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The demography of rural youth in developing countries

by
Guy Stecklov
Ashira Menashe-Oren

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Authors:
Guy Stecklov, Ashira Menashe-Oren

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About the authors

Guy Stecklov is a demographer and holds the position of Professor and Head in the Department of Sociology at the University of British Columbia and Professor in the Department of Sociology and Anthropology at Hebrew University of Jerusalem (on leave). His research is primarily focused on the intersection between development and population dynamics, with a strong focus on migration. In recent years, he has also worked on a range of conditional cash transfer programme analyses and has been involved in several studies aimed at better understanding the key challenges in survey data collection in poor countries. Guy has consulted for the World Bank, the Food and Agriculture Organization (FAO) and the United Nations Population Division, where he has worked both on long range population projections and rural-to-urban migration estimates.

Ashira Menashe-Oren is a demographer and currently holds a post-doctoral research position at the Université Catholique de Louvain, where she is working on rural-to-urban migration and urbanization, and on the relationship between internal migration and health in sub-Saharan Africa. Ashira has a PhD in demography from the Hebrew University of Jerusalem, where she researched rural/urban differences in adult mortality, in age structures and sex ratios and their consequences.

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Abstract

Rural youth populations shift over time and help shape future demographic patterns while impacting the options for states to achieve demographic dividends and reduce gender inequalities. Building on United Nations data, our analysis shows how past growth of the youth population (15 to 24-year-olds) was dramatic in Asia and the Pacific, while projections suggest a sharp rise in the youth population of sub-Saharan Africa (SSA) until 2050. These variable trajectories across regions are further accentuated by diverging rural and urban populations – shaped both by differential fertility rates and by rural-to-urban migration. Youth sex ratios vary acutely between rural and urban sectors, driven largely by sex-specific migration. In some regions, male rural-to-urban migration leaves rural areas with higher numbers of women. Efforts to involve women in key roles in agriculture and to increase female productivity should be a primary concern to raise the demographic dividend. Indeed, large proportions of rural youth, of both sexes, lower dependency ratios and raise the urgency of accumulating human capital to increase their productivity. Of course, growing cohorts of potential workers require a labour market with sufficient capacity to absorb them – and this requires particular attention as rural transformation pushes youth to seek alternative employment outside of agriculture.

1. Introduction

Few, if any, economic or social transformations over the past decades can be brought into focus without explicit attention being paid to the demographic transition. This is certainly the case for structural transformation, which has redefined so much of the spatial nexus of economic livelihoods through the shift away from agriculture and towards manufacturing, and is inextricably linked with the demographic transition (Timmer, 2009). In a similar manner, the rise in labour and land productivity in the rural sector -, as part of the process of rural transformation - builds on the massive demographic changes that simultaneously tie together and widen the gaps between the urban and rural sectors. Our perspective on the role of demography for rural development, concentrating on youth, focuses on how the gap between the rural and urban populations changes over the course of the demographic transition, and how this creates both challenges and opportunities for rural development.

Demographic gaps dividing the rural and urban sectors may matter relatively little at the early stages of the mortality and fertility transition when populations are mostly rural, even if demographic patterns may differ sharply across the two sectors. Due to the sheer weight of the rural population in the early stages of the transition, there may be only limited impact from changing ideas and practices outside agriculture emerging in the urban sector. The eventual growth of the urban sector, driven by both natural increase (fertility exceeding mortality) and rural-to-urban migration (Dyson, 2011; Preston, 1979; United Nations, 2001), helps to fuel agricultural transformation. Pressure and opportunity lead parts of growing rural cohorts to migrate to cities or to seek diversified livelihoods within the rural sector. This movement also contributes to the structural transformation of the economy. The initially slow, but typically increasing, pattern of migration from rural to urban sectors contributes to a dynamic of youth and young adults becoming an increasing share of the urban population (Zelinsky, 1971). These groups bring new demands and aspirations – partly fuelled by an emerging digital and technological revolution – and contribute to an accelerated process of change.

The youth perspective underlying the rural development report for 2019 leads us to focus on the demographic dimensions of change for rural youth across much of the Global South. Differential cross-country and temporal patterns of change in the proportion of youth in populations may cause intense implications for the social institutions and cultural continuity and generate dramatic, possibly unexpected, and potentially conflicting rural/urban population dynamics. Our principal focus is on understanding the rural youth population in the context of both the demographic and urban transitions as well as transitions occurring within the rural and agricultural sectors.

This study argues for the impossibility of separating demographic processes from rural and structural transformations as both have causes and consequences. This is true when considering complex sex ratio dynamics in many regions of the Global South. It is also true in examining the role of the demographic dividend in the economic growth of certain countries that have undergone demographic transitions, such as in South East Asia; or, for many countries in sub-Saharan Africa (SSA), which face challenges in taking advantage of the benefits of declining dependency ratios (Bloom et al., 2003; Ahmed et al., 2014). In these cases, as others noted below, we can only address the complex unfolding of structural transformation and its relation to population changes by considering both the rural demographic dynamics and their relationship to urban demographics.

1.1 Definitions and data

Neither “rural” nor “youth” components of a study of rural youth can be talked about without some additional clarity of definition. We adopt an empirical definition of rural that relies on how each country defines its territory. This is driven partly by the fact that our analysis builds on United Nations Population Division data. However, there are weaknesses to this approach, which ignores the

complexity of the boundaries between rural and urban as well as cross-country heterogeneity in classifications (Borel-Saladin, 2016; Bell et al., 2015). Therefore, parts of our analysis also build on Demographic and Health Survey (DHS) micro-data to distinguish rural areas from towns, small cities and main (capital) cities. While the country-defined binary classifications and the DHS approaches do not fully match, and the samples of countries and time periods covered by the DHS are more limited, use of the DHS offers further insight into how demographic patterns vary across a more realistic, varied set of spatial boundaries.

