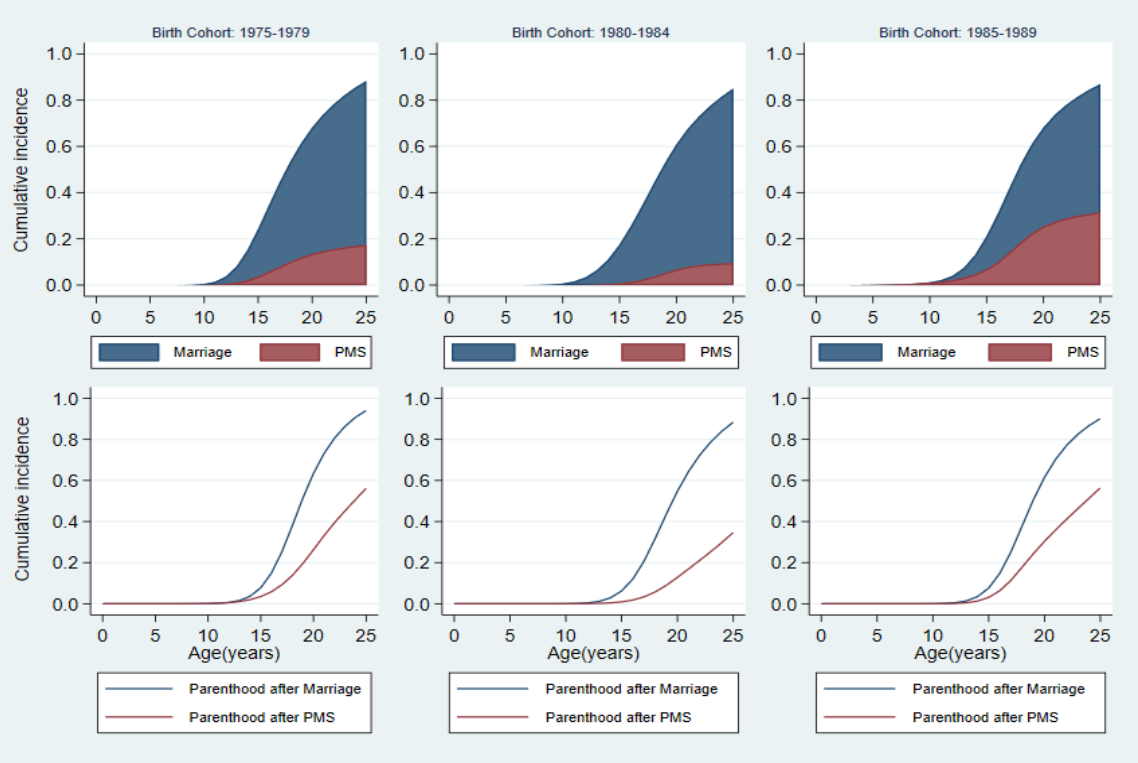


Figure 3-2. Cumulative transition probabilities by birth cohort

The result of multilevel multistate analysis for the transition from single to premarital sex state was strongly associated with the birth cohort and sex of youths. The risk of transition to premarital sex was AHR = 0.61 ($p<0.01$) and AHR = 0.29 ($p<0.001$) times less likely among birth cohorts of 1975 - 1979 and 1980 – 1984, respectively, as opposed to the recent birth cohort. Sex of youths, however, had a time-dependent effect; the association is best captured using the predicted survival time plots for female and male youths (Figure 3-3 and Table 3-2). The plots demonstrate that until age 15, both male and female youths transition to premarital sex at the same rate, beginning as early as age 10. Nonetheless, after age 15, female youths had a significantly lower risk of transiting to premarital sex when compared to their male counterparts. Results of the study clearly show that while the incidence of premarital sex keeps sharply rising for male youths, the incidence rates lagged for female youths, resulting in a wider gender gap (about 12% at age 20) (*see* Figure 3-3 – *first column*).

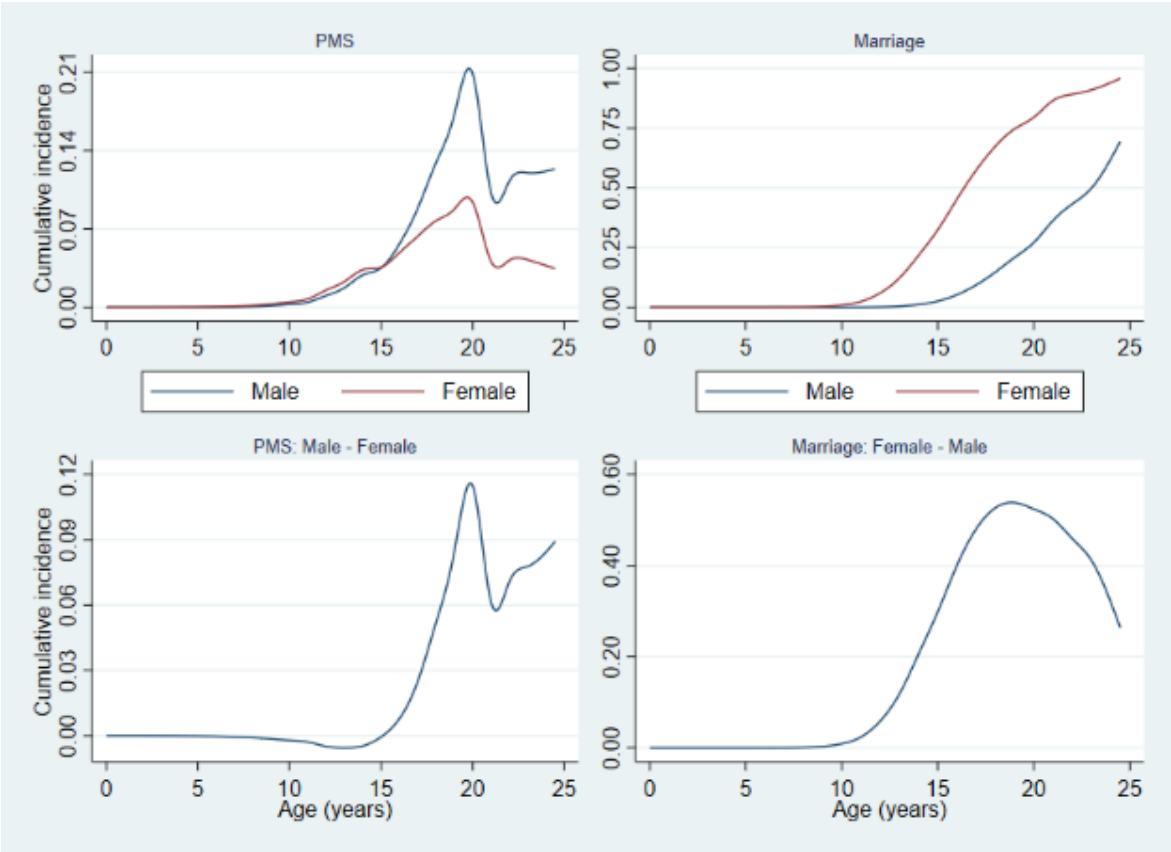


Figure 3-3. Predicted cumulative incidence and gender gap in cumulative incidence of premarital sex and marriage

Controlling for the effects of other factors, the birth cohorts appear to share a similar transition experience to first marriage. Results of the study convey that the educational achievement of youths has a statistically significant effect in the reduction of the risk of transition to first marriage: AHR=0.72 ($p<0.001$) for primary and AHR=0.32 ($p<0.001$) for secondary and above levels of education. The sex of youths also shows a time-varying influence on the transition to first marriage. Accordingly, female youths are at a disproportionately higher risk of transition to first marriage than males. More specifically, the gender gap in the transition to first marriage among the youths is increasing progressively beginning in early adolescence, with the highest peak at age 19 (about 60% difference in cumulative incidence). However, the difference in cumulative incidence of transition to first marriage between the sexes falls at higher ages as the difference reaches about 30% at age 25 (*see* Table 3-2 and Figure 3-3 – *second column*).

Table 3-2. Multistate-multilevel model for reproductive transition of youths, Oromia-Ethiopia

Variables and categories		Model 1		Model 2		Model 3		Model 4	
		Single to PMS		*Single to Marriage*		*PMS to Parenthood*		*Marriage to Parenthood*	
		AHR	95% CI	AHR	95% CI	AHR	95% CI	AHR	95% CI
		(Weighted N = 4477)		*(Weighted N = 4477)*		*(Weighted N = 979)*		*(Weighted N = 3118)*	
Birth Cohort	1975-1979	0.61**	[0.43, 0.85]	0.92	[0.76, 1.12]	0.98	[0.64, 1.52]	0.92	[0.72, 1.19]
	1980-1984	0.29***	[0.20, 0.41]	1.12	[0.93, 1.35]	0.98	[0.59, 1.61]	0.89	[0.70, 1.14]
	1985-1989 *[Ref]*	1.00		1.00		1.00		1.00	
Sex	Male *[Ref]*	1.00		1.00		1.00		1.00	
	Female	0.98	[0.71, 1.36]	8.58***	[6.22, 11.85]	17.30***	[8.30, 36.05]	2.36***	[1.76, 3.16]
	*Female*Time1*	0.78**	[0.66, 0.93]	0.41***	[0.28, 0.60]	0.14***	[0.04, 0.44]	0.62***	[0.50, 0.78]
	*Female*Time2*			0.81	[0.62, 1.07]	0.41***	[0.21, 0.80]		
Education	None *[Ref]*	1.00		1.00		1.00		1.00	
	Primary	0.93	[0.70, 1.22]	0.72***	[0.62, 0.84]	0.71	[0.48, 1.05]	1.02	[0.86, 1.21]
	Secondary+	1.01	[0.69, 1.50]	0.32***	[0.23, 0.44]	0.50*	[0.26, 0.93]	1.05	[0.71, 1.55]
Occupation	Not Working *[Ref]*	1.00		1.00		1.00		1.00	
	Agricultural	0.88	[0.60, 1.28]	1.14	[0.95, 1.36]	1.46	[0.91, 2.34]	0.89	[0.73, 1.10]
	Industry	1.34	[0.93, 1.95]	1.07	[0.89, 1.27]	1.56	[0.94, 2.59]	0.84	[0.68, 1.03]
Religion	Christian *[Ref]*			1.00		1.00			
	Muslim			1.08	[0.93, 1.26]	0.83	[0.56, 1.24]		

Variables and categories		Model 1		Model 2		Model 3		Model 4	
		Single to PMS		*Single to Marriage*		*PMS to Parenthood*		*Marriage to Parenthood*	
		AHR	95% CI	AHR	95% CI	AHR	95% CI	AHR	95% CI
		(Weighted N = 4477)		*(Weighted N = 4477)*		*(Weighted N = 979)*		*(Weighted N = 3118)*	
Residence	Rural *[Ref]*			1.00		1.00		1.00	
	Urban			1.12	[0.70, 1.80]	1.11	[0.52, 2.38]	0.47**	[0.30, 0.74]
Modern contraceptive use	No *[Ref]*					1.00		1.00	
	Yes					1.52*	[1.04, 2.21]	1.12	[0.94, 1.35]
Age at first sex						0.80***	[0.76, 0.85]		
*Age at first sex*Time*						1.07***	[1.03, 1.11]		
Age at first marriage								0.64***	[0.61, 0.66]
*Age at first marriage*Time*								1.15***	[1.13, 1.16]
Community affluence		0.84	[0.40, 1.74]	0.61*	[0.41, 0.92]	0.77	[0.30, 1.96]	1.33	[0.84, 2.10]
Community education		1.03	[0.25, 4.30]	1.02	[0.33, 3.17]				
Community-level youth employment in industry		1.78	[0.80, 3.92]			0.37	[0.12, 1.17]		

AHR = Adjusted Hazard Ratio Ref = Reference Category * P < 0.05 ** P < 0.01 *** P <0.001

The transition to first marriage was also shaped by community affluence. Compared to youths living in a deprived community, the risk of transition to first marriage was significantly lower for those living in wealthier communities (AHR = 0.61, $p<0.05$). The restricted mean survival time (RMST) plot also indicates that the risk-free time (i.e., PMS vs. Marriage) of male youths is longer than that of female youths over their life course. As shown in Table 3-2 and Figure 3-4, the gender gap in RMST appears to exist before age 15 and grows further over time, reaching an average of 4.8 years at age 25.

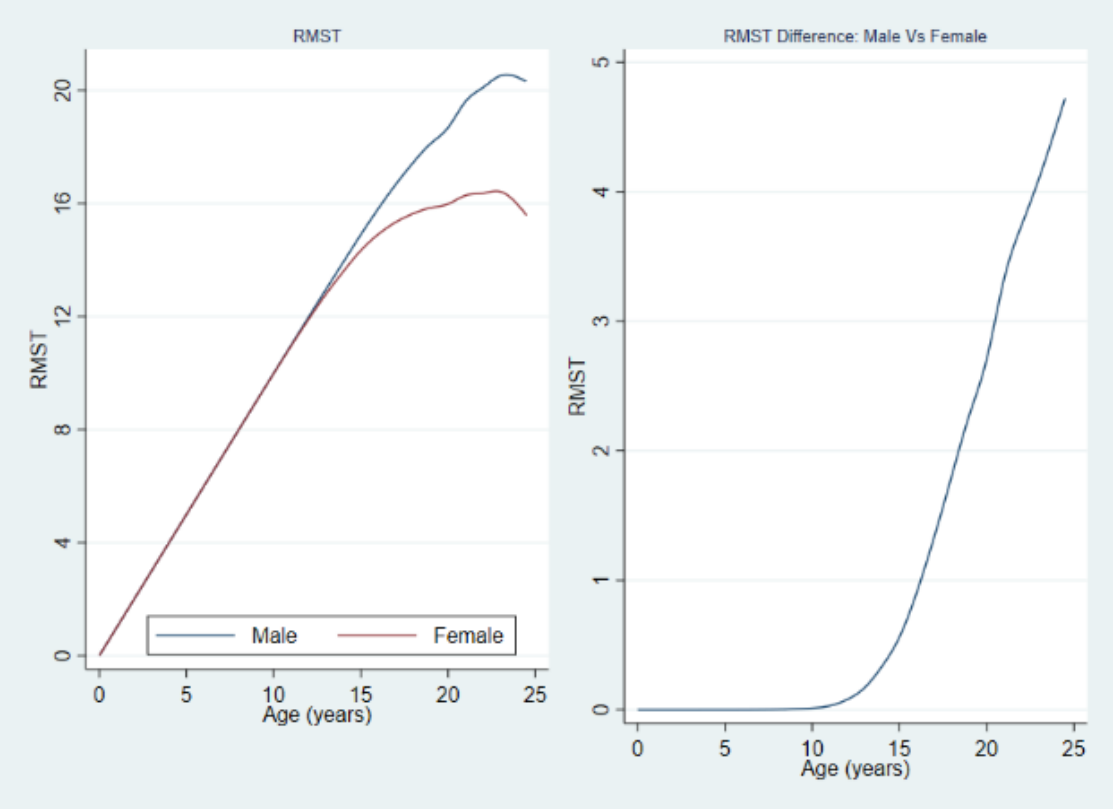


Figure 3-4. Predicted RMST and the gender gap in RMST

Individual characteristics and youths' ability to use resources are also found to be associated with the transition to parenthood after marriage or after the first premarital sexual encounter. After controlling for individual characteristics and resources available to youths, the cohorts were discovered to have had similar experiences. Secondary and above levels of educational achievement of youths are found to reduce the risk of young parenthood after having premarital sexual encounters compared to those who did not attend formal schooling (AHR = 0.50,

$p<0.05$). Contrary to expectations, modern contraceptive use was positively associated with the transition to parenthood after having premarital sex. Modern contraceptive method users had a 52% increased risk (AHR = 1.52, $p< 0.05$) of transition to parenthood after PMS than non-users (*see* Table 3-2).

The age at which premarital sex begins has an inverse relationship with the event of having a child after PMS. The magnitude of the association is not linear and changes over time. The risk of having a child after premarital sex was higher for those who engage in sexual activities at early ages than later. For example, having a child within three years of first having sex at the age of 15 is twice as likely as having one within three years of starting sex at the age of 20 (an absolute risk of 0.168 at 15 vs. 0.085 at 20, that is, a risk ratio of 1.96). The place of residence and religious affiliation of youths were inconsequential in shaping the transition to PMS, first marriage, and becoming a parent after PMS. The risk of becoming a parent soon after the first marriage, however, was lower among urban resident youths than among rural resident youths (AHR = 0.47, $p<0.01$) (*see* Table 3-2).

Even though the study findings support the claim that early marriage promotes early parenthood, they also suggest that the first marriage to first birth interval is relatively shorter for those who married late (i.e., after age 18) than early (Figure 3-5 – *bottom left*). The risk of transition to parenthood after the first sexual encounter outside wedlock or after the first marriage is, however, significantly higher among female youths than males. Additionally, the gender gap in the transition to parenthood exhibited a time-varying difference. The difference in survival duration between male and female youths with PMS at age 15 grows to a maximum in their early twenties with a slight fall then after. Further, the results portray that the gap would have significantly diminished had female youths postponed their debut to sex at least to age 18 (Figure 3-5 – *top right*). Similarly, the gap in the survival duration before having a child after the first marriage of male and female youths diminishes as the age at first marriage keeps increasing (Figure 3-5 – *top left*).

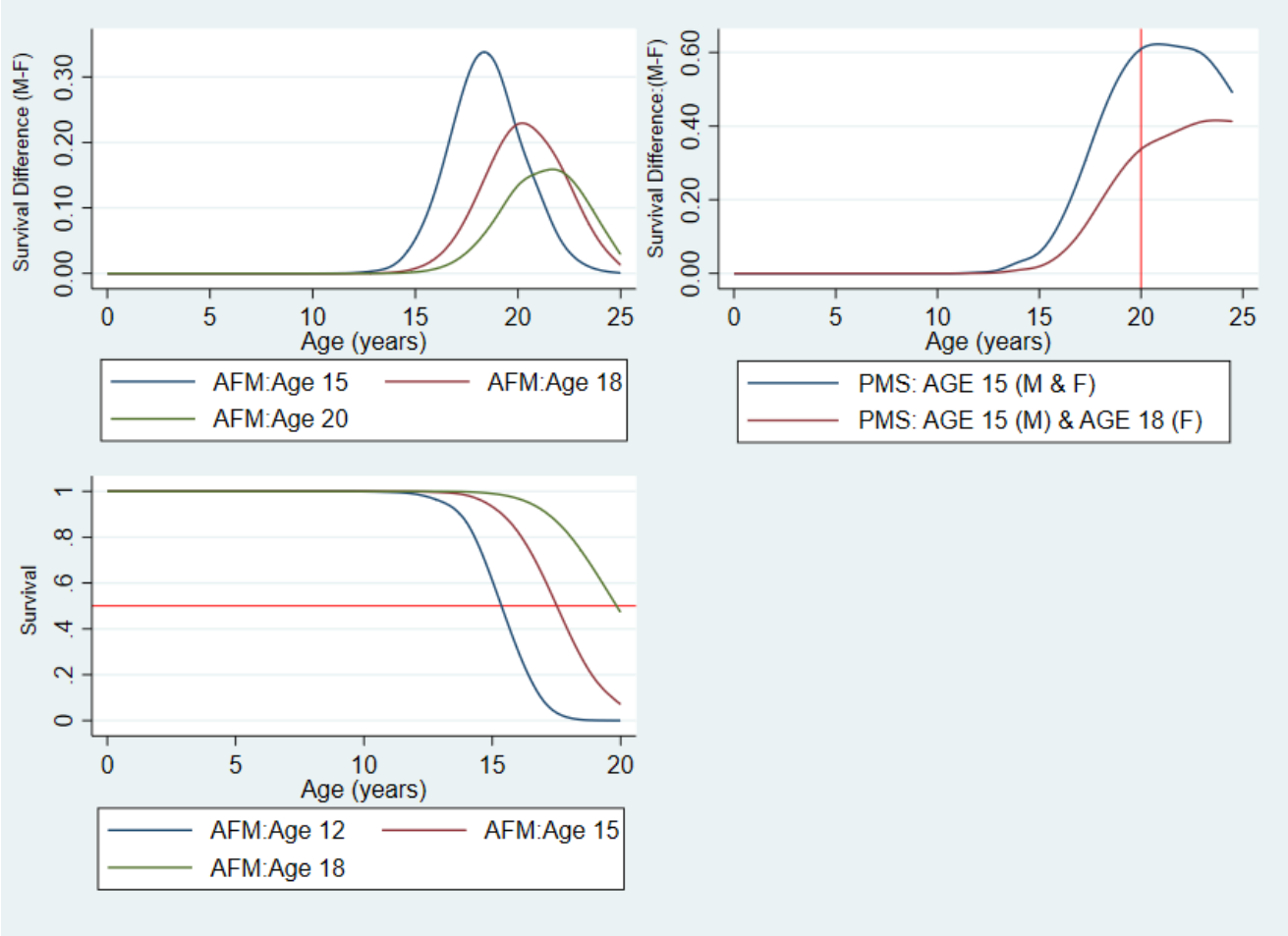


Figure 3-5. Predicted survival and survival difference in the transition to parenthood between male and female youths

3.4. Discussion

This study aims to evaluate the rates and timing of the reproductive transition and their correlates among Ethiopian youths from three birth cohorts. A multistate modeling approach based on responses to event history was considered for the assessment. Responses on the timing of debut to sex, first marriage, and first birth were the events of interest used to measure reproductive transition. Results of the study have identified a recurrence of premarital sex across birth cohorts with significant changes in the timing and magnitude of the debut to sex. It has also indicated that a substantial portion of the transition by age 20 (about 40 to 50%) was due to marriage. Except for the transition to PMS, the three cohorts shared a similar experience in terms of the transition to marriage and parenthood.