The other challenging dimension to define is youth - a socially constructed category used differently depending on purpose and place (Durham, 2000). At its root, the concept of youth is meant to capture a transition between childhood and maturity – when one becomes an adult with rights and responsibilities in a given society. It is this fluidity that makes the concept so difficult to define. However, empirical work requires some form of operationalization and this is particularly true in situations where we require that a single definition be used across a large group of countries, with very different sociocultural and economic structures.

For our purposes, we adopt the United Nations definition of youth as those between ages 15 and 24. However, we recognize that this definition is problematic when focusing on rural youth. There is good reason to divide the core years into smaller subsets because the 10-year period often includes dramatic life course transitions including the transition into marriage and parenthood as well as entry into the labour force. Furthermore, because rural youth demography must be considered in its relationship to urban demography, this definition may be insufficient for both. The transition from childhood to adulthood may often operate differently in rural and urban sectors, and in some settings, the mobility between the sectors may operate as part of the transition to adulthood – as cross-border migration functions for some Mexican regions (Kandel and Massey, 2002).

In comparison to earlier decades, it has become far easier to describe the fundamental attributes of the rural youth population of the developing world. Data sources, including the DHS, make it simpler than ever before to paint a picture of the current rural youth population, describe its variation over the past several decades, and examine heterogeneity in this population within and across regions. It is in this context that we detail demographic processes for the rural youth population and relate it to emerging changes in social and economic conditions.

1.2 Demographic dynamics and structural transformation

Two interdependent processes – the demographic transition and the urban transition – are key to understanding the demographic evolution of the rural youth population. The demographic transition involves a process whereby initial declines in mortality, primarily infant and child mortality, generate both rapidly growing and younger age structures. After some period of time – in some cases quite rapidly and in others following substantial delays - fertility begins to decline. The decline in fertility then leads to aging populations as the average age in society increases.

Alongside the demographic transition, a spatial transition – the urban transition – involves populations shifting from predominantly rural to mostly urban areas. Both the demographic and urban transitions are deeply connected (Dyson, 2011). While these processes are well recognized on their own, the fact that they interact has often meant dramatic shifting population age transformations along with unique consequences for rural youth populations of different world regions over time. Whether technologically driven or based on income and nutrition, initial declines in mortality will tend to spread from the urban to the rural sector and create rapid rural population growth, which along with rising rural population density, may fuel increased pressure for rural-to-urban migration and higher urban population shares.

While overall urban population growth will tend to be primarily driven by natural increase (Preston, 1979; United Nations, 2001; Jiang and O'Neill, 2018), rural-to-urban migration flows are often very specific in their age and sex structures – with male youths often leading the way - and contribute to often intense population imbalances by age and sex within countries (Menashe-Oren and Stecklov, 2018).

Following mortality decline, fertility will tend to decline initially in the urban sector. Faster urban fertility decline has implications for the youth populations of both the urban and rural sectors. Fertility decline in the urban sector means that cohort sizes begin to shrink, although this shrinkage is not immediate because the young age structures of these populations have considerable "population momentum" (Keyfitz, 2013). Nonetheless, after some period of declining rates, the child population - the core group of dependents - will begin to shrink. Once the younger cohorts begin to decline in size, the shape of the entire age structure will be affected as the base of the population pyramid narrows. Ultimately, the pyramid "rectangularizes" as the shares become more equal across age, but this process takes considerable time and population waves continue to reverberate through the age structure for many decades (Coale, 1968). Rural populations in this initial period typically experience continued growth, which is often also a strong incentive for rural-to-urban migration. In particular, increasing population density along with new opportunities and norms creates a new set of incentives for young adults – typically males but in some contexts females - to move to urban centres.[1] The spatial gap in the age and sex structure – driven both by differences in natural rates of increase as well as age- and sex-specific migration patterns – may create very different underlying populations in the two sectors that affect each other at each stage of the demographic transition.

Alongside a demographic accounting of youth over the progression of the demographic and urban transitions, we also consider changes in the rural youth population in the context of broader fundamental processes of structural and rural transformation. Structural transformation defines the shift in opportunities as capital investments increasingly target non-agricultural activities (Timmer, 2009). This reduces the wages for rural youth and will affect their desire to remain in agriculture and possibly their family aspirations. These changes may be balanced over time – although perhaps only over a very long time – as the agricultural transformation eventually leads to rising land and labour productivity in the rural sector. These productivity increases can only occur once the rural population grows, and with it, declines are experienced in rural youth entering the agricultural labour sector.

Furthermore, predominantly male (or female) migration among youths and young adults over the course of the urban transition may have additional impacts on the gendered nature of economic roles and overall status of women (Lastarria-Cornhiel, 2006; Gray, 2009). On the one hand, the emergence of new opportunities and capital infusions may confront and alter existing patriarchal power structures if women take on more vital roles in the emerging market economy of the rural sector (Yabiku et al., 2010; Radel et al., 2012).

On the other hand, women themselves may gain little if they find it harder to form families or become burdened by responsibilities for both children and farms as male partners spend much of their time off-farm or in urban sector activities (Gordon, 1981; de Haas van Rooij, 2017). Furthermore, in contexts where women are the primary migrants to the urban sector, as in Peru (Chant, 1992), remittances from women may enable male partners to explore other productive non-agricultural channels. Alternatively, non-agricultural production among men may be what is keeping men at home but freeing

[1] It is also true that many rural areas with small markets may be transformed into "urban" through a process called reclassification. Reclassification, which essentially redistributes populations from one sector to another, may also be a first stage in the emergence of secondary towns (Chistiaensen et al. 2014; Beauchemin and Bocquier 2004).

up women to migrate (Donato, 1993). These gendered processes highlight the complex interaction between the demographic gap separating rural and urban settings and its relationship to patterns of structural transformation.

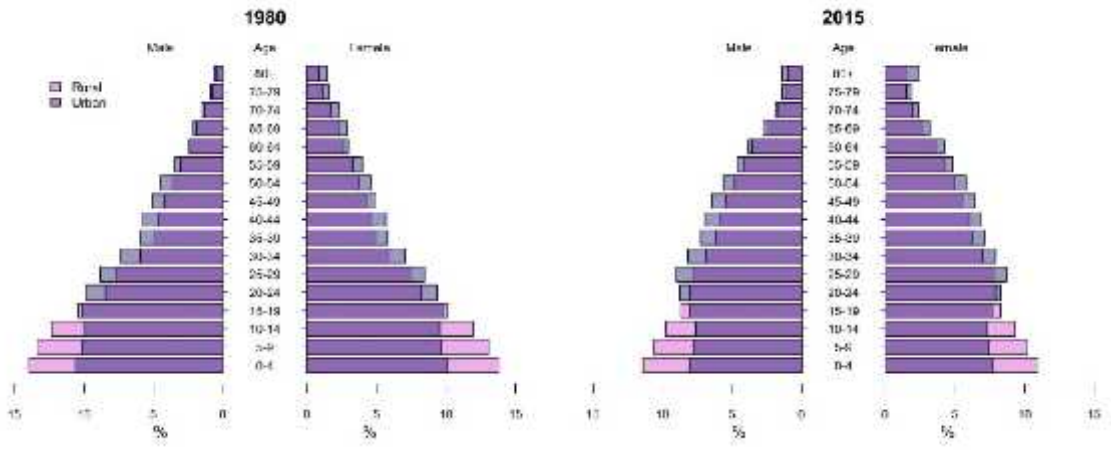
The next section details the demographic changes of the rural youth in the context of broader changes in the developing world regions. We begin with aggregate perspectives on population counts and age structures. We then follow this with a more focused look at the demographic processes that drive these changes including fertility and mortality, and finally consider some results on the evolving nature of household structure for rural youth. Building on this descriptive account, we then consider some key challenges: 1) the uniqueness of SSA in fertility transition; and 2) perspectives on the first and second demographic dividends.

2. The demography of the rural youth

2.1 Broad population trends at the macro-level

The demographic and urbanization transitions have radically transformed age structures both nationally and within the urban and rural sectors, with important consequences for the proportion of youth in rural and urban populations over time. The population pyramids in figure 1 demonstrate how the age structures of countries, averaged across all regions, have shifted between 1980 and 2015. Similarly, the proportion of youth has shifted: in the rural sector, 18.9 per cent per cent of the population were between 15 to 24 years old in 1980, and this decreased to 16.8 per cent per cent in 2015. In the urban sector, the proportion of youth declined from 20 per cent per cent to 16.8 per cent per cent over the 35-year period. These declines in the proportion of youth in both the rural and urban sectors reflect the gradual ageing of the world population including the population of the Global South. The population pyramid of 1980, particularly of the rural sector, reflects populations that still experience relatively high fertility rates and remain relatively young, with high proportions of under-15-year-olds. In contrast, the population pyramid of 2015, particularly of the urban sector, reflects populations with lower fertility rates that have completed or nearly completed the demographic transition.

Figure 1. Country mean population pyramid of the world in 1980 and 2015 by rural and urban sector