Premarital sex is rising as a competing risk to marriage: Findings of the study demonstrate that the reproductive transition of youths is dominated by entry to marriage across all birth cohorts. However, premarital sex among youths of the recent birth cohort in large magnitude starting from an early age indicates the emergence of a reproductive transition that significantly deviates from the conventional pathway to adulthood. A rise in age at first marriage has been widely observed in many sub-Saharan African countries, with a considerable range in the rise (Amoo, 2017; Clark, Koski and Smith-Greenaway, 2017). Although not consistent, the increase in age at marriage has positively impacted the prevalence of premarital sex and childbearing (Bongaarts, Mensch and Blanc, 2017; Clark, Koski and Smith-Greenaway, 2017). The results support the hypothesis that premarital sex is rising as a competing risk to the changing timing and patterns in the transition to marriage. Consistent with our findings, previous reports have also indicated that a significant proportion of adolescents and youths engage in premarital sex before getting married than in earlier periods (Okigbo and Speizer, 2015; Petroni *et al.*, 2017; Menon *et al.*, 2018; Wang *et al.*, 2020). These temporal changes can reflect social transformations among most youths in sub-Saharan countries over time (Calvès, 2016; Bongaarts, Mensch and Blanc, 2017; Petroni *et al.*, 2017).

Education appears to have mixed roles in transforming the reproductive transition of youths in Ethiopia: Although youth educational attainment is effective in delaying the timing of marriage, it was found to be ineffective in limiting both the timing and magnitude of the debut to premarital sex. The finding suggests that the benefit of youth education in delaying early marriage was jeopardized by the increased rate of youths' engagement in sexual activities. Contrarily, analysis of DHS data from Ghana and Nigeria reported a significant relationship between the educational attainment of young persons and engagement in sexual activities, as less educated youths were more likely to have earlier sexual debut (Fagbamigbe and Idemudia, 2017; Asante *et al.*, 2018). A study conducted on a larger scale using DHS data for sub-Saharan Africa, on the other hand, showed that education had a protective role against early sexual debut only among female youths (Amo-Adjei and Tuoyire, 2018). It should, however, be noted that our method of analysis is different from such studies in two ways: firstly, we approached the problem through a competing risk analysis, and secondly, we attempted to account for subject clustering through a multilevel analysis.

Results of our analysis have also shown that attainment of secondary and higher education tends to delay the transition to parenthood after a premarital sexual experience. Nonetheless, we found a positive relationship between contraceptive use and the transition to parenthood after PMS. The positive association between modern contraceptive use and parenthood among the study group could be linked to the fact that those who became pregnant or parents after engaging in premarital sex are more likely to use modern contraceptive methods to avoid future pregnancy and childbirth (Wang *et al.*, 2020). In line with this, it is possible to anticipate that the significantly reduced prevalence of childbearing after initiation of premarital sex among youths with secondary and higher education levels could result from pregnancy loss and abortion (Santhya and Jejeebhoy, 2015; Chae *et al.*, 2017).

The influence of early sex experience and early marriage on the transition to parenthood: The study shows that early initiation of sex and marriage generally promotes early parenthood. It has also been noted that early initiation into sex had a far more significant impact than early marriage on the transition to parenthood. One of the interesting findings this study has shown is that there is a much quicker transition to childbearing after an early premarital sexual experience. In contrast to this, parenthood after early marriage takes a longer time. The comparative disadvantage of early initiation of premarital sex is a novel finding of this study that was not documented earlier. It should, however, be noted that studies from diverse contexts report a growing trend in the rate of unprotected intercourse. Thus, youths that initiate sex early have a more extended period of exposure to unwanted and unplanned pregnancy if the sexual practice is not protected (Heywood *et al.*, 2015; Wado, Sully and Mumah, 2019; Wang *et al.*, 2020). The duration from first marriage to parenthood gets shorter for those who postpone their marriage further than those who get married early. This could mainly be due to the fact that those who marry later have tremendous pressure from family members to demonstrate their ability to procreate (Bongaarts, Mensch and Blanc, 2017). This is a reflection of the prevailing socio-cultural setting in the country that bestows the responsibility of ensuring the continuity of family lineage to young people.

Female youths were exposed to excessive risk and early timing of reproductive transition: Debut to sex happens faster among male youths after age 15 than female youths. Unlike this, the transition to marriage occurs early and more often among female youths than males. The literature on gender disparity in premarital sex yields conflicting results. For example, according to a report from panel research conducted in South Africa, males consistently début to sex earlier than females throughout all waves (Muchiri and Odimegwu, 2019), while a study in Ghana showed that more young females begin sex before marriage than boys (Tenkorang and Adjei, 2015).

The findings of this study also showed that the volume of risk-free time (*PMS vs. Marriage*) during the first 20 years in the life course of youths is significantly lower for females (16 years) than males (close to 19 years). Attrition due to marriage was far more substantial than attrition due to debut to premarital sex, putting female youths at a higher risk of early reproductive transition than males. Even after controlling for the effects of the timing of marriage and debut to sex, the transition to parenthood occurs earlier for female than male youths. However, the timings of marriage and debut to sex had a more substantial influence on the gender disparity in the transition to parenthood at ages less than 20. Even though encouraging progress has been observed in narrowing the gender gap in reproductive health in Sub-Saharan Africa, gender disparity in early reproductive transition remains pervasive and persistent (Dessalegn Y. Melesse *et al.*, 2021).

3.4.1. Strengths and limitations

This study has used the reproductive transition of individuals as an outcome variable, having a sequence and timing of multiple events. Multiple transitions captured as one unit provides a comprehensive understanding of the reproductive transition of youths. Instead of treating the transition to premarital sex and first marriage separately, the study considered the events as competing risks. Furthermore, the use of a flexible parametric survival analysis technique enabled better outcome prediction and easily shows the evolution of a covariate's effect over time pictorially (Royston and Lambert, 2011; Hannah *et al.*, 2021). On the other hand, data accuracy depends on the respondent's ability to recall the sequence of events that may be affected by memory lapse (Neal and Hosegood, 2015). As a result, caution is advised when

interpreting the results. Moreover, event history data is collected from those available during the survey. Thus, the reproductive experiences of those who died and migrated out were not captured and are unrepresented in the analysis.

3.5. Conclusions

The study shows that reproductive transitions among Ethiopian youths start early (i.e., before age 18) with higher transition intensities. Although the transition was highly dominated by a propensity to enter into a marital union, the recent birth cohort's experience signals a shift in both the timing and tempo of the transition to PMS. Since this study does not explain the changing reproductive behavior of youths, it would be advantageous to pursue further research in this area. Another finding that policymakers should seriously consider is that early premarital sexual initiation was observed to be a precursor to social ills such as early and single parenthood and their consequences among youths. Moreover, an attempt shall be made to close the gender gap in reproductive transition that has been observed due to the excessive risk to which female youths are exposed.

CHAPTER 4. GENDER GAP IN REPRODUCTIVE TRANSITION

The achievement of gender equality and ending all forms of disparity in the spheres of sexual and reproductive health are critical components of sustainable development goals. We investigate the characteristics and structural sources of the gender gap in the reproductive transition among Ethiopian youths. The decomposition of the gender gap in the reproductive transition of youths into components was made using the Blinder-Oaxaca decomposition analysis for non-linear models. The findings show that the gender gap in reproductive transition is triggered by both compositional and structural effects of covariates such as education, modern contraceptive use, and media exposure. Thus, in addition to reducing inequalities in education, media exposure, and deprivation between male and female youths, working on the structural components is recommended to close the gender gap in the reproductive transition of youths.

4.1. Introduction

In many areas, including education, health, and economic empowerment, there is a significant gender disparity, particularly in developing nations (Jayachandran, 2015). Goal 5 of the Sustainable Development Goals (SDG) promises to end all forms of gender disparity everywhere and to achieve gender equality by 2030. However, the United Nations admits that the world is falling behind in terms of progress toward gender equality (UNDESA, 2023). The inequality is caused by a complex set of factors, including economic and cultural norms, and the interaction of these factors (Jayachandran, 2015).

Ethiopia is one of Africa's demographic powerhouses (Hailemariam, 2017). Women and girls constitute half of Ethiopia's population (Ethiopia Statistics Service, 2021) and are more vulnerable than men. In Ethiopia, a woman's worth is determined by her wife and mother's role. Compared to men, women face a wide range of barriers and have limited access to economic, social, and political empowerment (Dula, 2019; Dessalegn *et al.*, 2020). One of the most significant barriers is the lack of access to education. Only 44.4% of Ethiopian women over 15 years are literate, compared to 59.2% of men in 2017 (UNESCO, 2023). This limits their ability to participate in the workforce and perpetuates a cycle of poverty and discrimination. Further, women also lack access to healthcare due to factors such as poverty and limited knowledge about the importance of healthcare, including childbirth and contraceptive use. This leads to

unplanned pregnancies and increased risk of maternal and child mortality (Tamirat, Tessema and Kebede, 2020; Jebena *et al.*, 2022; Kitila, Feyissa and Wordofa, 2023).

In an attempt to alleviate the highly persistent gender inequality, Ethiopia made a shift in policy thinking and passed several legislations. One of Ethiopia's various initiatives is the family law, which advocates equal rights in the administration of the family and sets the minimum age for marriage at 18 (Federal Democratic Republic of Ethiopia, 2000). Early sexual initiation, child marriage, and adolescent birth rates significantly decreased when the law was enacted. The drop in rural and urban places lends credence to the notion that strong legal frameworks for gender equality may operate as powerful accelerators for cultural change (Rokicki, 2021).

Despite improvements in adolescent and youth reproductive health, gender inequality remained a significant challenge in Ethiopia. Early marriage is still prevalent, and adolescent girls often married off before they are physically and emotionally mature (CSA [Ethiopia] and ICF International, 2016). Child marriage robs young girls of education and puts them at risk of exploitation and pregnancy-related complications (Abera *et al.*, 2020). Thus, early marriage and parenthood serve to reinforce traditional gender roles and expectations, which perpetuates gender disparity. As a result, young girls' agency and autonomy may be restricted, and patriarchal beliefs and behaviors may be maintained.

The reproductive behavior of youths is changing over time, and youths' transition to family formation and parenthood generally shifted from the traditional pattern and followed a variety of patterns in Ethiopia. In a recent study, sex was noted as a significant element that led to the disparities in the reproductive trajectories of the youth in Ethiopia (Dejene and Gurmu, 2022). Even though there was a large body of literature that studied the issue of early marriage and parenthood among young females (Blum, 2007; Nguyen and Wodon, 2015; Koski, Clark and Nandi, 2017; Wado, Sully and Mumah, 2019; Dejene and Gurmu, 2022), the driving forces of the gender gap were not well studied. To shrink and eliminate the gender gap in the timing of the reproductive transition of youths, a thorough understanding of the underlying causes is essential. As such, we base our work on the premise that gender inequality in the timing of the reproductive transition is spanned by structural effects of covariates and differences in

characteristics between male and female youths.

4.1.1. Theoretical underpinning of the research

The life-course theory, which places developments in people's lives in both personal characteristics and larger social contexts, served as the study's overarching theoretical framework. The theory posits that prior and current life stages influence the trajectory of life experiences of individuals and families. Thus, in view of the life-course theory, the interplay between socioeconomic, environmental, and behavioral factors are considered underlying trajectories' drivers over the lifespan (Chen and Lin, 2011; Piccarreta and Studer, 2019). Such consideration of the interdependence between different stages of life enables the comparative study of life-course experiences.

Reproductive transition disparity in developing nations can be related to several variables, including lack of access to education and healthcare and poverty. Previous reports indicated that educational attainment, household wealth, exposure to media, and economic reasons were the significant factors that influenced the timing of reproductive transitions of young African females (Usman *et al.*, 2018; Wado, Sully and Mumah, 2019). Socioeconomic deprivation exacerbates reproductive transition inequality by restricting access to essential resources and increasing the likelihood of early marriage and childbearing among adolescents. Similarly, due to a lack of education, there may be a lack of awareness about family planning and reproductive health, resulting in an unmet need for contraception and unplanned childbirth (Munakampe *et al.*, 2021).

With better access to healthcare, contraceptive use becomes more widespread, leading to delayed childbearing and a longer interval between children. As a result, women would have a better chance of maintaining their health and avoiding complications from too many pregnancies close together. Moreover, by delaying the first birth, young women have a higher chance of completing their education and gaining employment, leading to greater opportunities in life (Diez *et al.*, 2020; Stevenson *et al.*, 2021). Overall, contraception can aid in removing obstacles to education and raise chances for success by lowering unintended pregnancies and giving women the power to make decisions about their lives.

Additionally, after controlling for individual characteristics, a study from West Africa reported that community-level factors such as community literacy and level of socio-economic deprivation were predictors of union formation and childbearing. In more affluent communities and communities with higher levels of education, young people tend to delay sexual activity and use contraception more consistently. In contrast, in communities with lower socio-economic status and limited education, young people are more likely to engage in risky sexual behavior, have higher rates of unintended pregnancies, and are less likely to use contraception. Community affluence and education can significantly impact youth's reproductive behaviors and overall health outcomes (Avogo and Somefun, 2019).

Holding the perspective that both endowment and structural effects are needed to evaluate mechanisms of closing the gender gap in the timing of the reproductive transition, both individual and community-level factors are used. Therefore, our study aims to compare the reproductive transition experiences of male and female youths in their life course before age 25. The structural elements and underlying characteristics differentials contributing to the gender disparity have also been evaluated using a decomposition analysis framework.

4.2. Data and methods

4.2.1. Data source

The data for this study was drawn from the two most recent Ethiopian Demographic and Health Surveys (EDHS), which were conducted in 2011 and 2016. The EDHS was a large-scale cross-sectional survey conducted to offer estimates of key demographic and health variables for the nation as a whole, urban and rural areas separately, and each of the nine regions of Ethiopia and two city administrations individually. The data was gathered using a stratified two-stage cluster sampling technique. A probability proportional to size technique was used to select 624 clusters in the 2011 and 645 clusters in the 2016 survey. During stage two selection, a complete listing of households in the selected clusters were conducted, and 28 households were chosen from the list of households (CSA [Ethiopia] and ICF International, 2016). The investigation was limited to the Oromia Regional National State because the region is home to a substantial portion of Ethiopia's youth population (38.3%), who come from a variety of cultural backgrounds (Yates,

2011, 2020; Ethiopia Statistics Service, 2021). Although both male and female data were utilized, the gender gap decomposition analysis is focused only on the data drawn from the 2016 EDHS. The data used for our study are publicly available at the following web address (http://www.measuredhs.com/data/available-datasets.cfm) and can be accessed free of charge.

4.2.2. Variables and measurements

The primary outcome variable of the study is the gender gap in distributions of the reproductive transitions of youths. The gender gap in these reproductive indicators is assessed using the cumulative incidence functions (CIFs) of these reproductive events over the age of youths. Rather than an instantaneous measure of the risk of reproductive transition, CIF gives the proportion of youths that have ever experienced an event at any given time (Hinchliffe and Lambert, 2013; Latouche *et al.*, 2013). This property of CIF makes it desirable for the gender gap analysis over the instantaneous measure. The detailed gender gap decomposition was made for debut to sex and parenthood experiences at ages 20 and 25. For the transition to the first sex, the timing of the first sex, before or within marriage, was considered.

Individual and group-level variables (i.e., household and community level) are considered predictors in the gender gap decomposition analysis. These variables are described in the standard recode manual of the Demographic and Health Survey (DHS) (ICF, 2018). The list of variables, their coding, and descriptions are shown in Table 4-1.

Table 4-1. Description of variables and their measurement used in the analysis

Type	Name and label	Description and measurement	Source
Control (categorical)	Birth cohort	Two groups of birth cohorts, those born in 1980-1984 and 1985-1989, were used to compare the reproductive transitions of youths. It was computed from the birth date data of respondents (v011/mv011).	Computed
Grouping or comparison (categorical)	Sex of respondents (sex)	This variable was created while merging data of male and female youths (0=Male, 1=Female). It is used as a grouping variable	Computed

Type	Name and label	Description and measurement	Source
		during the decomposition analysis.	
Independent (categorical)	Early initiation of sex (debut to sex before the age of 20) (v531/mv531)	This binary variable indicates whether the respondent is sexually active or transitioned to marriage before age 20 (0 = No, 1 = Yes).	Computed
Independent (categorical)	Educational level (v106/mv106)	Highest education level attended. This variable shows the level of education in the following categories: 0=Not educated, 1=Educated.	Individual interview data
Independent (categorical)	Exposure to media (Radio/TV) (v158, v159/mv158, mv159)	Exposure to media (radio/TV) of respondents. It was computed from interview data and recoded as 0=None, 1=Infrequent, 2=Frequent	Computed from individual interview
Independent (categorical)	Contraceptive use (v313/mv313)	Current use of any modern contraceptive use. It was computed from interview data and recoded as 0=No, not using a modern method, and 1=Yes, using a modern method.	Computed from individual interview data
Independent (categorical)	Household wealth (v190/mv190)	Households falling in the richer or richest wealth quintile. It was computed from interview data and recoded as 0 = No, 1 = Yes.	Computed from Household data
Independent (numeric)	Community-level Youth Industry Employment	Percentage of industry-employed youths of all youths in a community (enumeration area)	Computed from Household data
Independent (numeric)	Community affluence	Percentage of the population living in a well-off household in a community (enumeration area)	Computed from Household data

Type	Name and label	Description and measurement	Source
Independent (numeric)	Community literacy	Percentage of population (age-appropriate) with at least a secondary level of education in a community (enumeration area)	Computed from Household data

4.2.3. Data processing and analysis

The data management, editing, and analysis were made using STATA 17.0 (StataCorp, 2021). First, a sex and birth cohort-specific cumulative incidence of events was computed using the command *stcompet* (Coviello and Boggess, 2004). The command creates CIF in the presence of competing risks. For the transition to parenthood, however, the CIF was computed using the complement of the Kaplan-Meier estimate. The inter-cohort differences of the cumulative incidence of events were tested using competing risk regression analysis (He *et al.*, 2016). These comparisons were made for CIFs accounting for intra-class correlation for clusters of enumeration areas. First-order interactions between birth cohort and sex were tested, and significant results were retained.