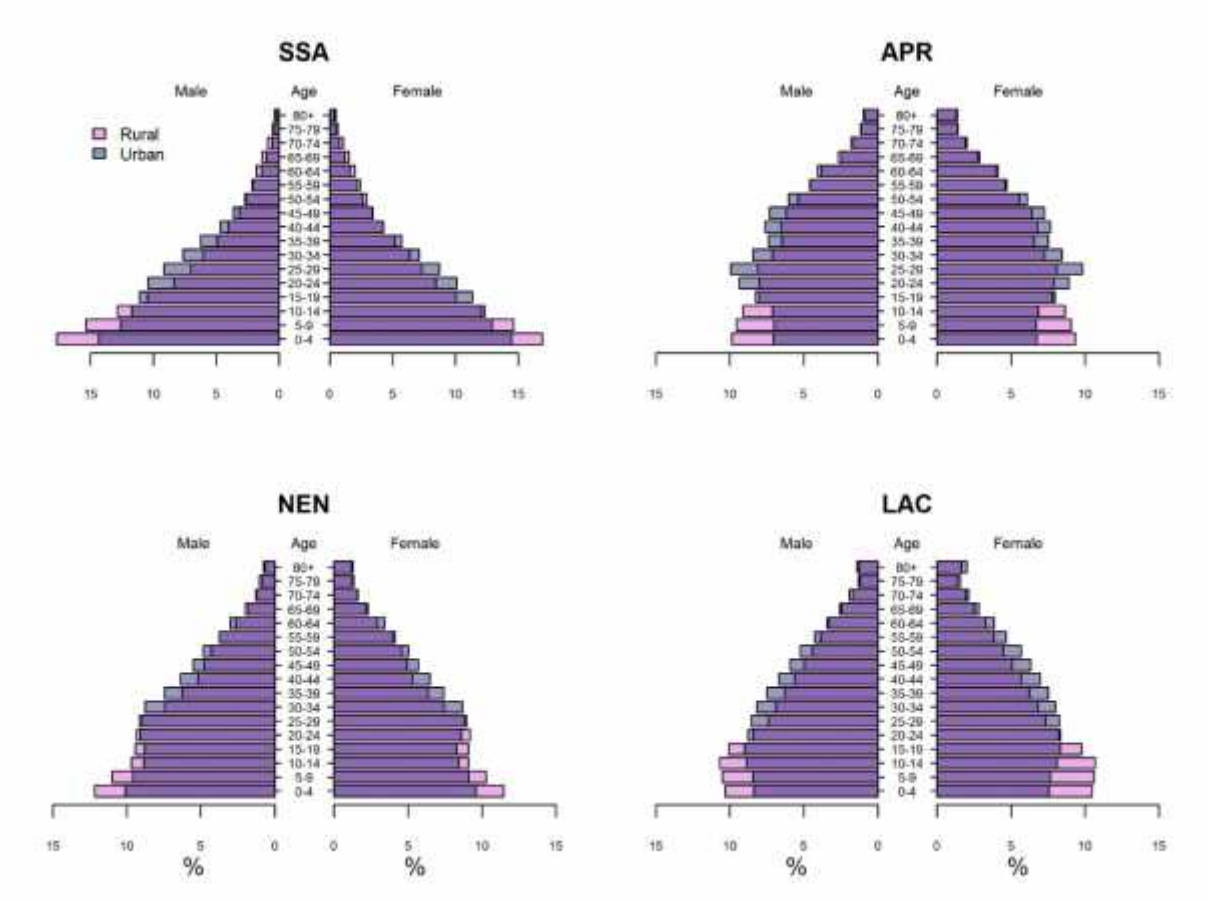


Source: UN-DESA URPAS

We present in figure 2 population pyramids for 2015 from four less developed regions to highlight broad regional contrasts in stages of the fertility transition. Despite gender differences in population structures, which we look at more closely below, the pyramids show broadly consistent gaps distinguishing the rural and urban sectors. The population of SSA in both rural and urban sectors is young with wide bases evident in the pyramids: 64.8 per cent of the rural male population is under age 25 and 18.8 per cent per cent is between ages 15 and 24. This wide-based pyramid for countries in SSA is explained by enduring high fertility rate in spite of substantial mortality declines across the region. The rural median age in SSA for men in 2015 was 17.7– compared with 20.6 in the urban sector. Among women, however, the difference in median ages was only 0.8 (20 in the urban sector versus 19.1 in the rural), suggesting that male young-adult rural out-migrants are raising the median age in the urban sector while lowering it in the rural.

In comparison to SSA, other regions of the developing world have experienced substantially greater fertility decline. North African, Middle East and Central Asian (NEN) fertility decline is evident in the narrower base of the pyramid. On average, the rural and urban population pyramids in NEN countries show rural populations as younger with the rural/urban difference in median ages in NEN measured at 2.1 and 2.2 years (men and women, respectively). Although the NEN age structure is different from that of SSA, rural 15 to 24-year-olds make up the same proportion of the population (18.8 per cent). In Asia and Pacific (APR) and Latin America and Caribbean (LAC), the population pyramids suggest even lower fertility, with smaller proportions of the population under age 25, particularly in the urban sector. In the rural sector, young men comprise 18.5 per cent of the rural population in LAC countries and 16.3 per cent in APR countries. The median age among men in LAC is 25.6 in the urban and 24 in the rural sectors; yet, among women in both sectors the median age is 25.8. As such, while LAC is characterized by higher rural fertility, very different rural-to-urban migration by sex (see below) generates these differences in median ages. APR countries also have higher rural fertility and similar trends in median ages - with a wider rural-urban gap for men and a very small gap for women. However, a bulge is evident in the urban population between ages 20 and 34, possibly as a result of rural-to-urban migration combined with rapid past declines in urban fertility rates.

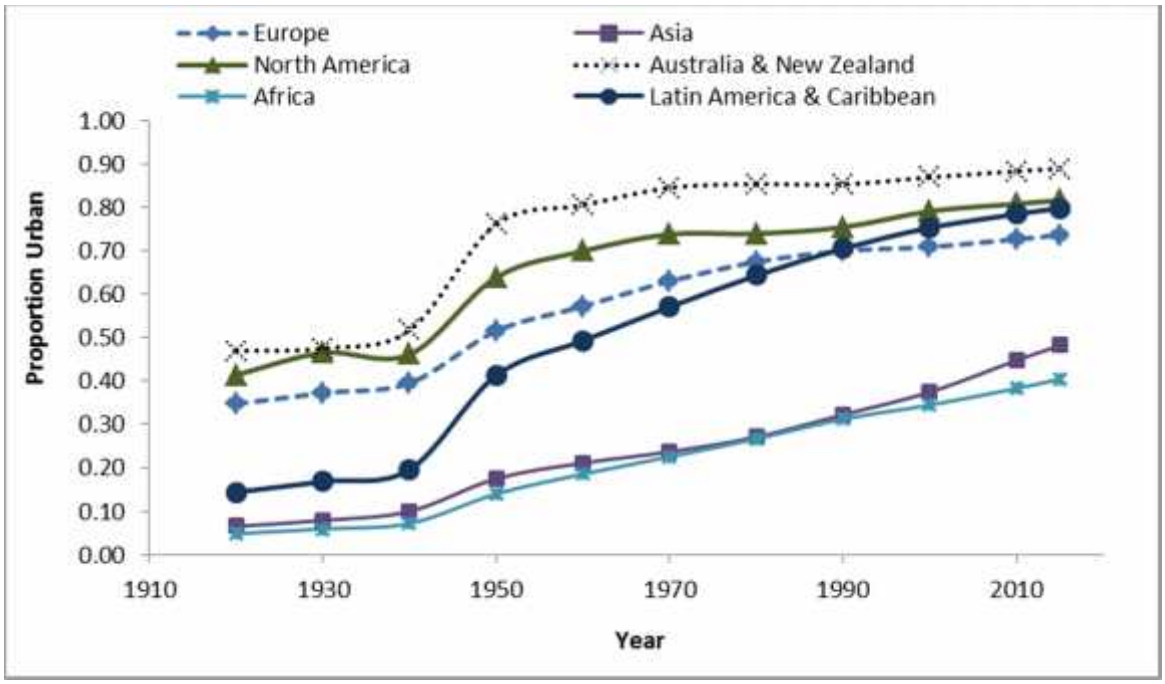
Figure 2. Country mean population pyramids of regions of the world in 2015 by rural and urban sector



Source: UN-DESA URPAS

Clearly, part of the difference between regions is explained by their very different levels of urbanization. Figure 3 illustrates stark differences with the APR and SSA regions still predominantly rural. The potential for agricultural transformation accompanying structural transformation in these regions is thus high as labour shifts to the urban sector and demand rises for value added foods (Timmer, 2009). Other regions of the world, including the developing world, are mostly urban. Up till the 1950s, LAC countries had similarly low urban proportions to Asia and Africa. While these three regions started their urban transition at around the same time, LAC countries urbanized quite rapidly and had reached 80 per cent urban in 2015. Analyses that have compared the past patterns of urban transition in regions that are currently developed, such as Europe and North America, indicate that they started their urban transitions far earlier but urbanized at a more gradual rate (United Nations, 2014a).

Figure 3. Proportion urban by region of world, 1800-2015



Source: Based on UN World Urbanisation Prospects and UN Reports "Growth of the World's Urban and Rural Population, 1920-2000" (1969)

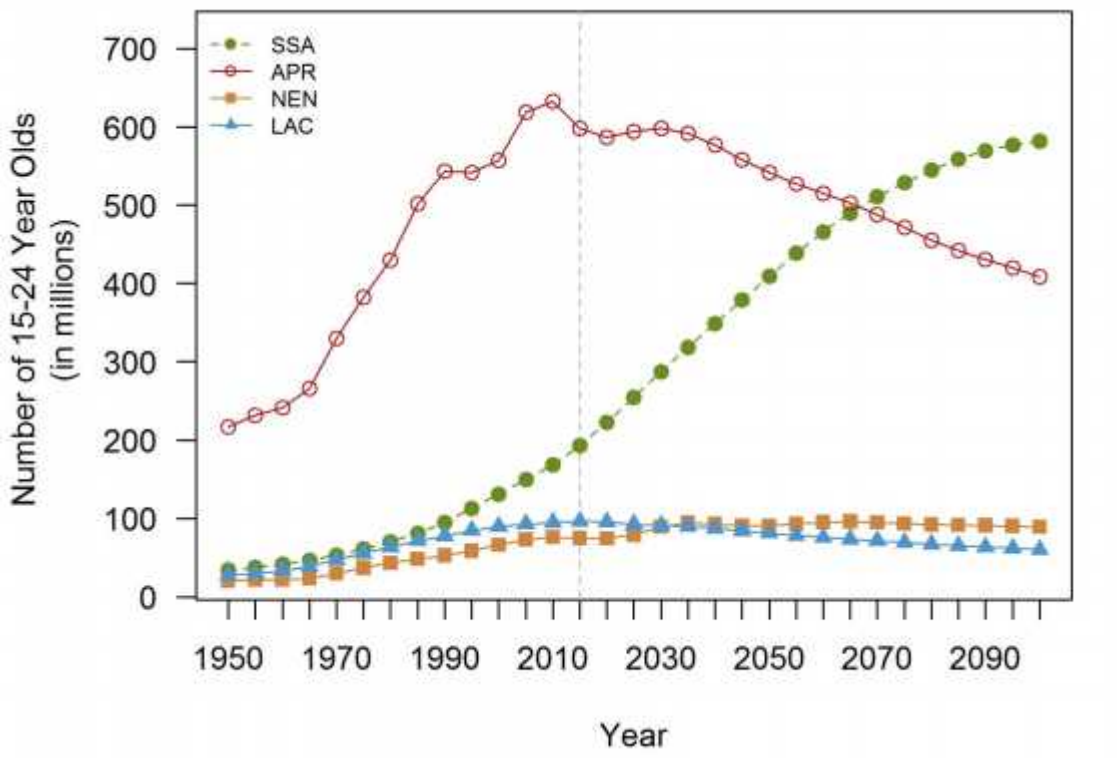
The pace of urbanization and its connection to the process of the demographic transition may deeply affect rural youth lives and opportunities. Under rapid urbanization, developing urban markets can lead to fast emergence of farming opportunities for the rural youth. In this context, increasing the productivity of youth may contribute to national income, and they themselves may choose to invest in the "quality" of their own children to meet changing expectations (Becker and Lewis, 1973). Furthermore, the location of the youth – whether urban or rural – plays a key role. While natural increase is the primary source of urbanization, increasing numbers of 15 to 24-year-olds raises the potential for migration from rural to urban sectors and may contribute to faster urbanization.

Population projections offer a tool to assess future growth in the youth population and are likely to remain reliable for at least the coming one to two decades.[2] However, the disaggregated rural and urban population estimates from 1980 to 2015 are limited so we present nationally aggregated youth population estimates from 1950 - 2015 and national level projections to 2100 based on the United Nations medium variant scenario (Ibid.). According to the United Nations projections (see figure 4), Asia and Pacific – including China - have high numbers of 15 to 24-year-olds but these numbers have already peaked and are projected to start declining around 2030. Interestingly, while the total youth population in the Global South is predicted to grow from 1.05 billion to 4.25 billion between 2015 and 2100, much of this growth will come from SSA (with 47 per cent of youth expected to be in SSA by 2100).

According to the projection scenario, the SSA youth population is anticipated to become the largest region in the Global South from around 2070. In contrast, the number of youth in NEN and LAC is projected to remain relatively low or to decline.

[2] We can reasonably anticipate that most youth around in about 15 years will have been recently born or will soon be born in societies with fertility rates closely approximating current rates.