Secondly, the gender gap in debut to sex and parenthood experiences at age 20 and 25 were tested for the recent birth cohort (1985 – 1989). Where significant, the gap was decomposed using Blinder Oaxaca decomposition for the logistic regression model. This analysis was carried out using the user-written *oaxaca* command. During the analysis, the command was issued to take into account the survey design (Jann, 2008; Sinning, Hahn and Bauer, 2008; Kaiser, 2015; Rahimi and Hashemi Nazari, 2021). A p-value of 5% was used to declare statistical significance in all analyses, including the decomposition analysis.

The Blinder-Oaxaca decomposition technique splits the overall gender gap into two parts. The first component is referred to as the endowment effect; it extracts part of the gender gap attributable to differences in characteristics of the two groups. The second part, the coefficient or structural effect, shows the discriminatory impact of the covariates and the effects of unknown factors (Jann, 2008; Kaiser, 2015). In our analysis, the coefficients for the pooled model were considered as the non-discriminatory coefficients or reference coefficients. It should be noted

that the decomposition of the gender gap in reproductive transition was made from the viewpoint of male youths. That is, the female-to-male gender gap was decomposed into components.

The study made use of data from the Demographic and Health Surveys Program. The ICF/ORC Institutional Review Board reviewed and approved the methods and questionnaires for standard Demographic and Health Surveys. Ethiopian DHS was also ethically approved by the Institutional Review Board offices of Ethiopia's Ministry of Science and Technology and the Ethiopian Health and Nutrition Research Institute. The interviews were conducted with the express permission of the respondents. To protect respondents' privacy, names and other unique identifiers were removed from the final data that was made public.

4.3. Results

The sample constituted 1775 respondents from the 1980 – 1984 and 1753 respondents from the 1985 – 1989 birth cohorts. The recent birth cohort of youths consisted of 1003 females and 750 males, whereas the 1980 – 1984 birth cohort had 776 male and 999 female respondents. The 1985 – 1989 birth cohort of male youths were better educated, had better exposure to media, and lived in well-off households than their female contemporaries. Contrarily, female youths of the recent cohort started their reproductive transition earlier and were slightly disadvantaged regarding modern contraceptive utilization (Table 4-2).

Table 4-2. Percent distribution of characteristics of youths of the two birth cohorts by sex

Characteristics	1985 – 1989 birth cohort	
	Male (n = 750)	Female (n = 1003)
Attended primary and above level of education	72.7	32.5
Have exposure to media	66.8	39.2
Living in a well-off household	43.5	39.6
Use modern contraceptive method	31.7	28.3
Became sexually active before age 20	45.7	79.3

The cumulative incidence of the debut to premarital sex (PMS) among the recent birth cohort of male youths has substantially increased over age, with the inter-cohort gap growing progressively starting at age 15 (Figure 4-1 (A)). In contrast, for female youths, the inter-cohort gap in cumulative incidence of the debut to PMS remained consistent over age. Furthermore, the cumulative incidence of transition to PMS among female youths in the most recent birth cohort was higher than the corresponding male youths (Figure 4-1 (D)). Concerning the transition to marriage, a significant reduction in the cumulative incidence rate was observed among male and female youths. For male youths, the inter-cohort gap became noticeable after age 19. In contrast, for female youths, the gap started to steadily expand starting at age 15 (Figure 4-1 (B) and (E)).

However, the transition to parenthood after the onset of PMS or marriage revealed a marginally positive but statistically insignificant gap between birth cohorts of both male and female youths. By age 15, one in every five female youths had begun childbearing. In contrast, the transition to parenthood for male youths was utterly absent. In addition, the results show that a large volume of the transition to parenthood of female youths happened before age 20; however, for male youths, a large proportion of it occurs after age 20 (Figure 4-1 (C) and (F)).

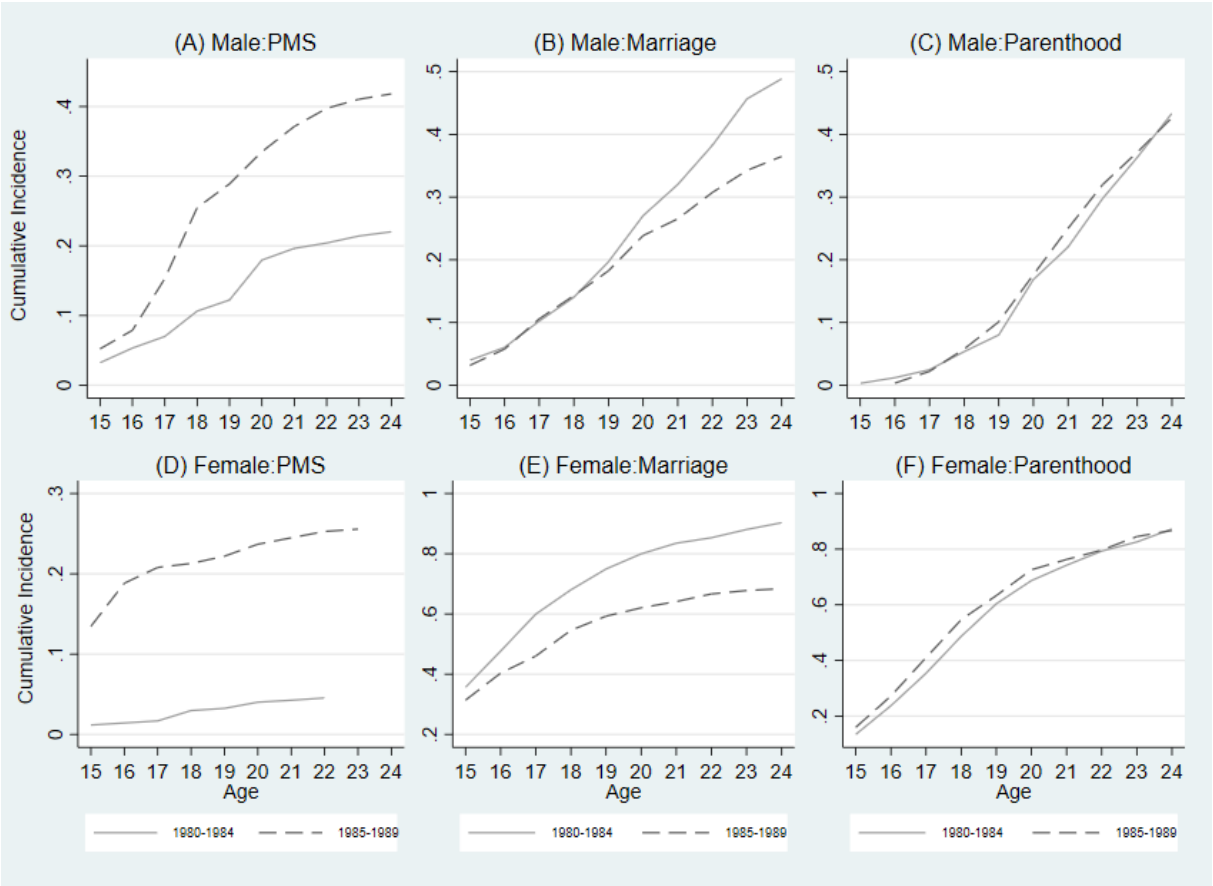


Figure 4-1. Cumulative incidence of PMS, marriage, and parenthood among youths.

(A) Displays the cumulative incidence for male youths for the two birth cohorts, **(B)** Shows the cumulative incidence for transition to first marriage for male youths for the two birth cohorts, **(C)** Portrays the cumulative incidence of transition to first fatherhood for the two birth cohorts, **(D)** Captured the cumulative incidence for female youths for the two birth cohorts, **(E)** Displays the cumulative incidence for transition to first marriage for female youths for the two birth cohorts, and **(F)** Shows the cumulative incidence of transition to first motherhood for the two birth

The competing risk regression analysis result showed that the inter-cohort differences in the CIF of premarital sex and marriage were significant. The difference is not the same for male and female youths. For premarital sex, the inter-cohort difference has shown a statistically significant increase. A significantly higher rate of increase was observed among female youths than males. Contrarily, the transition to marriage has shown a significant risk reduction, with female youths having a higher risk reduction than males. For transition to parenthood, although females were at a higher risk of transition to parenthood than males, the birth cohorts had a similar risk of transition to parenthood for both sexes (Table 4-3).

Table 4-3. Cox and competing risk regression analysis

Variables and Characteristics	PMS	Marriage	Parenthood
	SHR	SHR	HR
Birth cohort			
1980 – 1984 [*Ref*]	1.00	1.00	1.00
1985 – 1989	2.10***	0.72***	1.04
Sex			
Male [*Ref*]	1.00	1.00	1.00
Female	0.19***	3.66***	3.62***
Birth cohort # Sex (***Interaction***)			
1985-1989 # Female	3.17***	0.81**	

PMS = Premarital Sex SHR = Sub-Hazard Ratio HR = Hazard Ratio

Statistical significance were indicated with *** *P < 1%* and ** *P<5%*

Distribution of debut to sex, either PMS or marriage, at ages 20 and 25 was compared and decomposed into components for male and female youths. The gender gap in the prevalence of debut to sex at age 20 amounted to 28.4%, and the corresponding figure at age 25 was 15.6%. While 28% of the gender gap in debut to sex at age 20 (0.079) was explained as a result of differences in characteristics, it was a quarter (25.5%) of the gender gap at age 25 (0.040) that was explained by the difference in the distribution of characteristics. Further, inequality in educational achievement was the sole factor that significantly contributed to the gender gap in the distribution of debut to sex, approximately 30%, at ages 20 and 25 (Table 4-4).

Differential effects of predictors were also responsible for the gender gap in the distribution of debut to sex at age 20. The negative contributions of above-primary level educational attainment (-0.100) and community affluence (-0.178) indicate that these factors significantly reduced the prevalence of transition to sex at age 20 for female youths more than otherwise expected. On the other hand, the discriminatory effect of household wealth (0.044) contributed to about 16% of the gender gap in the transition to sex. No significant contribution of individual predictors was reported for the coefficient effect at age 25 (Table 4-4).

Table 4-4. Decomposition analysis of the gender gap in reproductive transition

Overall and Components of Decomposition	Debut to Sex		Parenthood	
	Age 20	Age 25	Age 20	Age 25
Overall gap (%)	0.284***	0.157***	0.550***	0.341***
Endowments (%)	0.079**	0.040**	0.205***	0.191***
Attended primary and above level of education	0.086***	0.049***	0.050***	0.078***
Have exposure to media	-0.007	-0.012	-0.016	0.006
Living in a well-off household	-0.002	0.001	0.002	-0.001
Use modern contraceptive method			-0.001	-0.008
Became sexually active before age 20			0.169***	0.113***
Community affluence	0.001	0.001	0.002	0.003
Community literacy	0.000	0.001	0.000	0.000
Level of youth employment in industry	0.000	0.000	0.000	0.000
Coefficients (%)	0.205***	0.117***	0.345***	0.150***
Attended primary and above level of education	-0.100***	-0.027	-0.091	-0.002
Have exposure to media	0.015	0.014	0.034**	0.024
Living in a well-off household	0.063**	0.010	0.094	0.017
Use modern contraceptive method			0.041	0.035**
Became sexually active before age 20			0.095	0.103***
Community affluence	-0.178***	-0.063	-0.118	-0.003
Community literacy	0.058	-0.001	0.145**	0.021
Level of youth employment in industry	-0.022	0.013	-0.083	-0.010
Constant	0.368***	0.170***	0.227	-0.035

Note: The number indicates the proportion of contribution to the gender gap in reproductive transition.

Statistical significance were indicated with *** *P < 1%* and ** *P<5%*

The transition to parenthood was also the focus of the gender gap decomposition analysis. The decomposition analysis was made at two points, that is, at ages 20 and 25. At 20, there was a 55% difference in the percentage of female and male youths that transitioned to parenthood. The gender gap in transition to parenthood at age 25, however, shrunk to 34% from 55% at age 20. The gender gap decomposition analysis revealed that approximately 37% of the difference at age 20 and 56% at age 25 was due to differences in characteristics of male and female youths. The differential influence of confounders, including the overall effect of unknown factors, contributed to the remaining gender gap. The detailed decomposition provided the contribution of each predictor to both the endowment and coefficient effects (Table 4-4).

The difference in the proportion of sexually active before age 20 contributed the most (0.169) to the gender gap in the transition to parenthood at age 20. Interpreted another way, a reduction in the difference in the prevalence of early sexual debut will lead to a reduction of approximately 31% of the total gender gap in parenthood at age 20. Furthermore, the difference in attainment of at least a primary level of education (0.050) between the sexes contributed to 9% of the gender gap in the transition to parenthood at age 20. The differential effects of community literacy (0.145) and exposure to media (0.034) significantly contributed to the gender gap in early parenthood. A significant portion of the gender gap in parenthood at age 25 was explained by differences in the proportion of early debut to sex (0.113) and level of education (0.078) between female and male youths. On the other hand, it was the differential influence of early debut to sex and contraceptive use that significantly predicted the gap in transition to parenthood (Table 4-4).

4.4. Discussion

The study used a decomposition analysis framework to assess the gender gap in the reproductive transition of youths and its components. Individual and community-level factors were used in our analysis. The results demonstrated that a large proportion of the gender gap happens during adolescence and results from structural effects of factors than differences in characteristics between male and female youths. The findings imply the mere fact that the elimination of disparities in individual-level socio-economic and community-level factors is not sufficient to close the gender gap.

Expanding school attendance promotes the delayed reproductive transition of female youths: Rates of the debut to premarital sex and entry into marriage have grown in contrast to one another over birth cohorts. The gender gap in the magnitude of early debuts to sex, either premarital or within a marital context, was solely determined by the difference in the level of education of male and female youths. Studies have shown that delaying early marriage can be accomplished by encouraging female youths to continue their education past the primary level and supporting them in building and expanding their social networks (Erulkar and Muthengi, 2009; Bezie and Addisu, 2019; Raj *et al.*, 2019; Liang and Yu, 2022). In line with this, in a study from Tanzania, a relatively higher cost of schooling and an increasing prevalence of premarital sex were cited as leading factors for entering into marital life at an early age (Stark, 2018). Hence, working towards removing the barriers to adolescent girls' education to pursue beyond the primary level can act as a leaven to improve youth reproductive transitions.

The gender gap in the reproductive transition of youths is the highest during adolescence: Although the transition to parenthood was consistent across birth cohorts for both sexes, a substantial gender gap was observed in the transition profile, having a maximal gap during adolescence. The primary driving factor for the gender gap in the transition to parenthood was the difference in the early timing and magnitude of youths' debut to sex and entry into marriage. Female youths face significant disadvantages compared to male peers because they typically initiate sex early and inadequately utilize contraception during sexual encounters. Studies that concur with our findings have indicated that young women's transition to parenthood was positively impacted by contraceptive counseling and addressing their demand for contraception (Brittain *et al.*, 2015; Sánchez-Páez and Ortega, 2018; Diez *et al.*, 2020).

Discriminatory effects of covariates largely determined the gender gap in the reproductive transition of youths rather than socio-economic inequalities. The findings support the premise that the gender gap in the reproductive transition of youths was not only a product of socio-economic inequalities but also a result of discriminatory effects of socio-economic factors. The educational level of adolescent girls had a more substantial influence in delaying their debut to sex than it did for teenage boys. This finding affirms previous findings that reported a more robust return to education in delaying debut to sex and entry into marriage among adolescent

girls (Petroni *et al.*, 2017; Ahonsi *et al.*, 2019; Misunas *et al.*, 2021). On the other hand, the fact that household wealth and community affluence played a contrasting discriminating role in youths' debut to sex is an interesting study finding. While female youths living in well-off households had an increased risk of the debut to sex than males, in contrast, community affluence by far protects female adolescent youths.

The findings indicated that, as opposed to its impact on male adolescents, community literacy increased the risk of adolescent motherhood for adolescent girls. This suggests that the pro-natalist norm of highly educated societies is more likely to be passed on to teenage girls once they become sexually active than adolescent boys. Similar findings were reported from a study done among Zimbabwean adolescent women on modern contraceptive use, stating that the odds of contraceptive use among teenage females reduced with an increase in the community literacy level of women (Ngome and Odimegwu, 2014). Further, it has been reported that exposure to mass media increases the use of contraception due to exposure to family planning messages and results in delayed parenthood (Ngome and Odimegwu, 2014; Petroni *et al.*, 2017). The result reveals that well-informed female and male youths did not have an equal transition rate to parenthood. This differential effect of media exposure calls for targeting female adolescents in reaching information regarding family planning and encouraging the use of it once they are sexually active.

4.4.1. Strengths and limitations

Studies that inform our understanding of reproductive behavior emphasize individual and community-level factors without reference to the structural effects of these factors. Hence, this study attempts to extend previous works by decomposing the gender gap in the reproductive transitions among youths into inequalities in and structural effects of variables. The study focused only on individual and community-level socio-economic and reproductive-related factors to decompose the gender gap in the reproductive transition of youths. EDHS data were collected using an event history approach, and the accuracy of information depends on the respondent’s ability to recall the sequence of events that may be affected by memory lapse (Neal and Hosegood, 2015). As a result, caution is advised when interpreting the results. Moreover, event history data is collected for those available during the survey. As a result, the analysis did

not consider or adequately represent the reproductive experiences of deceased and migrant youths.

4.5. Conclusions

The results demonstrate that the gender gap in reproductive transition was wider for adolescents. Family and institutional support to keep adolescent girls in school is required to curb the early transition of female adolescents to sex or marriage and motherhood. In addition, supporting youth-friendly family planning services in terms of advertising family planning methods and addressing the contraceptive demand of sexually active adolescent girls are issues to be given the utmost priority. Community interventions that target deprived communities and those with pro-natal norms can help reduce the structural components of the gender gap in the reproductive transition. Further research is also recommended to unveil unknown factors contributing to the gender disparity in the transition to premarital sex or marriage.

CHAPTER 5. YOUTHS' PERCEPTION OF SUCCESSFUL ADULT LIFE ROLES

Researching successful reproductive transition for youths is critical to promoting health and well-being, improving social and economic outcomes, and reducing the public health cost of unintended pregnancies and early childbirth. The study results showed that reproductive transition is a significant indicator of a successful transition to adulthood. Further, the analysis showed that unpreparedness due to lack of motivation and resources, health risks, and erosion of cultural norms were mentioned as core challenges of the youth on the path to a successful reproductive transition. Additionally, the analysis indicated that financial and emotional support, reprogramming the youth to modify misconceptions, and maintaining cultural values of reproductive transitions were mentioned as social support strategies. They also highlight the importance of community and family involvement in supporting young people during their reproductive transition. Providing young people access to accurate information, resources, and emotional and financial support can help them make informed decisions and improve their chances of a successful transition.

5.1. Introduction

The transition from childhood to adulthood is a critical period in human life, characterized by social, economic, and psychological changes that mark the beginning of adult life. In developing countries, the transition process to adulthood is often complicated due to various factors, including poverty, limited access to education, health, and cultural barriers (Juárez and Gayet, 2014; Van Lill and Bakker, 2022). The transition to adulthood is pivotal in the life course in that multiple challenges and opportunities young people face can shape their future trajectories and outcomes. The success of the transition of young people into adulthood depends on their ability to access resources, establish positive relationships, and maintain a sense of identity (Hill *et al.*, 2015; Scales *et al.*, 2015; Schoon, 2015a). Thus, to ensure positive youth development, it is essential to promote young people's social skills, self-esteem, and resilience through access to resources and opportunities (Sanders *et al.*, 2015; Smith *et al.*, 2017).