Figure 4. Number of youth by region of world (both sexes), 1950-2100

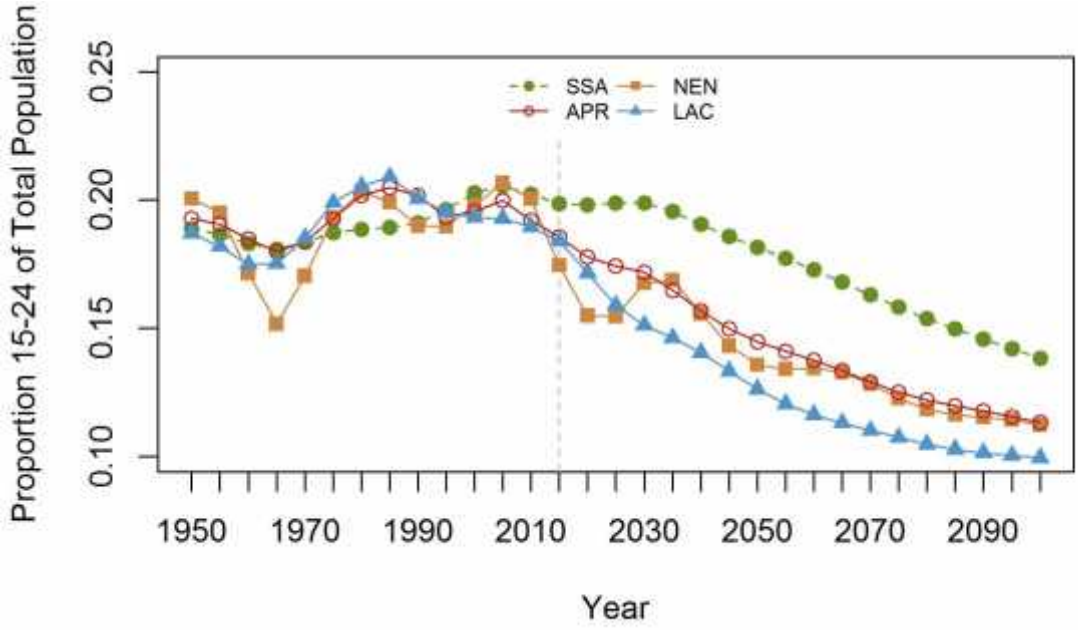


Source: Based on UN World Population Prospects

The sharp rise in the youth population of SSA, the world's poorest region, alongside the anticipated declines in the youth population of APR, highlight both the variability in demographic trajectories across regions and the importance of preparing for relevant youth-oriented policies. When the youth population is examined as a proportion of the total population, as in figure 5, the proportion of the population aged 15-24 in 2015 is markedly similar across all regions: at its lowest in NEN (0.17) and highest in SSA (0.20). Youth comprise 16 per cent of the world's 2015 population.

Examination of United Nations World Population Prospects projection results for 2017 for the size of the youth populations of the world show projected declines in the proportion of the total population with youth projected to comprise about 12 per cent of the population in 2100. However, as figures 4 and 5 highlight, dramatic shifts are anticipated in terms of the regional allocation of the world's youth. Thus, according to the medium projection scenario of the United Nations analyses, the youth population of SSA will account for 43 per cent of the entire youth population in the world by 2100 (47 per cent of the youth population in what are identified as today's LDC regions). Interestingly, while both the low and high scenarios of the United Nations predict very different demographic futures for each country/region, the projected relative share of SSA youth as a share of the overall total world youth population for 2100 are quite consistent. The low growth scenario projection predicts that 50 per cent of youth will be in SSA while the high scenario predicts 38 per cent. While not formal confidence intervals, they do offer a reasonable demographic range and suggest that between one third to one half of the world's youth will likely be in SSA by 2100. Assuming that SSA remains less urbanized than other regions and given the delayed decline in rural fertility, SSA's share of the world's rural youth population is likely to be substantially higher.