During the transition to adulthood, adolescents develop their capacity for abstract cognition, and their experience may be impacted by psychological changes apart from socioeconomic and

cultural factors (Hill *et al.*, 2015). Studies show that higher levels of resilience, emotional stability, stronger problem-solving skills, and more hope for the future are connected with a successful transition to adulthood. Resilient youths participate in decision-making when confronted with risks and challenges; as a result, they will develop into citizens who contribute to society (Cronley and Evans, 2017). However, with an increase in the proportion of youths in the population of developing countries (United Nations, 2020) and a drop in age at puberty (Brix *et al.*, 2019; Eckert-Lind *et al.*, 2020), addressing the issue of a successful reproductive transition among the youth has become crucial among researchers and policymakers.

An understanding of the perception and beliefs of youths about adult roles can help improve the chances of positive youth development and a successful transition to adulthood. However, the perception of adult roles and their timing among youths varies across social statuses and impacts the success of achieving adult roles (Plug, Zeijl and Du Bois-Reymond, 2003; Pekel-Uludağlı and Akbaş, 2019; Axxe, Hayford and Eggum, 2022). Creating and building a family unit is crucial in determining a society's well-being, stability, and strength (Zeybek and Kasap, 2020). Yet, the family formation process and the acquisition of adult roles, among other factors, hinge on young people's perception and willingness to navigate various challenges and responsibilities (Studer, Liefbroer and Mooyaart, 2018). In connection with this, previous reports showed that there had been a shift from the traditional pathway to adulthood, exhibiting an increasing variability in different cultures and areas (Schoon, 2015a; Dejene and Gurmu, 2022; Wang and Feng, 2023).

To comprehend the diversity of reproductive transition and improve the chance of success of youths, exploring the perception of youths about reproductive transition and the underlying challenges of adult role assumptions is crucial. The unveiling of barriers to a successful transition can also help develop interventions that address the challenges of the youth and promote positive outcomes. Therefore, this research investigated the challenges of a successful reproductive transition in a resource-constrained setting from the youths' perspective. Further, the study attempted to identify the social support requirements of the youth to overcome the barriers that impede successful outcomes.

5.2. Methods and materials

5.2.1. Study setting and period

The study was conducted in purposefully selected districts of the Oromia National Regional State, Ethiopia. In-depth interviews were conducted with youths residing in nine districts of the Oromia Region, namely, Boneya Boshe and Nekemte town in East Wollega zone; Gidami and Dale Sedi districts in Kellem Wollega zone, Gedo and Bako Tibe Districts in West Shoa zone, Becho and Woliso districts in Southwest Shoa zone; and Sebeta Hawas woreda in Oromia Special zone. The data to undertake this study was collected from 16th March to 11th April 2023 from youths aged 20 to 29. These study locations were selected based on their accessibility.

5.2.2. Study approach

A descriptive qualitative study was employed to explore the perception of youths about a successful reproductive transition, the barriers to success in reproductive transition, and the potential social supports needed to overcome the challenges. This method was chosen because of its suitability for research questions centered on determining who, what, and where events occurred and for getting insights from informants about their experiences from a subjective perspective (Doyle *et al.*, 2020).

5.2.3. Data collection procedure

In-depth interviews were used to gather the data for the study. The interview guide contained questions on three core areas: 1) components of a successful transition to adulthood for youths and expected life changes, 2) core challenges of youths' successful reproductive transition, and 3) types of social support required to overcome the challenges (*see* Annex III). The data collection process involved four research assistants, two male and two female, with prior expertise in collecting qualitative data. Female interviewers engaged with female youths while male interviewers collected data from male youths, even though the topic of the investigation and the interview questions were not gender sensitive.

Fourteen youths, eight males and six females, were interviewed from five towns and four rural villages in the abovementioned districts. The sample size was considered sufficient following

the recommendation of Hennink and Kaiser (2022) that stated a sample of size 9 – 17 interviews is considered adequate to reach saturation for a homogenous population with a narrowly defined objective. Eleven in-depth interviews were conducted in “Afaan Oromo”. For the remaining three youths, interviews were carried out in the “Amharic” language. Further, orientation was provided to research assistants regarding the general objective of the research and the content of the interview guide by the principal investigator.

5.2.4. Trustworthiness

In qualitative study, the trustworthiness of the study is evaluated using parameters including credibility, transferability, dependability as well as confirmability (Gunawan, 2015). The study utilized a range of strategies to enhance the trustworthiness of the findings. To strengthen the credibility of the study, research assistants with prior experience in qualitative study were involved in the process of data collection and were given orientation regarding the purpose of the research and methodological procedures. Further, peer debriefing was applied to improve the validity of the study. To help the transferability of the study to relevant contexts, description of the study methodology, study setting, as well as participant demographics were provided. In addition, to enhance the confirmability of the study, the findings were supported by quotations from study participants allowing for readers to evaluate the interpretations provided.

5.2.5. Analysis

The principal investigator translated each in-depth interview tape into English for analysis. An independent reviewer assessed the translation to ensure the accuracy of the translations on randomly selected five of the fourteen in-depth interview tapes. Two individuals, including the principal investigator, coded the translated interviews. Differences in the coding of transcripts were resolved upon multiple discussions. The coding was made using the codebook prepared by the principal investigator after an initial reading of the interview files. A codebook is a valuable tool that aids researchers in establishing the trustworthiness of their analysis. It also helps qualitative data analysts skillfully identify, categorize, and interpret patterns in their data (Richards and Hemphill, 2018). We used MAXQDA2020 software for data management and analysis (VERBI Software, 2020). A thematic analysis was used to detect and identify patterns in the data. Thematic analysis is an approach that attempts to identify and report themes in

qualitative studies (Vaismoradi, Turunen and Bondas, 2013). Code maps for the major themes were used to aid the visual identification of patterns and generate themes.

5.2.6. Ethical considerations

This study was carried out after obtaining ethical clearance from the institutional review board of the College of Development Studies of Addis Ababa University (Annex II). Relevant local communities were communicated about the objective of the research and the research process. Before conducting the interviews, oral informed consent was obtained. Personal identifications were not included in the interview tapes, and other identifying details were removed during transcription to preserve the confidentiality of the information.

5.3. Results

The interviewees recognized that getting into a marital union, becoming a parent, managing a household, and supporting a family are important markers of the transition to adulthood. In connection with this, youths considered the reproductive transition as a necessary long-term commitment to fulfilling societal expectations. One of the youths explained the process of the transition as follows:

> *For a young person, the transition to adulthood involves passing through the youth age category, overcoming all the challenges of youth life situations, and reaching family formation or leading an independent life such as owning a house, getting married, and having children (rural resident, high school graduate, male, 21 years).*

The youths perceive that transitioning to married life and bearing children is a social responsibility that youths should take as community members. From the youths' perspective, reproductive transition and subsequent social recognition are measures of a successful transition to adulthood. In support of this idea, one youth emphatically expressed that '*getting married is a must for a young person. They have the responsibility of ensuring the continuity of family lineage (rural resident, civil servant, male, 29 years)'.* The reproductive transition of youths, however, is not without challenges, and the study identified a range of barriers to a successful reproductive transition. The study findings are presented below under two main themes:

challenges of a successful reproductive transition and types of social supports required to overcome these barriers.

5.3.1. Challenges of a successful reproductive transition

Economic security and the development of cognitive abilities that enable individuals to think critically, make sound decisions, and plan for the future are considered by youths as critical for a successful reproductive transition. The youth age is the time when cognitive maturity and economic independence are achieved before marriage and childbearing. The youths mentioned different types of challenges that hindered a successful reproductive transition. Three sub-categories were identified under barriers to a successful reproductive transition theme: *1) unprepared for an adult role*, *2) cultural decay*, and *3) health risks*.

Unprepared: The youths' main challenge as a barrier to a successful reproductive transition is a poor perception of adult roles, lack of purpose, and limited access to resources. We interpreted this challenge to a successful reproductive transition as *unprepared for an adult role*. It captured concepts of *lack of access to resources* and *lack of motivation*. For many youths, limited access to resources makes the reproductive transition more challenging by restricting opportunities and access to basic needs. A female youth described her condition as such:

> *In my opinion, economic deprivation is a core challenge that hindered me from having a successful reproductive transition. I am young, but my age is advancing. I was supposed to bear and rear one or two children by now. But my economic situation doesn't allow me to enter into that commitment. So, I am pushing my reproductive transition further (rural resident, unemployed, female, 25 years).*

Furthermore, youths without a clear understanding of an adult role were challenged to form meaningful social relationships. One of the youths highlighted this in her quote, "*Poor perception of adult roles may lead to reduced economic performance and engagement in ill behavior or substance abuse, such as drinking and smoking, leading to failure in a successful transition to adulthood (rural resident, student, female, 26 years).*"

Cultural decay: Another barrier cited by urban resident youths is a decline in shared values, customs, and beliefs about reproductive transition among the youth due to the growing trend in

technology and social media use. We interpreted this to signify *cultural decay*, or the progressive loss of traditional values, which would eventually lead to the breakdown of social cohesion. A female youth from an urban area noted her observation and worry, stating: "*As you can observe, with technological advances, there are numerous sources of influence on the youth. The needs of the present generation of youth and the support from the family do not match (urban resident, employed, female, 28 years).*" The youths also revealed the presence of deviant behaviors and misconceptions about marriage and household management. One youth quoted, "*Another emerging challenge is, for instance, a recently growing teaching that questions our norm and belief about the usefulness of marriage – 'What is the use of getting married?' (urban resident, self-employed, male, 29 years).*"

Health risks: Another challenge the youths mentioned was early initiation of sex and early marriage, an increasing trend in sexually transmitted infections, and a lack of comprehensive understanding of reproductive health issues. The youths noted that early reproductive transition eroded their educational and career aspirations and their physical and emotional well-being. This risk is illustrated in the quotation of a youth from a rural area: "*In my community, the early transition to marital life and procreation forced many to discontinue their education. Not only this, early married girls usually encountered complications during their pregnancy and childbirth (rural resident, high school graduate, male, 21 years).*"

5.3.2. Types of social supports required for a successful reproductive transition

Regardless of the causes or types of barriers, the young are optimistic that the impediments to a successful transition could be resolved. According to their response, a solid social support system from friends, family, schools, and the community is essential to navigating adulthood successfully. In this regard, the study identified three sub-themes: *1) guidance support*, *2) financial support*, and *3) reprogramming*.

Guidance support: Youths noted the significance of emotional support, life skill training, and counseling and training on sexual and reproductive health issues to overcome the hurdles of the transition to adulthood. We labeled this as *guidance support*, a support that attempts to increase their resilience and coping skills. For young people, the most critical place of socialization is

their family, where significant knowledge and experience transfer between two generations are made. One of the youths said, "*By far, however, family guides you through life. Your upbringing exposes you to a particular lifestyle of the family and learn from them (rural resident, employed, male, 28 years).”*

One of the suggestions made as a means of guidance support is the practice of frequent open discussions in the family on matters related to sexuality and addictions. This can aid in the creation of a safe and supportive family environment, the development of healthy relationships, and the promotion of desirable behaviors and attitudes. Regardless, the responsibility of creating a supportive environment, sexuality education, and reducing health risks need not be limited to the family alone, as described in the quotation: *“Teaching, telling, and counseling should be provided at various levels, such as at schools, religious institutions, within the community by the elderlies, and family level. This is the responsibility of us all (urban resident, employed, male, 29 years).”*

Financial support: Economic insecurity is one of the challenges of a successful reproductive transition expressed by the youth. Many young people said they participate in productive activities and save money during transition. One of the youths expressed the importance of long-term investment and hard work using an old saying from his community: “*What would you feed your family if you did not work hard before marriage during a young age? (rural resident, male, employed, 27 years).*” Apart from the anticipated cost of living, another challenge noted by the youth is the cost of marriage. Thus, besides guidance support, the financial support provided to the youth for education, starting a business, and starting a family helps them build a foundation for financial stability and independence.

Reprogramming: There are practical interventions that respondents suggested to modify misconceptions and behaviors of the youth and lead them to be successful adults. We adopted the term *reprogramming* to represent these concepts. One intervention proposed by the youth as a support mechanism is community conversation: *“Engaging the youth in a community conversation about issues of the youth and counseling is helpful for a successful transition to adulthood (urban resident, female, employed, 26 years).”* Community conversation is deemed

crucial to engage young people in dialogue and collaboration, create a shared awareness of challenges, and identify solutions that may be used to overcome barriers.

Another intervention stated to improve the chance of success in the transition to adulthood was incorporating sex education in the high school curriculum, removing predisposing factors to substance abuse, and creating a supportive environment for the youth. The relevance of sex education, for instance, was explained in the following quote:

> *Providing sexual education at the high school level, as an independent subject if possible, merits youths to transition to adulthood successfully. Incorporating the issue in the formal school programs – one day a week – in the form of counseling, if possible, would be productive (rural resident, high school graduate, male, 21 years).*

Further, outside the family environment, youths learn from the experiences of their elders in the community and by association with peers. Young individuals are more likely to form healthy habits, make wise decisions, and abstain from undesirable behaviors when they have positive role models. Some youths highly value using positive role models and affirmations to overcome challenges: "*To be successful, a young person should have a role model – a successful person's life experience (rural resident, employed, male, 29 years).”* However, it is equally possible that youths may be negatively affected by failed relationships rather than taking it as a learning opportunity, as expressed in the quote below: "*Looking into the experience of a failed relationship, the youth is made to fear marital responsibility (urban resident, female, employed, 26 years).”*

5.4. Discussion

The study attempted to investigate the perception of youths about a successful reproductive transition, barriers to a successful reproductive transition, and the social support required to manage the challenges. Unpreparedness for an adult role both emotionally and financially, health risks, and erosion of social norms and values of a reproductive transition were the core challenges of the youth for a successful reproductive transition. Social support is important in navigating adulthood's challenges, particularly regarding reproductive transition. It can provide resources and emotional support during this transition, which can be critical for achieving

reproductive goals and overall well-being.

Reproductive transition is a significant marker of a successful transition to an adult role and gaining social recognition: The transition to adulthood traditionally encompassed economic and residential independence from parents, getting married and establishing a family, and becoming a parent (Juárez and Gayet, 2014). Our finding showed that among the traditional markers, the transition to married life and parenthood is seen as a natural and expected part of adult life to gain social recognition. Further, we have reported that laying the foundation for a successful reproductive transition requires financial stability and psychological maturity. However, it's important to note that economic stability and psychological maturity are not always easy to achieve, especially for young people who face systemic barriers such as higher unemployment rates and discrimination (United Nations, 2018; Ethiopia Statistics Service, 2021). Our findings suggest that although the reproductive transition is a means of gaining social recognition, youths' financial security and cognitive maturity are the forerunners of a successful reproductive role assumption.

Shifts in social norms and practices and health risks threaten a successful reproductive transition: The results showed that a change in social values and customs related to reproductive transition was witnessed among urban youths. These changes in social norms and practices can significantly impact young people's ability to make a successful reproductive transition. With these changes, the transition to adulthood can become increasingly prolonged and individualized, with young people taking different paths to adulthood (Eliason, Mortimer and Vuolo, 2015). Another challenge reported in this study was perceived health risks among the youth. Health risks can also significantly threaten the successful transition to adulthood. Young people not informed about sexual and reproductive health or lack access to contraceptives and other reproductive health services may be at risk for unintended pregnancy, sexually transmitted infections, and different adverse health outcomes (Taylor *et al.*, 2020; Leekuan *et al.*, 2022). Addressing these challenges requires a comprehensive approach that includes sexual and reproductive health education, high-quality reproductive health services for the youth, and supportive social and cultural norms that encourage open dialogue.

Enhancing youths' resilience through positive role models and community conversation is essential. Our analysis revealed that one effective strategy for building resilience for a successful reproductive transition is to provide positive role models and engagement in community conversation. Positive role models can be instrumental in providing guidance and inspiration for young people as they navigate the challenges of adolescence and young adulthood. These role models can assist in promoting resilience and inspire young people to make choices that are consistent with their goals and beliefs by demonstrating positive examples of healthy relationships, responsible decision-making, and respectful communication (Wood *et al.*, 2018). The analysis also showed that community conversation is essential for building resilience and promoting a supportive environment for young people. The strategy can involve creating safe spaces for young people to share their experiences, hopes, and concerns with others in their community, including parents, teachers, and mentors. These conversations can help break down barriers and promote understanding while providing opportunities for young people to learn from each other and build supportive relationships (Molfenter *et al.*, 2018; Schutz *et al.*, 2021).

5.5. Conclusions

Economic security and the development of cognitive abilities are important factors in warranting that young people are well-prepared for adulthood and family formation responsibilities. For many youths, achieving reproductive transition is a critical marker of fulfilling their adult roles and responsibilities. Regardless, barriers such as unpreparedness for an adult role, changes in social norms and values, and health risks, including sexually transmitted infections and unintended pregnancy, pose significant challenges for young people. Addressing these barriers requires a multi-faceted approach that includes education, access to health care and family planning services, and supportive policies and programs that promote young people's economic security and social well-being.

Youths are among the most vulnerable groups of the population, as they are in the process of physical, mental, and social development. Protection against undue influence and the provision of social support are crucial in promoting their health and well-being. Communities, family

members, and institutions must ensure that they have the resources and skills they need to navigate the challenges of adolescence and achieve a successful transition to adulthood. Incorporating sexual education into formal high school programs provides young people with the knowledge and skills they need to make informed decisions about their sexual health, including how to protect themselves from sexually transmitted infections and unintended pregnancy.

CHAPTER 6. GENERAL DISCUSSION

The transition to adulthood is a complex and multi-faceted process that involves significant changes in an individual's personal, social, and economic roles and responsibilities (Macmillan and Eliason, 2003). Researchers have explored this process across different contexts and populations, seeking to understand the factors that shape the experiences of young people as they move from childhood to adulthood. By understanding the factors that shape the transition to adulthood, researchers and policymakers can develop interventions that promote positive outcomes for young people as they navigate this critical life stage.

This study methodologically departed from previous research conducted in Ethiopia in three aspects: *i)* the perspective adopted, *ii)* the markers of reproductive transition, and *iii)* an inter-cohort comparison. In terms of perspective, rather than focusing singly on reproductive markers and events, the study utilized bundles of closely related markers to construct the reproductive life trajectory of youths. By taking a life course approach, the study captured the diversity of young people's reproductive experiences, including the duration between events and the factors that influenced the timing and sequencing of events.

Another contribution of the study was the inter-cohort comparison of the reproductive trajectories of youths. The relevance of this comparison was that it allows us to assess how well societal interventions and changes, such as the enactment of youth-specific policies and revisions, affected the reproductive trajectories of young people. People from the same birth cohort experience the same sociocultural resources, constraints, and opportunities because they were born during the same historical period. As such, these experiences can shape their development, behaviors, and attitudes in unique ways that differ from other cohorts.

The selection of birth cohorts was made so that the youth age of the birth cohorts coincides with historical times when different policies and programs were passed in Ethiopia. The first birth cohort (1975 – 1979), which lived its youth age when youth reproductive health-related policies were absent, provides a baseline for the situation of reproductive trajectories of young people. The second birth cohort (1980 – 1984), which lived during a period of policy outburst, provides insight into the possible effects of policies and programs on young people's reproductive

trajectories. During the youth age of this cohort, the National Population and Women Policy in 1993, the Health Sector Development Program I in 1997, and the Educational and Training Policy 1994 went into effect (Transitional Government of Ethiopia (TGE), 1993; Ministry of Education - FDRE, 1994; Federal Democratic Republic of Ethiopia Ministry of Health, 2005; Hailemariam, Alayu and Teller, 2011). By examining the reproductive trajectories of this cohort, the study identified potential successes and challenges of policy implementation. The third birth cohort (1985 – 1989), which lived during policy maturation and revisions, allowed the study to examine the potential impact of policy adjustments on young people's reproductive trajectories.

Lastly, the traditional markers of reproductive transitions were family formation and parenthood. Marriage and sexual debut were often closely linked, with marriage being the normative context for sexual activity. However, with changing social norms and values, the separation of these events has become more common in recent decades. This separation has led to a shift in how the transition to adulthood is conceptualized and studied (Juárez and Gayet, 2014). This change is particularly important in the context of developing countries like Ethiopia, where norms and values regarding sexuality and marriage are undergoing significant shifts, and young people are increasingly engaging in sexual activity outside of marriage (Dejene and Gurmu, 2022).