Figure 5. Proportion of youth by region of the world (both sexes), 1950-2100



Source: Based on UN World Population Prospects

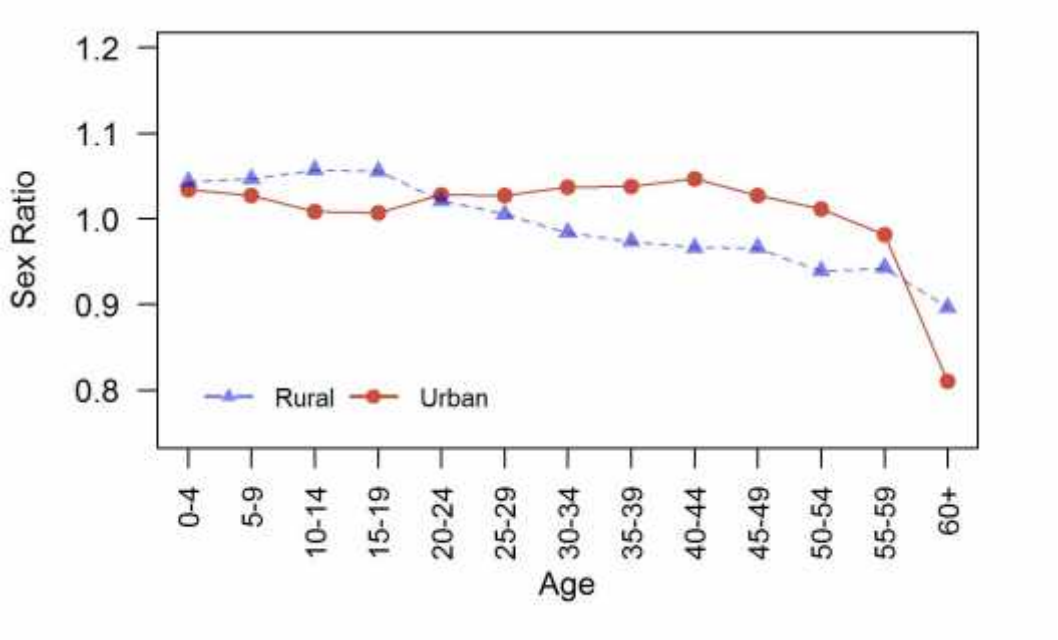
2.2 Sex ratios patterns

Alongside the changes in the overall youth population numbers, demographic shifts and socio-economic and cultural factors have long been influencing population sex ratios – most commonly measured as the ratio of males to females in a population. The principal demographic factors driving sex ratio deviations from unity include sex ratios at birth, differential sex-specific mortality by age, and gaps in the sex-specific migration rates (Coale, 1991). Only the first two factors are relevant in a closed population. Much of the work on sex ratios, particularly in the context of Asian settings, has focused on sex ratios at birth and discrimination in early life years and how these patterns of behaviour have created highly distorted population sex ratios (Das Gupta, 2010; Dyson, 2011). However, the magnitude and variability of sex ratios across urban and rural sectors have not received much attention nor have their consequences always been considered for both social and economic development.

Figure 6 presents the sex ratios for all developing countries in 2015 by age and rural/urban sector. In certain settings, these sex ratio gaps may create important dynamics that are both cause and consequences of structural and rural transformation. The sex ratio patterns indicate a male advantage at younger ages in *both* sectors with the sex ratio consistently above 1.0. This trend continues and strengthens in adolescent and youth ages in the urban sector while following a different trajectory in the rural sector. The sex ratio is considerably lower in the urban sector for ages 15 to 19, a cross-over seen with identical levels in the two sectors for ages 20-24, followed by a reversal with rural sex ratios falling below urban for most of the remaining ages. Male migration is an important component of these rural-urban shifts in the majority of countries, as male-dominated rural-to-urban migrants increase the urban and reduce the rural sex ratios. The sector-specific sex-ratio estimates for the 60 and over ages

both indicate an unsurprising drop in the sex ratio driven by excess male mortality in both sectors. Interesting, while data at these higher ages are less reliable and must be interpreted with caution, the crossover at the older ages *may* be due to return migration of elderly men to the rural sector (Potts, 1986) as well as the mobility of elderly women to cities to assist with the care of grandchildren.

Figure 6. Average male/female sex ratios by age in developing countries by rural and urban sector in 2015



Source: UN-DESA URPAS

A regional perspective on variation in sex ratios across rural and urban sectors sheds light on how rural transformation processes shape societies with very different social and cultural patterns. Rural and urban sex ratios show dramatic differences by age in some regions while little or no gap in others. Particularly noticeable in figure 7 is the manner in which rural and urban sex ratios in NEN shift almost in unison across age, in sharp contrast to the other observed regions.

However, there are also clear distinctions in how these patterns evolve by age over rural and urban areas. A male advantage in numbers is apparent at the youngest ages across both rural and urban sectors for all regions. At the youngest ages, migration likely plays little role and the primary explanations are likely differential sex ratios at birth and gaps in infant and child mortality (see more below). Where sex selection abortions and differential treatment has been identified in the literature, such as certain parts of APR, sex ratios are likely indicative of biased sex ratios (Das Gupta, 2010; Kashyap and Villavicencio, 2016). However, even the apparently more balanced sex ratios seen in SSA may reflect existing biases (Anderson and Ray, 2010).

The sex ratio patterns for youth are less clear. The pattern in NEN shows increasing female proportions after age 15. In contrast, in APR, and even more strongly in SSA, the urban sex ratios for youth and working ages show a male advantage while the rural sector indicates a female advantage. Urban sex ratios higher than equal in the youth and adult working ages are most likely driven by rural-to-urban migration of men (Dyson, 2012; Chant, 1998). The rural sex ratios fall below one from age 20 and continue to decline, reflecting the presence of more women than men in the rural sector. In SSA, we find an important crossover in both rural and urban sex ratios among the youth (from female to

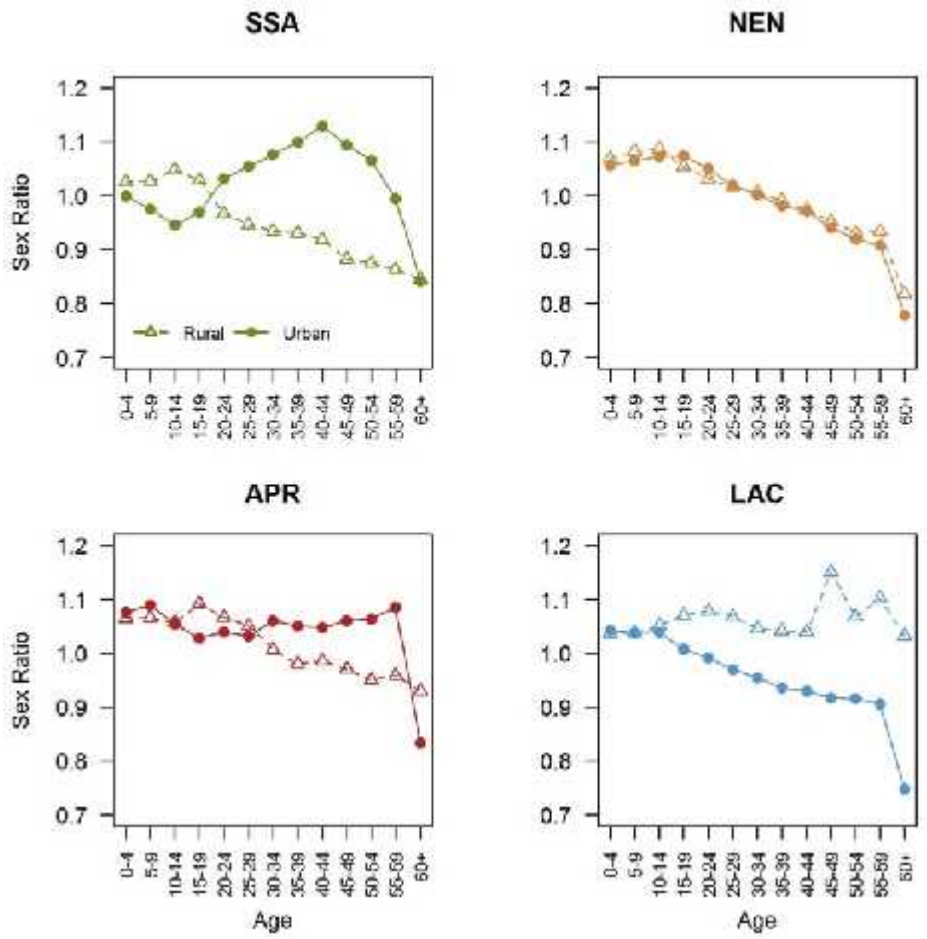
male bias in the urban sector and the reverse in the rural sector). This is an indication of the transformative role these ages play in the life course. These same trends are present but not as pronounced in other regions. In APR, a history of biased sex ratios of birth means that sex ratios in both rural and urban sectors below age 30 are above one. A surplus of males remains until the last age group (60 and over) in the urban sector while the rural sector population gradually becomes more female.