In this synthesis, we expounded our study's key findings on youths' reproductive transition from the Oromia National Regional State, Ethiopia. We also discussed the implications of these findings for understanding and supporting young people as they transition into adulthood in the second portion of the chapter.

6.1. Major findings

The study's main objective was to examine the reproductive endeavors and successes of youths residing in the Oromia National Regional State. To better understand the reproductive trajectories of youths, it is essential to differentiate between reproductive endeavors and reproductive successes. Reproductive endeavors refer to the actions and behaviors adopted by youths to achieve their reproductive goals, such as engaging in sexual activity, contraceptive use, getting married, planning parenthood, and having children. On the other hand, reproductive

success refers to the actual attainment of reproductive goals, which can vary depending on the context and individual circumstances.

While reproductive endeavors can be measured through self-reported behaviors and actions, reproductive successes are a more subjective concept that requires qualitative exploration. For instance, a youth may engage in sexual activity or get married but still fail to achieve their reproductive goals for various reasons. Therefore, researchers must consider both reproductive endeavors and successes when examining youths' reproductive trajectories. Chapters two through four are dedicated to exploring the reproductive endeavors of youths, whereas the subjective concept of successful reproductive transition is addressed in chapter five. Thus, the study employed a mixed approach with qualitative research embedded within a more extensive quantitative design.

First, the study aimed to identify youths' reproductive transition patterns and investigate the sources of diversity in their reproductive life trajectories. The study identified four distinct patterns of reproductive trajectories among young individuals, with traditional norms and values still dominating reproductive trajectories. However, many youths engage in diverse reproductive patterns, indicating a divergence from the conventional norm of early marriage and parenthood. One trajectory type corroborates that young people increasingly engage in sexual activity outside marriage. This finding suggests that a growing number of young people delay the traditional markers of adulthood, such as marriage and parenthood, while still exploring their sexuality.

The study also reported that male and female youths' reproductive trajectories differed substantially. Education significantly delayed the assumption of reproductive roles for both male and female youths. Female education tends to delay the age at first marriage, leading to a delay in age at first birth for females, particularly in urban areas. On the other hand, the deferring of marriage and parenthood to later ages of male youths appears to be replaced by an increased likelihood of engagement in premarital sex. Overall, the study's findings suggest that male and female youths' reproductive behaviors in the study area are changing, with education playing a crucial role in postponing reproductive role assumption.

Secondly, we also used the life course perspective to examine the inter-cohort timing of reproductive transition experiences of males and females in Ethiopia before they reach age 25. The results show that premarital sex is emerging as a competing risk to marriage, indicating a significant deviation from the conventional pathway to adulthood. The findings also reveal a recurrence of premarital sex across birth cohorts with substantial changes in the timing and magnitude of the debut to sex. The conclusion that education plays a paramount role in delaying the timing of marriage is consistent with previous research (Raj *et al.*, 2019; Marphatia *et al.*, 2020a; Liang and Yu, 2022). However, youth education is ineffective in limiting both the timing and volume of premarital sex.

Early initiation of sex and early marriage promote early parenthood. In this study, it has been noted that early initiation into sex had a far more significant impact than early marriage on the transition to parenthood. There is a much quicker transition to childbearing after an early premarital sexual experience. In addition, the findings suggest that the timing of marriage and debut to sex strongly influenced gender disparity in the transition to parenthood before age 20. That is, female youths are at a higher risk of early reproductive transition, having a shorter risk-free period than male youths.

Thirdly, the study attempted to assess the gender disparity in the timing of the reproductive transition among youths. The premise of our work is that gender inequality in the timing of the reproductive transition is not solely due to differences in individual characteristics of male and female youths but also due to the structural effects of covariates. Adolescence is the time when the gender disparity in young people's reproductive transition is the widest. This study clearly shows that discriminatory impacts of socio-economic factors played a significant role in defining the gender gap in the reproductive transition of youths.

Lastly, the study explored the challenges of a successful reproductive transition and identified the social support needs of the youth to overcome barriers that impede successful outcomes. For young people, the reproductive transition is a significant marker of a successful transition to adulthood and gaining social recognition. However, economic stability and cognitive maturity are necessary for a successful reproductive role assumption. Disruption of social norms and

practices and health risks can threaten the reproductive transition, requiring a comprehensive approach that includes sexual and reproductive health education, high-quality reproductive health services, and supportive social and cultural norms. The study also reported that enhancing youths' resilience through positive role models and community conversation is essential for promoting a supportive environment, healthy relationships, responsible decision-making, and respectful communication.

6.2. Implications

6.2.1. Policy and practice

The study's findings have important policy implications for Ethiopia, particularly the Oromia National Regional State reproductive health and education programs.

- Traditional norms and values still dominate the reproductive trajectories of youths, indicating that interventions aimed at improving reproductive health outcomes should consider the cultural and social context of young people's lives. Given the diversity in youths' reproductive patterns, programs should consider and address the changing norms and values of the youth that shape their reproductive trajectories through youth and community engagement.

- In Ethiopia, regardless of improvements made in the recent past, there is a sizable gender gap in academic success at primary and secondary levels, with women having lower completion rates than men (Bolton, 2019). On the other hand, the study emphasizes the importance of education in delaying the early transition to marriage and parenthood, particularly among female youths. It asserts that young women can gain from policy initiatives that support and expand their access to education. Therefore, addressing gender inequality in education is crucial to address the persistent gender gap in the timing of the reproductive transition.

- Given that youth education alone is ineffective in delaying the timing and volume of premarital sex and the shorter duration between early initiation of premarital sex and parenthood, a more comprehensive approach to sexual education is necessary. This approach shall include providing information on contraception, safe sex practices, and

destigmatizing premarital sex. The goal of this education should be to equip young people with the knowledge and skills necessary to engage in safe sex, practice contraception, and avoid unintended pregnancy.

- Policymakers should prioritize programs and policies addressing the discriminatory effects of socio-economic factors perpetuating gender inequality in reproductive transition. Programs that provide economic empowerment for girls and women could help to reduce the gender gap in the reproductive transition by increasing their access to education and healthcare services and reducing their vulnerability to early sexual debut.

- Achieving a successful reproductive transition can be less complicated if policymakers create programs and regulations that promote positive role models and community conversations. Young people could discuss sexual and reproductive health issues and make informed decisions about their reproductive lives in a safe and supportive environment that such programs provide. These interventions can involve educating peer educators, clergy, and community health workers on how to help young people without judgment.

6.2.2. Research

The study also has the following implications for research:

- First, given the study's limitations, future studies should seek to capture the complex interplay between reproductive transitions, financial security, cognitive maturity, and other factors that influence young people's successful transition to adulthood using a life-course perspective with a more robust design. This perspective enables one to capture an individual’s trajectory in a changing historical, social, and cultural context. Thus, the sequence, timing, and duration between competing events can be effectively studied.

- Secondly, given the recurrence of premarital sex across birth cohorts with substantial changes in the timing and magnitude of the debut to sex, it is crucial to establish long-term follow-up studies to monitor trends in sexual behavior and reproductive health outcomes. Such studies are believed to inform policymakers about the effectiveness of current policies and identify areas that require further intervention.

REFERENCES

Abera, M., Nega, A., Tefera, Y. and Gelagay, A.A. (2020) 'Early marriage and women's empowerment: the case of child-brides in Amhara National Regional State, Ethiopia', *BMC International Health and Human Rights*, 20(30), pp. 1–16. Available at: https://doi.org/10.1186/s12914-020-00249-5.

African Development Bank Group (2016) *Jobs for Youth in Africa: Catalyzing youth opportunity across Africa*. Available at: www.afdb.org.

African Union Commission (2006) *African Youth Charter*.

Agyei, W.K.A. (1978) 'Modernization and the theory of demographic transition in the developing countries: the case of Jamaica', *Social and Economic Studies*, 27(1), pp. 44–68.

Ahonsi, B., Fuseini, K., Nai, D., Goldson, E., Owusu, S., Ndifuna, I., *et al.* (2019) 'Child marriage in Ghana: Evidence from a multi-method study', *BMC Women's Health*, 19(126), pp. 1–15. Available at: https://doi.org/10.1186/s12905-019-0823-1.

Alazbih, N., Kaya, A.H., Mengistu, M. and Gelaye, K. (2021) 'Age at first marriage and fertility decline in dabat health and demographic surveillance system site, northwest ethiopia: Decomposition analysis', *International Journal of Women's Health*, 13(December), pp. 1197–1206. Available at: https://doi.org/10.2147/IJWH.S334112.

Allendorf, K., Thornton, A., Mitchell, C., Young-DeMarco, L. and Ghimire, D.J. (2017) 'Early Women, Late Men: Timing Attitudes and Gender Differences in Marriage', *Journal of Marriage and Family*, 79(5), pp. 1478–1496. Available at: https://doi.org/10.1111/jomf.12426.

Amenu, A., Negash, W. and Demeke, E. (2022) 'Quality of Youth Friendly Service at Public Health Facilities in Sendafa Town, Oromia Region, Ethiopia: A Facility Based Cross-Sectional Study', *Americal Journal of Nursing and Health Sciences*, 3(3), pp. 39–53. Available at: https://doi.org/10.11648/j.ajnhs.20220303.11.

Amo-Adjei, J. and Tuoyire, D.A. (2018) 'Timing of sexual debut among unmarried youths aged 15 - 24 years in sub-Saharan Africa', *Journal of Biosocial Science*, 50(2), pp. 161–177. Available at: https://doi.org/10.1017/S0021932017000098.

Amoo, O.E. (2017) 'Trends and determinants of female age at first marriage in Sub-Saharan Africa (1990-2014): What has changed?', *African Population Studies*, 31(1), pp. 3565–3577.

Ansell, N. (2005) *Children, youth and development*, *Children, Youth and Development*.

Edited by T. Binns. London and New York: Taylor and Francis Group. Available at: https://doi.org/10.4324/9780203644041.

Arega, W.L., Zewale, T.A. and Bogale, K.A. (2019) 'Premarital sexual practice and associated factors among high school youths in Debretabor town, South Gondar zone, North West Ethiopia, 2017', *BMC Research Notes*, 12(314), pp. 1–7. Available at: https://doi.org/10.1186/s13104-019-4348-3.

Ariho, P., Kabagenyi, A. and Nzabona, A. (2018) 'Determinants of change in fertility patterns among women in Uganda during the period 2006-2011', *Fertility Research and Practice*, 4(4), pp. 1–11. Available at: https://doi.org/10.1186/s40738-018-0049-1.

Arnett, J.J. (2000) 'Emerging adulthood: A theory of development from the late teens through the twenties', *American Psychologist*, 55(5), pp. 469–480. Available at: https://doi.org/10.1037/0003-066X.55.5.469.

Aronson, P. (2008) 'The Markers and Meanings of Growing Up: Contemporary Young Women's Transition from Adolescence to Adulthood', *Gender and Society*, 22, pp. 56–82. Available at: https://doi.org/10.1177/0891243207311420.

Asante, K.O., Nketiah-amponsah, E., Andoh-arthur, J., Boafo, I.M. and Ampaw, S. (2018) 'Correlates of Early Sexual Debut Among Sexually Active Youth in Ghana', *International Quarterly of Community Health Education*, 39(1), pp. 9–17. Available at: https://doi.org/10.1177/0272684X18811016.

Åsenhed, L., Kilstam, J., Alehagen, S. and Baggens, C. (2013) 'Becoming a father is an emotional roller coaster - an analysis of first-time fathers′ blogs', *Journal of Clinical Nursing*, 23(9–10), pp. 1309–1317. Available at: https://doi.org/10.1111/jocn.12355.

Avogo, W.A. and Somefun, O.D. (2019) 'Early marriage, cohabitation, and childbearing in West Africa', *Journal of Environmental and Public Health*, 2019, p. 10. Available at: https://doi.org/10.1155/2019/9731756.

Axxe, E., Hayford, S.R. and Eggum, N.D. (2022) 'Youth's Family and Non-Family Roles as Predictors of Subjective Adulthood in Three Low-Income Agricultural Settings', *Journal of Research on Adolescence*, 32(4), pp. 1546–1565. Available at: https://doi.org/10.1111/JORA.12731.

Belachew, T.B., Negash, W.D., Kefale, G.T., Tafere, T.Z. and Asmamaw, D.B. (2022) 'Determinants of early marriage among married women in nine high fertility sub-Saharan African countries: a multilevel analysis of recent demographic and health surveys', *BMC Public Health*, 22(1), pp. 1–8. Available at:

https://doi.org/10.1186/s12889-022-14840-z.

Belay, H.G., Arage, G., Degu, A., Getnet, B., Necho, W., Dagnew, E., *et al.* (2021) 'Youth-friendly sexual and reproductive health services utilization and its determinants in Ethiopia: A systematic review and meta-analysis', *Heliyon*, 7(12), p. e08526. Available at: https://doi.org/10.1016/j.heliyon.2021.e08526.

Bezie, M. and Addisu, D. (2019) 'Determinants of early marriage among married women in Injibara town, north West Ethiopia: Community-based cross-sectional study', *BMC Women's Health*, 19(1), pp. 1–6. Available at: https://doi.org/10.1186/s12905-019-0832-0.

Bianchi, S.M. (2014) 'A Demographic Perspective on Family Change', *J Fam Theory Rev*, 6(1), pp. 35–44. Available at: https://doi.org/doi:10.1111/jftr.12029.

Billari, F.C., Hiekel, N. and Liefbroer, A.C. (2019) 'The Social Stratification of Choice in the Transition to Adulthood', *European Sociological Review*, 35(5), pp. 599–615. Available at: https://doi.org/10.1093/esr/jcz025.

Billari, F.C. and Liefbroer, A.C. (2010) 'Towards a new pattern of transition to adulthood?', *Advances in Life Course Research*, 15, pp. 59–75. Available at: https://doi.org/10.1016/j.alcr.2010.10.003.

Bingenheimer, J.B., Asante, E. and Ahiadeke, C. (2015) 'Peer influences on sexual activity among adolescents in Ghana', *Stud Fam Plann*, 46(1), pp. 1–19. Available at: https://doi.org/10.1111/j.1728-4465.2015.00012.x.

Bitew, D.A., Habitu, Y.A. and Gelagay, A.A. (2021) 'Time to first birth and its determinants among married female youths in Ethiopia, 2020: survival analysis based on EDHS 2016', *BMC Women's Health*, 21(1), pp. 1–11. Available at: https://doi.org/10.1186/s12905-021-01414-1.

Bloom, D.E., Kuhn, M. and Prettner, K. (2017) 'Africa's prospects for enjoying a demographic dividend', *Journal of Demographic Economics*, 83(1), pp. 63–76. Available at: https://doi.org/10.1017/dem.2016.19.

Blum, R.W. (2007) 'Youth in Sub-Saharan Africa', *Journal of Adolescent Health*, 41(3), pp. 230–238. Available at: https://doi.org/10.1016/j.jadohealth.2007.04.005.

Boisvert, S., Dion, J., Poulin, F., Blackburn, M.È., Brault, M.C., Gaudreault, M., *et al.* (2020) 'Transition-To-Adulthood Profiles and Well-Being: Similarities and Distinctions Among Urban and Remote Contexts', *Emerging Adulthood*, 10(5), pp. 1191–1203. Available at: https://doi.org/10.1177/2167696820983040.

Bolton, L. (2019) *Gender parity in education in Ethiopia*. K4D Helpdesk Report 719.

Brighton, UK: Institute of Development Studies.

Bongaarts, J., Mensch, B.S. and Blanc, A.K. (2017) 'Trends in the age at reproductive transitions in the developing world: The role of education', *Population Studies*, 71(2), pp. 139–154. Available at: https://doi.org/10.1080/00324728.2017.1291986.

Brittain, A.W., Williams, J.R., Zapata, L.B., Pazol, K., Romero, L.M. and Weik, T.S. (2015) 'Youth-Friendly Family Planning Services for Young People: A Systematic Review', *American Journal of Preventive Medicine*, 49(2), pp. S73–S84. Available at: https://doi.org/10.1016/j.amepre.2015.03.019.

Brix, N., Ernst, A., Lauridsen, L.L.B., Parner, E., Støvring, H., Olsen, J., *et al.* (2019) 'Timing of puberty in boys and girls: A population-based study', *Paediatric and Perinatal Epidemiology*, 33(1), pp. 70–78. Available at: https://doi.org/10.1111/ppe.12507.

Brzinsky-Fay, C., Kohler, U. and Luniak, M. (2006) 'Sequence analysis with Stata', *Stata Journal*, 6(4), pp. 435–460. Available at: https://doi.org/10.1177/1536867x0600600401.

Buchmann, M.C. and Kriesi, I. (2011) 'Transition to adulthood in Europe', *Annual Review of Sociology*, 37, pp. 481–503. Available at: https://doi.org/10.1146/annurev-soc-081309-150212.

Burton-Jeangros, C., Cullati, S., Sacker, A. and Blane, D. (2015) 'Introduction: The Added Value of the Life Course Perspective to the Analysis of Health', in C. Burton-Jeangros, S. Cullati, A. Sacker, and D. Blane (eds) *A Life Course Perspective on Health Trajectories and Transitions*. Springer Open, pp. 1–18.

Calvès, A.E. (2016) 'First union formation in urban Burkina Faso: Competing relationship transitions to marriage or cohabitation', *Demographic Research*, 34(1), pp. 421–450. Available at: https://doi.org/10.4054/DemRes.2016.34.15.

Carpiano, R.M. and Daley, D.M. (2006) 'A guide and glossary on postpositivist theory building for population health', *Journal of Epidemiology and Community Health*, 60, pp. 564–570. Available at: https://doi.org/10.1136/JECH.2004.031534.

Casterline, J.B. (2017) 'Prospects for Fertility Decline in Africa', *Population and Development Review*, 43, pp. 3–18. Available at: https://doi.org/10.1111/padr.12055.

Central Statistical Agency [Ethiopia] & ORC Macro (2006) *Ethiopia Demographic and Health Survey 2005*. Addis Ababa, Ethiopia and Calverton, Maryland, USA.

Chae, S., Desai, S., Crowell, M., Sedgh, G. and Singh, S. (2017) 'Characteristics of women obtaining induced abortions in selected low- and middle-income countries', *PLoS*

ONE, 12(3). Available at: https://doi.org/https://doi.org/10.1371/journal.pone.0172976.

Chang, A.Y., Maswera, R., Moorhouse, L.R., Skovdal, M., Nyamukapa, C. and Gregson, S. (2021) 'The determinants and impacts of age-disparate relationships on women in Zimbabwe : A life course perspective', *SSM - Population Health*, 16, pp. 1–9. Available at: https://doi.org/10.1016/j.ssmph.2021.100947.

Chen, C. and Lin, H. (2011) 'Decomposing residential self-selection via a life-course perspective', *Environment and Planning A*, 43(11), pp. 2608–2625. Available at: https://doi.org/10.1068/a43571.

Chernet, A.G., Shebeshi, D.S. and Banbeta, A. (2019) 'Determinant of time-to-first birth interval after marriage among Ethiopian women', *BMC Women's Health*, 19(1), pp. 1–6. Available at: https://doi.org/10.1186/s12905-019-0858-3.

Chihurumnanya, A., Lawrence, U., Benedict, N., Uche, D. and Nnenna, A. (2016) 'Premarital Sex, Safer Sex and Factors Influencing Premarital Sex Practices Among Senior Secondary School Students in Ebonyi Local Government Area of Ebonyi State Nigeria', *Community Medicine & Public Health Care*, 3(012). Available at: https://doi.org/10.24966/cmph-1978/100012.

Clapham, C. (2019) 'The political economy of Ethiopia from the Imperial period to the present', in F. Cheru, C. Cramer, and A. Oqubay (eds) *The Oxford Handbook of the Ethiopian Economy*. Oxford University Press.

Clark, S., Koski, A. and Smith-Greenaway, E. (2017) 'Recent Trends in Premarital Fertility across Sub-Saharan Africa', *Studies in Family Planning*, 48(1), pp. 3–22. Available at: https://doi.org/10.1111/sifp.12013.

Coviello, V. and Boggess, M. (2004) 'Cumulative incidence estimation in the presence of competing risks', *The Stata Journal*, 4(2), pp. 103–112.

Crivello, G., Boyden, J. and Pankhurst, A. (2019) '"Motherhood in Childhood": Generational Change in Ethiopia', *Feminist Encounters: A Journal of Critical Studies in Culture and Politics*, 3(1–2), pp. 1–12. Available at: https://doi.org/10.20897/femenc/5918.

Cronley, C. and Evans, R. (2017) 'Studies of resilience among youth experiencing homelessness: A systematic review', *Journal of Human Behavior in the Social Environment*, 27(4), pp. 291–310. Available at: https://doi.org/10.1080/10911359.2017.1282912.

Crowther, M.J. (2020) 'merlin—A unified modeling framework for data analysis and

methods development in Stata', *Stata Journal*, 20(4), pp. 763–784. Available at: https://doi.org/10.1177/1536867X20976311.

CSA [Ethiopia] (2007) *The 2007 Population and Housing Census of Ethiopia: Statistical report at Country Level*. Available at: http://www.csa.gov.et/surveys/Population and Housing census/ETH-pop-2007/survey0/data/Doc/Reports/National_Statistical.pdf.

CSA [Ethiopia] (2013) *Population Projections for Ethiopia 2007-2037*. Addis Ababa.

CSA [Ethiopia] and ICF International (2012) *Ethiopia Demographic and Health Survey 2011*. Addis Ababa, Ethiopia and Calverton, Maryland, USA: Central Statistical Agency and ICF International.

CSA [Ethiopia] and ICF International (2016) *Ethiopia Demographic and Health Survey 2016*. Addis Ababa, Ethiopia, and Rockville, Maryland, USA: CSA and ICF.

Dame, A. (2015) 'Father Involvement in Childrearing Activities in the Context of Arsi Oromo Culture: Implications for Intervention', *The Ethiopian Journal of Education*, 35(2), pp. 81–110.

Damtie, Y., Cherie, N., Fentaw, H., Kefale, B., Addisu, E., Yalew, M., *et al.* (2022) 'Pre-marital sex and its association with peer pressure and watching pornography among young individuals in Ethiopia: a systematic review and meta-analysis', *Scientific Reports*, 12(1), pp. 1–11. Available at: https://doi.org/10.1038/s41598-022-13448-y.

Debele, S.B. (2018) 'Reading prayers as political texts: Reflections on irreecha ritual in Ethiopia', *Politics, Religion and Ideology*, 19(3), pp. 354–370. Available at: https://doi.org/10.1080/21567689.2018.1510393.

Dejene, T. and Gurmu, E. (2022) 'Exploring reproductive trajectories of youths of Oromia, Ethiopia: A life course approach', *PLoS ONE*, 17, pp. 1–14. Available at: https://doi.org/10.1371/journal.pone.0279773.

Demeke, F., Yohannes, T., Abera, N., Belayneh, F. and Nigussie, S. (2022) 'Youth friendly services utilization and associated factors among school youths in North Shewa Zone, Amhara Region, Ethiopia: A mixed-method study', *SAGE Open Medicine*, 10, pp. 1–14. Available at: https://doi.org/10.1177/20503121221112025.

Deribew, A., Tessema, G.A., Deribe, K., Melaku, Y.A., Lakew, Y., Amare, A.T., *et al.* (2016) 'Trends, causes, and risk factors of mortality among children under 5 in Ethiopia, 1990-2013: Findings from the Global Burden of Disease Study 2013', *Population Health Metrics*, 14(42), pp. 1–10. Available at: https://doi.org/10.1186/s12963-016-0112-2.

Desalegn, Y. (2018) 'Returns to Education in Ethiopia', in A. Heshmati and H. Yoon (eds)

Economic Growth and Development in Ethiopia. Singapore: Springer Nature Singapore Pte Ltd., pp. 199–226. Available at: https://doi.org/10.1007/978-981-10-8126-2_8.

Dessalegn, M., Ayele, M., Hailu, Y., Addisu, G., Abebe, S., Solomon, H., *et al.* (2020) 'Gender Inequality and the Sexual and Reproductive Health Status of Young and Older Women in the Afar Region of Ethiopia', *International Journal of Environmental Research and Public Health*, 17(12), pp. 1–14. Available at: https://doi.org/10.3390/IJERPH17124592.

Diez, E., Lopez, M.J., Perez, G., Garcia-Subirats, I., Nebot, L., Carreras, R., *et al.* (2020) 'Impact of a community contraceptive counselling intervention on adolescent fertility rates: A quasi-experimental study', *BMC Public Health*, 20(1). Available at: https://doi.org/10.1186/s12889-019-8122-1.

Doherty, T., Rohde, S., Besada, D., Kerber, K., Manda, S., Loveday, M., *et al.* (2016) 'Reduction in child mortality in Ethiopia: Analysis of data from demographic and health surveys', *Journal of Global Health*, 6(2). Available at: https://doi.org/10.7189/jogh.06.020401.

Donnenfeld, Z., Porter, A., Cilliers, J. (Jakkie), Moyer, J.D., Scott, A., Maweni, J., *et al.* (2017) *Ethiopia Development Trends Assessment: Ethiopia Performance Monitoring and Evaluation Service (EPMES)*. Addis Ababa, Ethiopia. Available at: https://doi.org/10.2139/ssrn.3941443.

Doyle, L., McCabe, C., Keogh, B., Brady, A. and McCann, M. (2020) 'An overview of the qualitative descriptive design within nursing research', *Journal of Research in Nursing*, 25(5), pp. 443–455. Available at: https://doi.org/10.1177/1744987119880234.

Dula, T. (2019) 'Impact of Gender Inequality in Socio-Economic Development: The Case of Women in Ethiopia', *Developing Country Studies*, 9(11), pp. 46–52. Available at: https://doi.org/10.7176/DCS/9-11-06.

Eckert-Lind, C., Busch, A.S., Petersen, J.H., Biro, F.M., Butler, G., Bräuner, E. V., *et al.* (2020) 'Worldwide Secular Trends in Age at Pubertal Onset Assessed by Breast Development Among Girls: A Systematic Review and Meta-analysis', *JAMA Pediatrics*, 174(4), p. e195881. Available at: https://doi.org/10.1001/JAMAPEDIATRICS.2019.5881.

Eliason, S.R., Mortimer, J.T. and Vuolo, M. (2015) 'The Transition to Adulthood: Life Course Structures and Subjective Perceptions', *Soc Psychol Quarterly*, 78(3), pp. 205–

227. Available at: https://doi.org/10.1177/0190272515582002.

Entsieh, A.A. and Hallström, I.K. (2016) 'First-time parents' prenatal needs for early parenthood preparation-A systematic review and meta-synthesis of qualitative literature', *Midwifery*, 39, pp. 1–11. Available at: https://doi.org/10.1016/j.midw.2016.04.006.

Erulkar, A.S. and Muthengi, E. (2009) 'Evaluation of Berhane Hewan : A Program to Delay Child Marriage in Rural Ethiopia', *International perspectives on sexual and reproductive health*, 35(1), pp. 6–14.

Ethiopia Statistics Service (2021) *Statistical report on the 2021 labor force and migration survey*. Addis Ababa, Ethiopia.

Ethiopian Public Health Institute (EPHI) [Ethiopia] and ICF (2021) *Ethiopia Mini Demographic and Health Survey 2019: Final Report*. Rockville, Maryland, USA: EPHI and ICF.

Fagbamigbe, A.F. and Idemudia, E. (2017) 'Diversities in timing of sexual debut among Nigerian youths aged 15-24 years: Parametric and non-parametric survival analysis approach', *African Health Sciences*, 17(1), pp. 39–51. Available at: https://doi.org/10.4314/ahs.v17i1.7.

Fasang, A.E. (2014) 'New Perspectives on Family Formation: What Can We Learn from Sequence Analysis?', in P. Blanchard, F. Buhlmann, and J.-A. Gauthier (eds) *Advances in Sequence Analysis: Theory, Method, Applications*. New York: Springer.

Fauske, H. (1996) 'Changing youth: transition to adulthood in Norway', *Young*, 4(1), pp. 47–62. Available at: https://doi.org/10.1177/110330889600400104.

Fava, E. Del, Piccarreta, R., Gregson, S. and Melegaro, A. (2016) 'Transition to Parenthood and HIV Infection in Rural Zimbabwe', *PLoS ONE*, 11(9), p. e0163730. Available at: https://doi.org/10.1371/journal.pone.0163730.

Federal Democratic Republic of Ethiopia (2000) *The Revised Family Code*, *Negarit Gazetta - Proclamation No. 213/2000*. Addis Ababa.

Federal Democratic Republic of Ethiopia Ministry of Health (2005) *Health Sector Strategic Plan (HSDP - III) 2005/6 - 2009/10*, *Federal Democratic Republic of Ethiopia*. Federal Democratic Republic of Ethiopia.

Federal Democratic Republic of Ethiopia Ministry of Health (2006) *National Adolescent and Youth Reproductive Health Strategy 2007 - 2015*.

Gabadinho, A., Ritschard, G., Müller, N.S. and Studer, M. (2011) 'Analyzing and Visualizing State Sequences in R with TraMineR', *Journal of Statistical Software*, 40(4), pp. 1–

37.

Getu, M., Emirie, G. and Habtamu, K. (2021) 'The prevalence and drivers of early marriage across three generations in three districts from Amhara , Oromia and Southern Nations , Nationalities and Peoples regions of Ethiopia', *Ethiopian Journal of the Social Sciences and Humanities (EJOSSAH)*, 17(2), pp. 91–112.

Gibson, M.A. and Gurmu, E. (2011) 'Land inheritance establishes sibling competition for marriage and reproduction in rural Ethiopia', *Proceedings of the National Academy of Sciences of the United States of America*, 108(6), pp. 2200–2204. Available at: https://doi.org/10.1073/pnas.1010241108.

Gill, V. (2003) 'Boundary crossings: Transitions from childhood to adulthood', *Children's Geographies*, 1(1), pp. 37–52. Available at: https://doi.org/10.1080/14733280302186.

Gobena, M.G. and Berelie, Y. (2022) 'Modeling the determinant of time to age at first marriage among women in Ethiopia using Cox models with mixed effects', *Reproductive Health*, 19(32), pp. 1–6. Available at: https://doi.org/10.1186/s12978-022-01339-4.

Gomes, C. (2013) 'Education, Work and Reproductive Health among Adolescents in Latin America and the Caribbean', *Advances in Applied Sociology*, 03(02), pp. 142–150. Available at: https://doi.org/10.4236/aasoci.2013.32019.

Gunawan, J. (2015) 'Ensuring Trustworthiness in Qualitative Research', *Belitung Nursing Journal*, 1(1), pp. 10–11. Available at: https://doi.org/10.33546/bnj.4.

Gurmu, E. and Etana, D. (2014) 'Age at first marriage and first birth interval in Ethiopia: Analysis of the roles of social and demographic factors', *African Population Studies*, 28(3), pp. 1332–1344. Available at: https://doi.org/10.11564/0-0-625.

Hailemariam, A. (2017) 'The second biggest African country undergoing rapid change: Ethiopia', in H. Groth and J.F. May (eds) *Africa's Population: In Search of a Demographic Dividend*. Springer International Publishing, pp. 53–69.

Hailemariam, A., Alayu, S. and Teller, C. (2011) 'The National Population Policy (NPP) of Ethiopia: Achievements, Challenges, and Lessons Learned, 1993–2010', in C. Teller and S. Hailemariam (eds) *The Demographic Transition and Development in Africa: The Unique Case of Ethiopia*. Springer.

Halpin, B. (2017) 'SADI: Sequence analysis tools for STATA', *Stata Journal*, 17(3), pp. 546–572. Available at: https://doi.org/10.1177/1536867x1701700302.

Hannah, B., Michael J., C., Mark J., R., Therese M.-L., A., Mark, C., Xing-Rong, L., *et al.* (2021) 'Capturing simple and complex time-dependent effects using flexible

parametric survival models: A simulation study', *Communications in Statistics - Simulation and Computation*, 50(11), pp. 3777–3793.

He, P., Eriksson, F., Scheike, T.H. and Zhang, M.J. (2016) 'A Proportional Hazards Regression Model for the Subdistribution with Covariates-adjusted Censoring Weight for Competing Risks Data', *Scandinavian Journal of Statistics*, 43(1), pp. 103–122. Available at: https://doi.org/10.1111/sjos.12167.

Hennink, M. and Kaiser, B.N. (2022) 'Sample sizes for saturation in qualitative research: A systematic review of empirical tests', *Social Science and Medicine*, 292, p. 114523. Available at: https://doi.org/10.1016/j.socscimed.2021.114523.

Heywood, W., Patrick, K., Smith, A.M.A. and Pitts, M.K. (2015) 'Associations Between Early First Sexual Intercourse and Later Sexual and Reproductive Outcomes: A Systematic Review of Population-Based Data', *Archives of Sexual Behavior*, 44(3), pp. 531–569. Available at: https://doi.org/10.1007/s10508-014-0374-3.

Hill, J.M., Lalji, M., Van Rossum, G., Van der Geest, V.R. and Blokland, A.A.J. (2015) 'Experiencing emerging adulthood in the Netherlands', *Journal of Youth Studies*, 18(8), pp. 1035–1056. Available at: https://doi.org/10.1080/13676261.2015.1020934.

Hinchliffe, S.R. and Lambert, P.C. (2013) 'Flexible parametric modelling of cause-specific hazards to estimate cumulative incidence functions', *BMC Medical Research Methodology*, 13(13), pp. 1–14. Available at: https://doi.org/10.1002/sim.7208.

Hutchison, E.D. (2011) 'Life Course Theory', in R.J.R. Levesque (ed.) *Encyclopedia of Adolescence*. Springer, New York, NY, pp. 1238–1241. Available at: https://doi.org/https://doi.org/10.1007/978-1-4419-1695-2_13.

Ibitoye, M., Choi, C., Tai, H., Lee, G. and Sommer, M. (2017) 'Early menarche: A systematic review of its effect on sexual and reproductive health in low- and middle-income countries', *PLoS ONE*, 12(6), pp. 1–24. Available at: https://doi.org/10.1371/journal.pone.0178884.

ICF (2018) *Demographic and Health Surveys Standard Recode Manual for DHS 7*. The Demographic and Health Surveys Program.Rockville, Maryland, U.S.A.: ICF.

ILO (2020) *Report on employment in Africa (Re-Africa)- Tackling the youth employment challenge*. Geneva.

Jann, B. (2008) 'A Stata implementation of the Blinder-Oaxaca decomposition', *Stata journal*, 8(4), pp. 453–479.

Jayachandran, S. (2015) 'The Roots of Gender Inequality in Developing Countries', *Annual Review of Economics*, 7(1), pp. 63–88. Available at: https://doi.org/10.1146/annurev-

economics-080614-115404.

Jebena, M.G., Tesfaye, M., Abashula, G., Balina, S., Jackson, R., Assefa, Y., *et al.* (2022) 'Barriers and facilitators of maternal health care services use among pastoralist women in Ethiopia: Systems thinking perspective', *Pastoralism*, 12(27), pp. 1–17. Available at: https://doi.org/10.1186/s13570-022-00236-6.

Jembere, G.B., Cho, Y. and Jung, M. (2018) 'Decomposition of Ethiopian life expectancy by age and cause of mortality; 1990-2015', *PLoS ONE*, 13(10), pp. 1–15. Available at: https://doi.org/10.1371/journal.pone.0204395.

John, N.A., Edmeades, J., Murithi, L. and Barre, I. (2019) 'Child marriage and relationship quality in Ethiopia', *Culture, Health and Sexuality*, 21(8), pp. 853–866. Available at: https://doi.org/10.1080/13691058.2018.1520919.

Joshi, H. (2002) 'Production , Reproduction , and Education : Women , Children , and Work in a British Perspective', *Population and Development Review*, 28(3), pp. 445–474.

Juárez, F. and Gayet, C. (2014) 'Transitions to adulthood in developing countries', *Annual Review of Sociology*, 40, pp. 521–538. Available at: https://doi.org/10.1146/annurev-soc-052914-085540.

Kaiser, B. (2015) 'Detailed decompositions in nonlinear models', *Applied Economics Letters*, 22(1), pp. 25–29. Available at: https://doi.org/10.1080/13504851.2014.907469.

Kassahun, A. (2010) *Navigating Uncertainties : Schooling and the Transition to Adulthood in Ethiopia*. Brown University.

Kitila, S.B., Feyissa, G.T. and Wordofa, M.A. (2023) 'Why do women walk away from maternal health services in Southwest Ethiopia? A qualitative study of caregivers' and clients' perspectives', *BMC Women's Health*, 23(83), pp. 1–10. Available at: https://doi.org/10.1186/s12905-023-02207-4.

Koski, A., Clark, S. and Nandi, A. (2017) 'Has Child Marriage Declined in sub-Saharan Africa? An Analysis of Trends in 31 Countries', *Population and Development Review*, 43(1), pp. 7–29. Available at: https://doi.org/10.1111/padr.12035.

Krafft, C. (2020) 'Why is fertility on the rise in Egypt? The role of women's employment opportunities', *Journal of Population Economics*, 33(4), pp. 1173–1218. Available at: https://doi.org/10.1007/s00148-020-00770-w.

Latouche, A., Allignol, A., Beyersmann, J., Labopin, M. and Fine, J.P. (2013) 'A competing risks analysis should report results on all cause-specific hazards and cumulative incidence functions', *Journal of Clinical Epidemiology*, 66, pp. 648–653. Available at:

https://doi.org/10.1016/j.jclinepi.2012.09.017.

Leekuan, P., Kane, R., Sukwong, P. and Kulnitichai, W. (2022) 'Understanding sexual and reproductive health from the perspective of late adolescents in Northern Thailand: a phenomenological study', *Reproductive Health*, 19(1), pp. 1–17. Available at: https://doi.org/10.1186/s12978-022-01528-1.

Lesch, E. and Kelapile, C. (2016) '"In My Dream She Finds Me…And She Wants Me Just the Way I Am": Fatherhood Experiences of Unmarried Men in South Africa', *Men and Masculinities*, 19(5), pp. 503–523. Available at: https://doi.org/10.1177/1097184X15601476.

Liang, Y. and Yu, S. (2022) 'Does education help combat early marriage? The effect of compulsory schooling laws in China', *Applied Economics*, 54(55), pp. 6361–6379. Available at: https://doi.org/10.1080/00036846.2022.2061906.

Van Lill, R. and Bakker, T.M. (2022) 'Life at a Stop Sign: Narrative Plots of the Transition to Adulthood During Unemployment Among South African Graduates', *Emerging Adulthood*, 10(1), pp. 124–134. Available at: https://doi.org/10.1177/2167696820937879.

Lindstrom, D.P., Kiros, G.-E. and Hogan, D.P. (2009) 'Transition into first intercourse, marriage, and childbearing among Ethiopian women', *Genus*, 65(2), pp. 45–77.

Macmillan, R. and Eliason, S.R. (2003) 'Characterizing the Life Course as Role Configurations and Pathways', in J.T. Mortimer and M.J. Shanahan (eds) *Handbook of the Life Course. Handbooks of Sociology and Social Research*. Boston, MA: Springer US, pp. 529–554. Available at: https://doi.org/10.1007/978-0-306-48247-2_24.

Marphatia, A.A., Saville, N.M., Amable, G.S., Manandhar, D.S., Cortina-Borja, M., Wells, J.C., *et al.* (2020a) 'How Much Education Is Needed to Delay Women's Age at Marriage and First Pregnancy?', *Frontiers in Public Health*, 7(396), pp. 1–17. Available at: https://doi.org/10.3389/FPUBH.2019.00396/FULL.

Marphatia, A.A., Saville, N.M., Amable, G.S., Manandhar, D.S., Cortina-Borja, M., Wells, J.C., *et al.* (2020b) 'How Much Education Is Needed to Delay Women's Age at Marriage and First Pregnancy?', *Frontiers in Public Health*, 7(January). Available at: https://doi.org/10.3389/fpubh.2019.00396.

Mehretie Adinew, Y., Feleke, S.A., Mengesha, Z.B. and Workie, S.B. (2017) 'Childhood Mortality: Trends and Determinants in Ethiopia from 1990 to 2015—A Systematic Review', *Advances in Public Health*, 2017, pp. 1–10. Available at:

https://doi.org/10.1155/2017/7479295.

Melesse, D.Y., Cane, R.M., Mangombe, A., Ijadunola, M.Y., Manu, A., Bamgboye, E., *et al.* (2021) 'Inequalities in early marriage , childbearing and sexual debut among adolescents in sub - Saharan Africa', *Reproductive Health*, 18(Suppl 1:117), pp. 1–15. Available at: https://doi.org/10.1186/s12978-021-01125-8.

Melesse, D.Y., Cane, R.M., Mangombe, A., Ijadunola, M.Y., Manu, A., Bamgboye, E., *et al.* (2021) 'Inequalities in early marriage , childbearing and sexual debut among adolescents in sub - Saharan Africa', *Reproductive Health*, 18(Suppl 1:117), pp. 1–15. Available at: https://doi.org/10.1186/s12978-021-01125-8.

Menon, J.A., Kusanthan, T., Mwaba, S.O.C., Juanola, L. and Kok, M.C. (2018) '"Ring" your future, without changing diaper - Can preventing teenage pregnancy address child marriage in Zambia?', *PLoS ONE*, 13(10), pp. 1–17. Available at: https://doi.org/10.1371/journal.pone.0205523.

Metzger, S.K. and Jones, B.T. (2016) 'Surviving phases: Introducing multistate survival models', *Political Analysis*, 24(4), pp. 457–477. Available at: https://doi.org/10.1093/pan/mpw025.

Ministry of Agriculture and Natural Resources (2017) *Rural Job Opportunity Creation Strategy*. Ethiopia.

Ministry of Education - FDRE (1994) *Education and Training Policy of Ethiopia*. Addis Ababa, Ethiopia.

Ministry of Youth Sports and Culture (2004) *Federal Democratic Republic of Ethiopia National Youth Policy*, *Addis Ababa, Ethiopia*. Ethiopia.

Misunas, C., Erulkar, A., Apicella, L., Ngô, T. and Psaki, S. (2021) 'What Influences Girls' Age at Marriage in Burkina Faso and Tanzania? Exploring the Contribution of Individual, Household, and Community Level Factors', *Journal of Adolescent Health*, 69(6), pp. S46–S56. Available at: https://doi.org/10.1016/j.jadohealth.2021.09.015.

Mohr, R., Carbajal, J. and Sharma, B.B. (2019) 'The Influence of Educational Attainment on Teenage Pregnancy in Low-Income Countries: A Systematic Literature Review', *Journal of Social Work in the Global Community*, 4(1), pp. 19–31. Available at: https://doi.org/10.5590/jswgc.2019.04.1.02.

Molfenter, N., Hartman, E., Neugart, J., Swedeen, B., Webb, S., Roskowski, M., *et al.* (2018) 'Harnessing the Power of Community Conversations to Improve Transition Outcomes for Youth With IDD', *Journal of Disability Policy Studies*, 28(4), pp. 216–228. Available at: https://doi.org/10.1177/1044207317739406.

Moodie, J.L., Campisi, S.C., Salena, K., Wheatley, M., Vandermorris, A. and Bhutta, Z.A. (2020) 'Timing of Pubertal Milestones in Low- and Middle-Income Countries : A Systematic Review and Meta-Analysis', *Adv Nutrition*, 11(3), pp. 951–959.

Muchiri, E. and Odimegwu, C. (2019) 'Trends and gender differences in age at sex debut among adolescents and young adults in urban Cape Area , South Africa', *African Health Sciences*, 19(4), pp. 2964–2972. Available at: https://doi.org/10.4314/ahs.v19i4.17.

Munakampe, M.N., Fwemba, I., Zulu, J.M. and Michelo, C. (2021) 'Association between socioeconomic status and fertility among adolescents aged 15 to 19: an analysis of the 2013/2014 Zambia Demographic Health Survey (ZDHS)', *Reproductive Health*, 18(1), pp. 1–11. Available at: https://doi.org/10.1186/s12978-021-01230-8.

National Research Council and Committee on Population (2005) *Growing Up Global: The Changing Transitions to Adulthood in Developing Countries*, *Social Sciences*. Edited by C.B. Lloyd. National Academies Press.

Ndahindwa, V., Kamanzi, C., Semakula, M., Abalikumwe, F., Hedt-Gauthier, B. and Thomson, D.R. (2014) 'Determinants of fertility in Rwanda in the context of a fertility transition: A secondary analysis of the 2010 Demographic and Health Survey', *Reproductive Health*. BioMed Central Ltd., p. 87. Available at: https://doi.org/10.1186/1742-4755-11-87.

Neal, S.E., Chandra-Mouli, V. and Chou, D. (2015) 'Adolescent first births in East Africa: Disaggregating characteristics, trends and determinants Adolescent Health', *Reproductive Health*, 12(1), pp. 1–13. Available at: https://doi.org/10.1186/1742-4755-12-13.

Neal, S.E. and Hosegood, V. (2015) 'How reliable are reports of early adolescent reproductive and sexual health events in demographic and health surveys?', *International Perspectives on Sexual and Reproductive Health*, 41(4), pp. 210–217. Available at: https://doi.org/10.1363/4121015.

Ngome, E. and Odimegwu, C. (2014) 'The social context of adolescent women's use of modern contraceptives in Zimbabwe: A multilevel analysis', *Reproductive Health*, 11(64), pp. 1–14. Available at: https://doi.org/10.1186/1742-4755-11-64.

Nguyen, M.C. and Wodon, Q. (2015) 'Global and Regional Trends in Child Marriage', *Review of Faith and International Affairs*, 13(3), pp. 6–11. Available at: https://doi.org/10.1080/15570274.2015.1075756.

Norris, S.A., Frongillo, E.A., Black, M.M., Dong, Y., Fall, C., Lampl, M., *et al.* (2022)

'Nutrition in adolescent growth and development', *The Lancet*, 399(10320), pp. 172–184. Available at: https://doi.org/10.1016/S0140-6736(21)01590-7.

Odimegwu, C.O., Olamijuwon, E.O., Chisumpa, V.H., Akinyemi, J.O., Singini, M.G. and Somefun, O.D. (2020) 'How soon do single mothers have another child? A competing risk analysis of second premarital childbearing in sub-Saharan African countries', *BMC Pregnancy and Childbirth*, 20(185), pp. 1–10. Available at: https://doi.org/10.1186/s12884-020-2850-1.

Okigbo, C.C. and Speizer, I.S. (2015) 'Determinants of sexual activity and pregnancy among unmarried young women in urban Kenya: A cross-sectional study', *PLoS ONE*, 10(6), pp. 1–17. Available at: https://doi.org/10.1371/journal.pone.0129286.

Oumer, J. (2009) *The challenges of free primary education in Ethiopia*. IIEP. Available at: https://unesdoc.unesco.org/ark:/48223/pf0000182523/PDF/182523eng.pdf.multi.

Owen, G., Harris, R. and Jones, K. (2016) 'Under examination: Multilevel models, geography and health research', *Progress in Human Geography*, 40(3), pp. 394–412. Available at: https://doi.org/10.1177/0309132515580814.

Pankhurst, A. (2021) *Continuity and change: marriage and parenthood among Ethiopian adolescents: evidence from two qualitative studies*. Young Lives.

Pankhurst, A., Woldehanna, T., Araya, M., Tafere, Y., Rossiter, J., Tiumelissan, A., *et al.* (2018) *Young Lives Ethiopia: lessons from longitudinal research with the children of the millennium*.

Park, H. (2013) 'The Transition to Adulthood among Korean Youths: Transition Markers in Productive and Reproductive Spheres', *Annals of the American Academy of Political and Social Science*, 646(1), pp. 129–148. Available at: https://doi.org/10.1177/0002716212467947.

Pekel-Uludağlı, N. and Akbaş, G. (2019) 'Young Adults' Perceptions of Social Clock and Adulthood Roles in the Turkish Population', *Journal of Adult Development*, 26(2), pp. 105–115. Available at: https://doi.org/10.1007/s10804-018-9298-9.

Pesando, L.M., Barban, N., Sironi, M. and Furstenberg, F.F. (2021) 'A Sequence-Analysis Approach to the Study of the Transition to Adulthood in Low- and Middle-Income Countries', *Population and Development Review*, 47(3), pp. 719–747. Available at: https://doi.org/10.1111/padr.12425.

Petroni, S., Steinhaus, M., Fenn, N.S., Stoebenau, K. and Gregowski, A. (2017) 'New Findings on Child Marriage in Sub-Saharan Africa', *Annals of Global Health*, 83(5–6), pp. 781–790. Available at: https://doi.org/10.1016/j.aogh.2017.09.001.

Peçi, B. (2017) 'Peer Influence and Adolescent Sexual Behavior Trajectories: Links to Sexual Initation', *European Journal of Multidisciplinary Studies*, 2(3), pp. 96–105. Available at: https://doi.org/10.26417/ejms.v4i3.p96-105.

Piccarreta, R. and Studer, M. (2019) 'Holistic analysis of the life course: Methodological challenges and new perspectives', *Advances in Life Course Research*, 41(November 2017), p. 100251. Available at: https://doi.org/10.1016/j.alcr.2018.10.004.

Plourde, K.F., Fischer, S., Cunningham, J., Brady, K. and McCarraher, D.R. (2016) 'Improving the paradigm of approaches to adolescent sexual and reproductive health', *Reproductive Health*, 13(72), pp. 1–4. Available at: https://doi.org/10.1186/s12978-016-0191-3.

Plug, W., Zeijl, E. and Du Bois-Reymond, M. (2003) 'Young people's perceptions on youth and adulthood. A longitudinal study from The Netherlands', *Journal of Youth Studies*, 6(2), pp. 127–144. Available at: https://doi.org/10.1080/1367626032000110273.

R-Core Team (2022) 'R: A Language and Environment for Statistical Computing'. Vienna, Austria: R Foundation for Statistical Computing. Available at: https://www.r-project.org/.

Rahimi, E. and Hashemi Nazari, S.S. (2021) 'A detailed explanation and graphical representation of the Blinder-Oaxaca decomposition method with its application in health inequalities', *Emerging Themes in Epidemiology*, 18(12), pp. 1–15. Available at: https://doi.org/10.1186/s12982-021-00100-9.

Raj, A., Salazar, M., Jackson, E.C., Wyss, N., McClendon, K.A., Khanna, A., *et al.* (2019) 'Students and brides: A qualitative analysis of the relationship between girls' education and early marriage in Ethiopia and India', *BMC Public Health*, 19(19), pp. 1–20. Available at: https://doi.org/10.1186/s12889-018-6340-6.

Rasul, A., Nasir, J.A., Akhtar, S., Hinde, A., Rasul Id, A., Nasir Id, J.A., *et al.* (2022) 'Factors associated with female age at first marriage: An analysis using all waves of the Pakistan Demographic and Health Survey', *PLoS ONE*, 17(3), pp. 1–15. Available at: https://doi.org/10.1371/journal.pone.0264505.

Reda, A.A. and Lindstrom, D. (2014) 'Recent trends in the timing of first sex and marriage among young women in ethiopia', *Etude de la Population Africaine*, 28(2 Suppl), pp. 1157–1170. Available at: https://doi.org/10.11564/28-0-564.

Richards, K.A.R. and Hemphill, M.A. (2018) 'A Practical Guide to Collaborative Qualitative Data Analysis', *Journal of Teaching in Physical Education*, 37(2), pp. 225–231. Available at: https://doi.org/10.1123/JTPE.2017-0084.

Rokicki, S. (2021) ‘Impact of family law reform on adolescent reproductive health in Ethiopia: A quasi-experimental study’, *World Development*, 144, p. 105484. Available at: https://doi.org/10.1016/J.WORLDDEV.2021.105484.

Royston, P. and Lambert, P.C. (2011) *Flexible Parametric Survival Analysis Using Stata Beyond the Cox Model*. College Station; TX: Stata press.

RStudio Team (2022) ‘RStudio: Integrated Development Environment for R’. Boston, MA: RStudio, PBC. Available at: http://www.rstudio.com/.

Sánchez-Páez, D.A. and Ortega, J.A. (2018) ‘Adolescent contraceptive use and its effects on fertility’, *Demographic Research*, 38(1), pp. 1359–1388. Available at: https://doi.org/10.4054/DemRes.2018.38.45.

Sanders, J., Munford, R., Thimasarn-Anwar, T., Liebenberg, L. and Ungar, M. (2015) ‘The role of positive youth development practices in building resilience and enhancing wellbeing for at-risk youth’, *Child Abuse & Neglect*, 42, pp. 40–53. Available at: https://doi.org/10.1016/J.CHIABU.2015.02.006.

Santhya, K.G. and Jejeebhoy, S.J. (2015) ‘Sexual and reproductive health and rights of adolescent girls : Evidence from low- and middle- income countries’, *Global Public Health*, 10(2), pp. 189–221. Available at: https://doi.org/10.1080/17441692.2014.986169.

Santos, M.M. dos, Queiroz, B.L. and Verona, A.P. de A. (2021) ‘Transition to adulthood in Latin America: 1960s-2010s’, *Revista Brasileira de Estudos de Populacao*, 38. Available at: https://doi.org/10.20947/S0102-3098A0161.

Sauerbrei, W., Meier-Hirmer, C., Benner, A. and Royston, P. (2006) ‘Multivariable regression model building by using fractional polynomials: Description of SAS, STATA and R programs’, *Computational Statistics and Data Analysis*, 50(12), pp. 3464–3485. Available at: https://doi.org/10.1016/j.csda.2005.07.015.

Scales, P.C., Benson, P.L., Oesterle, S., Hill, K.G., Hawkins, J.D. and Pashak, T.J. (2015) ‘The dimensions of successful young adult development: A conceptual and measurement framework’, *Applied Developmental Science*, 20(3), pp. 150–174. Available at: https://doi.org/10.1080/10888691.2015.1082429.

Schewel, K. and Asmamaw, L.B. (2021) ‘Migration and development in Ethiopia: Exploring the mechanisms behind an emerging mobility transition’, *Migration Studies*, pp. 1–35. Available at: https://doi.org/10.1093/migration/mnab036.

Schoon, I. (2015a) ‘Diverse Pathways: Rethinking the Transition to Adulthood’, in P.R. Amato, A. Booth, S.M. McHale, and J. Van Hook (eds) *Families in an Era of*

Increasing Inequality: Diverging Destinies. Cham: Springer International Publishing, pp. 115–136. Available at: https://doi.org/10.1007/978-3-319-08308-7_9.

Schoon, I. (2015b) 'Gender and the Transition to Adulthood: A Diverse Pathways View', in *Emerging Trends in the Social and Behavioral Sciences: An Interdisciplinary, Searchable, and Linkable Resource*, pp. 1–15. Available at: https://doi.org/10.1002/9781118900772.etrds0138.

Schutz, M.A., Carter, E.W., Maves, E.A., Gajjar, S.A. and McMillan, E.D. (2021) 'Examining school-community transition partnerships using community conversations', *Journal of Vocational Rehabilitation*, 55(2), pp. 131–145. Available at: https://doi.org/10.3233/JVR-211152.

Schwanitz, K. (2017) 'The transition to adulthood and pathways out of the parental home: A cross-national analysis', *Advances in Life Course Research*, 32, pp. 21–34. Available at: https://doi.org/10.1016/J.ALCR.2017.03.001.

Scott, S., Nguyen, P.H., Neupane, S., Pramanik, P., Nanda, P., Bhutta, Z.A., *et al.* (2021) 'Early marriage and early childbearing in South Asia: trends, inequalities, and drivers from 2005 to 2018', *Annals of the New York Academy of Sciences*, 1491(1), pp. 60–73. Available at: https://doi.org/10.1111/nyas.14531.

Settersten, R.A., Ottusch, T.M. and Schneider, B. (2015) 'Becoming Adult: Meanings of Markers to Adulthood', in *Emerging Trends in the Social and Behavioral Sciences*, pp. 1–16. Available at: https://doi.org/10.1002/9781118900772.etrds0021.

Shangase, T. (2019) 'Education, marriage and childbearing among young African women', *Gender and Behaviour*, 17(2). Available at: https://hdl.handle.net/10520/EJC-16f6103cdb%0APDF%0A.

Sinning, M., Hahn, M. and Bauer, T.K. (2008) 'The Blinder–Oaxaca decomposition for nonlinear regression models', *The Stata Journal*, 8(4), pp. 480–492. Available at: https://doi.org/10.1177/1536867x0800800402.

Sironi, M., Barban, N. and Impicciatore, R. (2015) 'Parental social class and the transition to adulthood in Italy and the United States', *Advances in Life Course Research*, 26(1), pp. 89–104. Available at: https://doi.org/10.1016/j.alcr.2015.09.004.

Smith-Greenaway, E. and Clark, S. (2018) 'Women's Marriage Behavior Following a Premarital Birth in Sub-Saharan Africa', *Journal of Marriage and Family*, 80(1), pp. 256–270. Available at: https://doi.org/10.1111/jomf.12433.

Smith, D.J. (2020) 'Masculinity, Money, and the Postponement of Parenthood in Nigeria', *Population and Development Review*, 46(1), pp. 101–120. Available at:

https://doi.org/10.1111/padr.12310.

Smith, E.P., Petersen, A.C., Leman, P., Oshri, A., Topple, T.A. and Carlson, M.W. (2017) 'Positive Youth Development and Resilience: Growth Patterns of Social Skills Among Youth Investigated for Maltreatment', *Child Development*, 88(4), pp. 1087–1099. Available at: https://doi.org/10.1111/CDEV.12865.

Sommer, U. (2018) 'Women, Demography, and Politics: How Lower Fertility Rates Lead to Democracy', *Demography*, 55(2), pp. 559–586. Available at: https://doi.org/10.1007/s13524-018-0655-x.

Stark, L. (2018) 'Early marriage and cultural constructions of adulthood in two slums in Dar es Salaam', *Culture, Health and Sexuality*, 20(8), pp. 888–901. Available at: https://doi.org/10.1080/13691058.2017.1390162.

StataCorp (2015) 'Stata Statistical Software: Release 14'. College Station, TX: StataCorp LP, p. College Station, TX: StataCorp LP. Available at: https://www.stata.com/ (Accessed: 15 December 2020).

StataCorp (2021) 'Stata Statistical Software: Release 17'. College Station, TX: StataCorp LP.

Steele, M.E., Simons, L.G., Sutton, T.E. and Gibbons, F.X. (2020) 'Family Context and Adolescent Risky Sexual Behavior: an Examination of the Influence of Family Structure, Family Transitions and Parenting', *Journal of Youth and Adolescence*, 49(6), pp. 1179–1194. Available at: https://doi.org/10.1007/s10964-020-01231-z.

Stevenson, A.J., Genadek, K.R., Yeatman, S., Mollborn, S. and Menken, J.A. (2021) 'The impact of contraceptive access on high school graduation', *Science Advances*, 7(19), pp. 1–8. Available at: https://doi.org/10.1126/sciadv.abf6732.

Studer, M. (2013) 'WeightedCluster Library Manual: A practical guide to creating typologies of trajectories in the social sciences with R', *LIVES Working Papers*, 24, pp. 1–34. Available at: https://doi.org/10.12682/lives.2296-1658.2013.24.

Studer, M., Liefbroer, A.C. and Mooyaart, J.E. (2018) 'Understanding trends in family formation trajectories: An application of Competing Trajectories Analysis (CTA)', *Advances in Life Course Research*, 36, pp. 1–12. Available at: https://doi.org/10.1016/J.ALCR.2018.02.003.

Studer, M. and Ritschard, G. (2016) 'What matters in differences between life trajectories: A comparative review of sequence dissimilarity measures', *Journal of the Royal Statistical Society. Series A*, 179(2), pp. 481–511. Available at: https://doi.org/10.1111/rssa.12125.

Studer, M., Ritschard, G., Gabadinho, A. and Muller, N.S. (2011) 'Discrepancy Analysis of State Sequences', *Sociological Methods & Research*, 40(3), pp. 471–510. Available at: https://doi.org/10.1177/0049124111415372.

Tamirat, K.S., Tessema, Z.T. and Kebede, F.B. (2020) 'Factors associated with the perceived barriers of health care access among reproductive-age women in Ethiopia: A secondary data analysis of 2016 Ethiopian demographic and health survey', *BMC Health Services Research*, 20(691), pp. 1–8. Available at: https://doi.org/10.1186/S12913-020-05485-Y/TABLES/4.

Taye, A. and Asmare, I. (2016) 'Prevalence of Premarital Sexual Practice and Associated Factors among Adolescents of Jimma Preparatory School Oromia Region, South West Ethiopia', *Journal of Nursing & Care*, 05(02). Available at: https://doi.org/10.4172/2167-1168.1000332.

Taylor, R.J., Shade, K., Lowry, S.J. and Ahrens, K. (2020) 'Evaluation of reproductive health education in transition-age youth', *Children and Youth Services Review*, 108, p. 104530. Available at: https://doi.org/10.1016/J.CHILDYOUTH.2019.104530.

Techasrivichien, T., Darawuttimaprakorn, N., Punpuing, S., Musumari, P.M., Lukhele, B.W., El-saaidi, C., *et al.* (2016) 'Changes in Sexual Behavior and Attitudes Across Generations and Gender Among a Population-Based Probability Sample From an Urbanizing Province in Thailand', *Archives of Sexual Behavior*, 45(2), pp. 367–382. Available at: https://doi.org/10.1007/s10508-014-0429-5.

Tenkorang, E.Y. and Adjei, J.K. (2015) 'Household living arrangements and transition to sexual debut among young people in Ghana', *Sexuality, Society and Learning*, 15(1), pp. 1–18. Available at: https://doi.org/10.1080/14681811.2014.927356.

The Provisional Military Administration Council of Ethiopia (1975) *A Proclamation to Provide for the Public Ownership of Rural Lands No. 31/1975*, *Negarit Gazetta*. Addis Ababa, Ethiopia: The Provisional Military Administration Council.

Transitional Government of Ethiopia (TGE) (1993) *National Policy on Ethiopian Women*. Addis Ababa.

Tsegaw, M., Kassie, A. and Alemnew, W. (2023) 'Youth friendly reproductive health service utilization and its associated factors among secondary school students, East Belesa district, northwest, Ethiopia, 2022', *BMC Health Services Research*, 23(1), pp. 1–9. Available at: https://doi.org/10.1186/s12913-023-09152-w.

UNDESA (2019) *World Population Prospects 2019 Volume I: Comprehensive Tables*, *ST/ESA/SER.A/426*. Available at:

https://population.un.org/wpp/Publications/Files/WPP2019_Volume-I_Comprehensive-Tables.pdf.

UNDESA (2021) *Global Population Growth and Sustainable Development*.

UNDESA (2023) *Sustainable Development Goal 5: Achieve Gender Equality and Empower All Women and Girls*. Available at: https://sdgs.un.org/goals/goal5 (Accessed: 17 February 2023).

UNESCO (2023) *Education and Literacy - Ethiopia*, *UNESCO Institute for Statistics*. Available at: https://uis.unesco.org/en/country/et (Accessed: 4 April 2023).

UNICEF (2022) *Convention on the Rights of the Child*. Available at: https://www.unicef.org/child-rights-convention/convention-text (Accessed: 26 July 2022).

United Nations (1981) *International Youth Year: Participation, Development, Peace*, *Report of the Secretary-General (A/36/215)*.

United Nations (2018) 'Youth Employment', in *World Youth Report: Youth and the 2030 Agenda for Sustainable Development*. New York: United Nations Department of Economic and Social Affairs. Available at: https://doi.org/10.18356/613c6857-en.

United Nations (2020) *World Youth Report: Youth - Social Entrepreneurship and the 2030 Agenda*, *World Youth Report*. New York. Available at: https://doi.org/10.18356/613c6857-en.

Usman, S.O., Olowoyeye, E., Usman, I.N., Omisakin, T.C., Adegbamigbe, O.J., Olubayo, G.P., *et al.* (2018) 'Factors associated with teenage pregnancy in Southwest Nigeria', *East African Medical Journal*, 95(9), pp. 1876–1888.

Vaismoradi, M., Turunen, H. and Bondas, T. (2013) 'Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study', *Nursing & Health Sciences*, 15(3), pp. 398–405. Available at: https://doi.org/10.1111/NHS.12048.

VERBI Software (2020) 'MAXQDA 2020 [computer software]. Berlin, Germany: VERBI Software. Available from maxqda.com.'

Villa-Torres, L. and Svanemyr, J. (2015) 'Ensuring Youth's Right to Participation and Promotion of Youth Leadership in the Development of Sexual and Reproductive Health Policies and Programs', *Journal of Adolescent Health*, 56(1), pp. S51–S57. Available at: https://doi.org/10.1016/j.jadohealth.2014.07.022.

Wado, Y.D., Sully, E.A. and Mumah, J.N. (2019) 'Pregnancy and early motherhood among adolescents in five East African countries: A multi-level analysis of risk and protective factors', *BMC Pregnancy and Childbirth*, 19(59), pp. 1–11. Available at:

https://doi.org/10.1186/s12884-019-2204-z.

Waktole, Z.D. (2019) 'Sexual behaviors and associated factors among youths in Nekemte town, East Wollega, Oromia, Ethiopia: A cross-sectional study', *PLoS ONE*, 14(7), pp. 1–10. Available at: https://doi.org/10.1371/journal.pone.0220235.

Wang, D. and Feng, L. (2023) 'De-Standardization of Trajectories to Adulthood in China: A Cross-Cohort Comparison', *Emerging Adulthood*, 11(2), pp. 317–330. Available at: https://doi.org/10.1177/21676968221091693.

Wang, D. and Zhao, Y. (2021) 'A Potential New Pattern of Pathway to Adulthood is Emerging in China', *Demographic Research*, 44(42), pp. 1023–1056. Available at: https://doi.org/10.4054/DEMRES.2021.44.42.

Wang, H., Tesfaye, R., Ramana, G.N. V and Chekagn, C.T. (2016) *Ethiopia Health Extension Program: An Institutionalized Community Approach for Universal Health Coverage; The World Bank*. Bank: Washington, DC, USA. Available at: https://openknowledge.worldbank.org/handle/10986/24119.

Wang, M., Temmerman, M., Zhang, W., Fan, Y., Mu, Y., Mo, S., *et al.* (2020) 'Contraceptive and reproductive health practices of unmarried women globally, 1999 to 2018', *Medicine*, 99(49). Available at: https://doi.org/10.1097/MD.0000000000023368.

Wood, D., Crapnell, T., Lau, L., Bennett, A., Lotstein, D., Ferris, M., *et al.* (2018) 'Emerging Adulthood as a Critical Stage in the Life Course', in N. Halfon, C.B. Forrest, R.M. Lerner, and E.M. Faustman (eds) *Handbook of Life Course Health Development*. Switzerland: Springer, pp. 95–107. Available at: https://doi.org/10.1007/978-3-319-47143-3.

World Bank (2020) *Population Growth (Annual %) - Ethiopia*, *The World Bank Data*. Available at: https://data.worldbank.org/indicator/SP.POP.GROW?locations=ET (Accessed: 12 January 2022).

Wyn, J. and White, R. (1997) 'The concept of youth', in *Rethinking Youth*. Singapore: Allen & Unwin, pp. 8–25. Available at: https://doi.org/https://doi.org/10.4324/9781003117193.

Xu, Q., Li, J. and Yu, X. (2014) 'Continuity and Change in Chinese Marriage and the Family: Evidence from the CFPS', *Chinese Sociological Review*, 47(1), pp. 30–56. Available at: https://doi.org/10.2753/CSA2162-0555470102.

Yates, B.J. (2011) 'Acculturation in the Däga : Local Negotiations in Amhara/Oromo Relations', *International Journal of Ethiopian Studies*, 5(2), pp. 91–113.

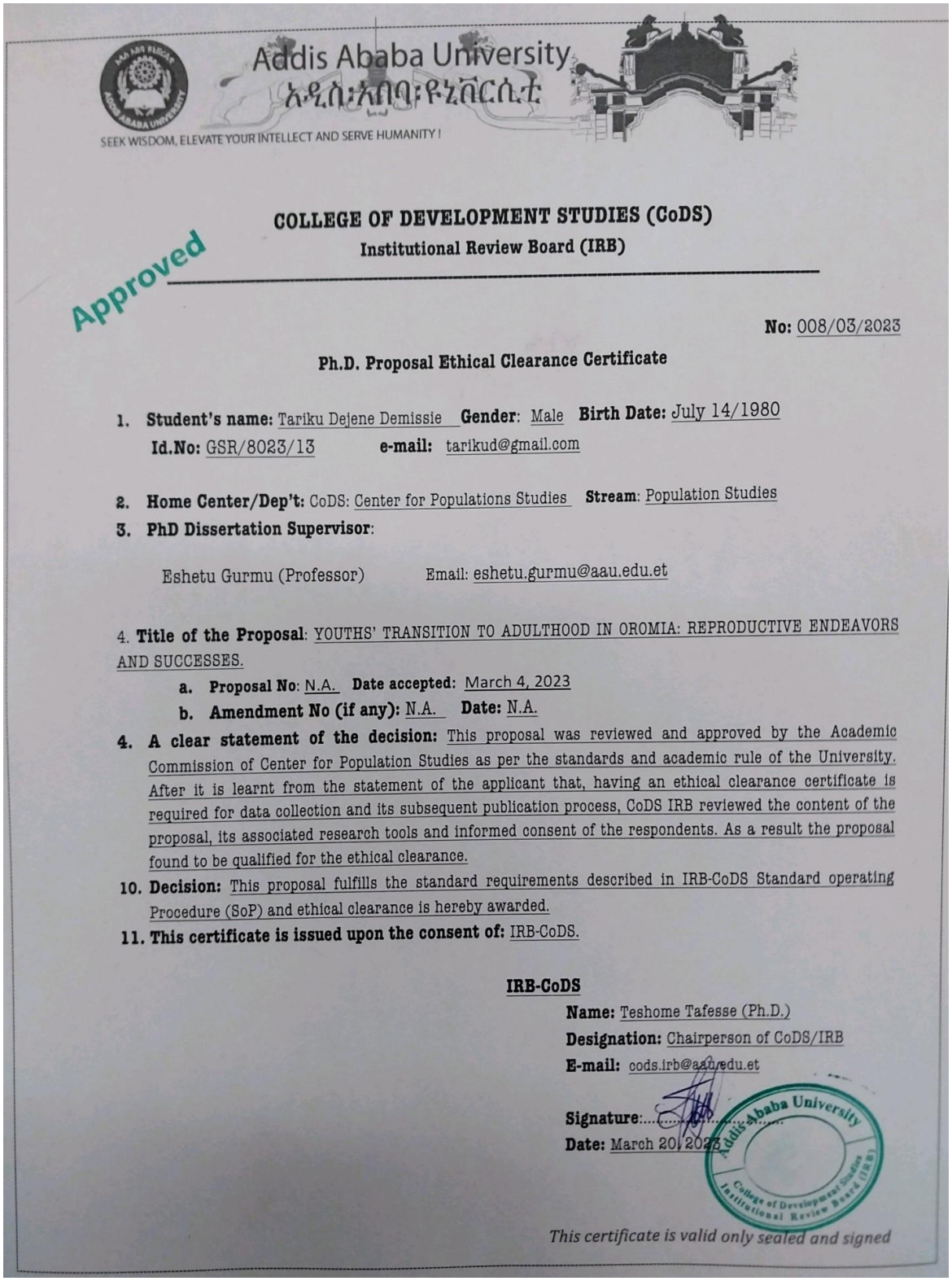
Yates, B.J. (2020) *The Other Abyssinians: The Northern Oromo and The Creation of Modern*

Ethiopia, 1855-1913, *Rochester studies in African history and the diaspora*. University of Rochester Press.

Zeybek, T. and Kasap, F. (2020) 'Social perspective for family functions in society', *Revista de Cercetare si Interventie Sociala*, 71(December 2020), pp. 305–324. Available at: https://doi.org/10.33788/rcis.71.19.

APPENDICES

I. Ethical Clearance Letter



Addis Ababa University
አዲስ አበባ ዩኒቨርሲቲ
SEEK WISDOM, ELEVATE YOUR INTELLECT AND SERVE HUMANITY !

Approved

COLLEGE OF DEVELOPMENT STUDIES (CoDS)
Institutional Review Board (IRB)

No: 008/03/2023

Ph.D. Proposal Ethical Clearance Certificate

1. **Student's name:** Tariku Dejene Demissie **Gender**: Male **Birth Date:** July 14/1980
   Id.No: GSR/8023/13 **e-mail:** tarikud@gmail.com

2. **Home Center/Dep't:** CoDS: Center for Populations Studies **Stream**: Population Studies
3. **PhD Dissertation Supervisor**:

   Eshetu Gurmu (Professor) Email: eshetu.gurmu@aau.edu.et

4. **Title of the Proposal**: YOUTHS' TRANSITION TO ADULTHOOD IN OROMIA: REPRODUCTIVE ENDEAVORS AND SUCCESSES.
   a. **Proposal No**: N.A. **Date accepted:** March 4, 2023
   b. **Amendment No (if any):** N.A. **Date:** N.A.
4. **A clear statement of the decision:** This proposal was reviewed and approved by the Academic Commission of Center for Population Studies as per the standards and academic rule of the University. After it is learnt from the statement of the applicant that, having an ethical clearance certificate is required for data collection and its subsequent publication process, CoDS IRB reviewed the content of the proposal, its associated research tools and informed consent of the respondents. As a result the proposal found to be qualified for the ethical clearance.
10. **Decision:** This proposal fulfills the standard requirements described in IRB-CoDS Standard operating Procedure (SoP) and ethical clearance is hereby awarded.
11. **This certificate is issued upon the consent of:** IRB-CoDS.

IRB-CoDS
Name: Teshome Tafesse (Ph.D.)
Designation: Chairperson of CoDS/IRB
E-mail: cods.irb@aau.edu.et
Signature:.....
Date: March 20, 2023

Addis Ababa University College of Development Studies Institutional Review Board (IRB)

This certificate is valid only sealed and signed

II. Interview Guide

English: Interview Guide	Afaan Oromo: Qajeelfama Af-gaaffii	የአማርኛ ቃለመጠይቅ ቅጽ
• What does the transition to adulthood mean to a young person? What shall he/she need to do/undergo to consider them transit to an adult person? [*Please ensure the respondent touches upon social, cultural, psychological, and economic issues*.]	• Dargaggeessa/ttii tokkoof [dargaggummaa irraa] gara ga'eessummaatti ce'uu jechuun maal jechuudha? Inni/Isheen gara ga'eessatti ce'aniiru jedhamee fudhatamuu kan danda'u yoo maal raawwatee/ttee fi adeemsa akkamii keessa yoo darbe/darbite dha? *(Adaraa gaafatamaan dhimma hawaasummaa, dinagdee, aadaa fi xiinsammuu deebii kennu keessatti akka kaasu yookiin irratti xiyyeeffatu gochuu hin dagatiin)*	• በእርስዎ እይታ አንድ ወጣት አዋቂ ሆነ ወይም ራሱን ቻለ የሚባለው ምን ምን ሁኔታዎችን ሲያሟላ ነው ወይም ምን ዓይነት የሕይወት ሂደት ውስጥ ሲያልፍ ነው? *[እባክዎ መላሹ የማህበራዊ፣ ባህላዊ፣ስነአዕምሯዊና ኢኮኖሚያዊ ጉዳዮችን እንዲያካትቱ ያሳስቧቸው]*
• What sorts of life changes are expected of young people during the transition to adulthood? [I would appreciate it if you could give me some examples.]	• Dargaggummaa irraa gara ga'eessummaatti yeroo ce'amu jijjiiramoota jireenyaa akkamiitu dargaggoota irraa eegama? *(Fakkeenyaan yoo naa ibsitan baay'ee natti tola)*	• አንድ ወጣት በምን ዓይነት የሕይወት ሂደት ውስጥ ሲያልፍ ነው የአዋቂነት ደረጃ ላይ ደረሰ የሚባለው *[በምሳሌ ቢያብራሩልኝ}*
• Could you please explain the ages or periods of time in which the transition to adulthood is taking place in your community?	• Hawaasa kana keessatti umurii ykn yeroo kamitti dargaggummaa irraa gara ga'eessummaatti ce'umsi akka raawwatu naa ibsituu?	• ባደጉበት ማህበረሰብ ውስጥ ከወጣትነት ወደ የአዋቂነት የህይወት ክፍል ሽግግር የሚፈጸምበትን የዕድሜ ክልል ወይም ወቅት ቢያብራሩልኝ?
• What do young people think makes up a '***successful***' transition to adulthood? Which ones are also considered '***failures***' in the transition?	• Dargaggeessa tokkoof gara ga'eessummaatti ***milkaa'inaan ce'eera*** jedhee akka yaadu kan taasisu maali? Kamtu immoo akka ***kufaatii ce'umsaatti*** ilaalama?	• በእርስዎ እምነት አንድ ወጣት ወደ አዋቂነት የሕይወት ክልል የተሳካ ሽግግር አከናወነ የምንለው ምን ሲያደርግ/ሲሆን ነው? እንደውድቀት የሚታየውስ ምን ሲሆን ወይም መቼ ነው?

English: Interview Guide	Afaan Oromo: Qajeelfama Af-gaaffii	የአማርኛ ቃለመጠይቅ ቅጽ
• What kind of social support (in school, the household, and the community) do young people often need to transition to adulthood successfully? Could you please tell us about your own experience?	• Dargaggoonni gara ga'eessummaatti ce'umsa milkaa'aa akka taasisaniif, gargaarsa hawaasummaa (mana barumsaa keessatti, mana jireenyaa keessattiifi hawaasa keessatti) akkamii barbaadu? Maaloo muuxannoo kanarratti qabdan natti himuu dandeessuu?	• ወጣቶች ወደ አዋቂነት የህይወት ክልል ለሚያደርጉት ሽግግር ስኬታማነት ምን ዓይነት ማህበረሰባዊ ድጋፎች ያስፈልጓቸዋል *(በትምህርት ቤት፣በቤት ውስጥ፣በማህበረሰብ ውስጥ)? ስለእርስዎ የህይወት ተሞክሮ ቢያጫውቱኝ*
• In your opinion, what are the core challenges of youths' successful reproductive transition in this community? What do you suggest to overcome such challenges?	• Akkaataa ilaalcha keessaniitti, hawaasa kana keessatti dargaggoonni ce'umsa milkaa'aa walhormaataa akka hin taasisne kan godhan danqaalee yookiin rakkooleen ijoo ta'an maal maali fa'i? Danqaalee yookiin rakkoolee kana furuuf furmaata ta'a jettanii kan yaaddan maali?	• በእርስዎ እይታ ወጣቶች በተሳካ ሁኔታ ወልደው ከብደው ለቁምነገር እንዳይበቁ የሚያደርጉ ዋና ዋና ማነቆዎች ወይም ችግሮች ብለው የሚያስቧቸውን ቢያብራሩልኝ? እነዚህን ሳንካዎች ወይም ተግዳሮቶች ለማረቅ ወይም ለማረም ምን እንዲደረግ ይመክራሉ?