The LAC patterns offer a sharp contrast to other regions with high rural sex ratios and low urban sex ratios across all age groups. Urban sex ratios show a stronger female advantage from age 15 and over whereas working-age men are more dominant in the rural sector. These sex ratios reflect the gendered nature of migration streams in much of LAC. Evidence suggests that women tend to migrate more than men in some LAC countries, leaving the rural sector both for the urban sector and for other countries (Chant and Radcliffe, 1992; Kritz 1981, Marino, 1970). In particular, Caribbean islands have sex ratios lower than one - a long-standing consequence of sex-selective international migration (Marino, 1970; Momsen, 1992).

The consequences of high rural sex ratios among the youth, especially in NEN, APR and LAC, include unbalanced marriage markets that lead to high rates of marriage exclusion and may contribute to social tensions. Constrained marriage markets may be particularly disruptive in societies where marriage has been universal and carries important status. Remaining single, especially in the rural sector, may lead to greater frustration, crime, drug use, prostitution and violence amongst young men (Dyson, 2012; Hesketh and Xing, 2006). Lower marriage rates and fewer young women in the rural sector may also depress rural fertility during these young ages (Dyson, 2012).

In SSA, higher than unity sex ratios among rural 15 to19 year olds may be driven by female migration to the urban sector for education or to help in extended family households (Awumbila et al., 2016; Isiugo-Abanihe, 1985). The consequences of a rural sex ratio decline to below one between ages 20-24 include greater strain on women. With fewer men around, young women may face greater responsibilities and workloads, in addition to financial hardships and isolation (Nguyen, Yeoh and Toyota, 2006). Although an abundance of young rural women in SSA may essentially lead to greater female autonomy, this may be resisted in traditional societies (Guilmoto, 2009).

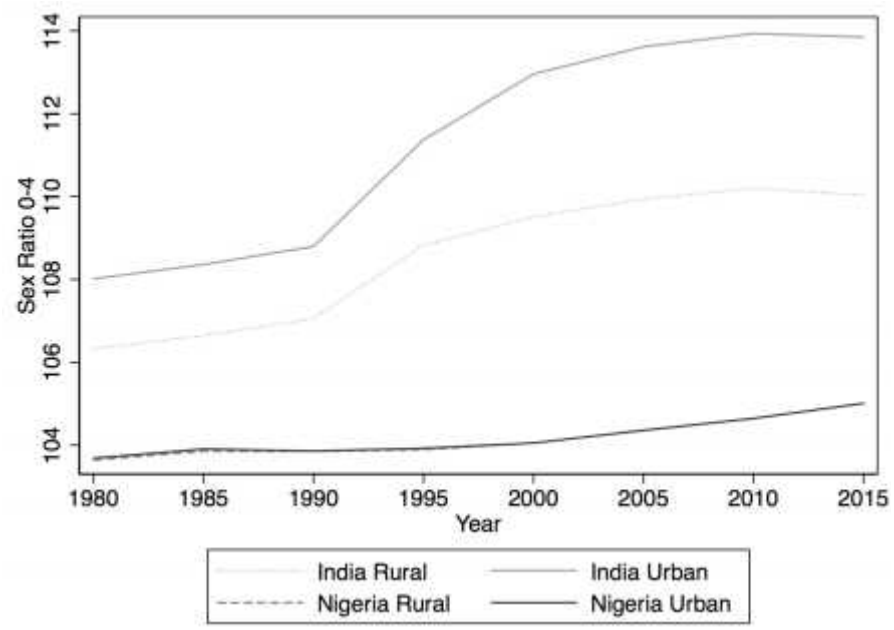
Figure 7. Sex ratios by region, 1980-2015



Source: UN-DESA URPAS

We shift our lens to two case studies to tease out more specific patterns at the country level. We begin by examining sex ratios at the early ages as they define part of the inequalities that may be present in sex ratios for youth. Sex ratios at birth are typically calculated based on the count of boys aged 0-4 divided by girls 0-4 (times 100). Sex ratios at birth are generally around 105– more boys are born than girls in even the most egalitarian contexts - but variations in sex ratios at birth suggest substantial underlying heterogeneity in behaviours across populations. Figure 8 shows a relatively stable sex ratio over time with overlapping lines that indicate little or no difference across sectors in Nigeria. In contrast, biased sex ratios in India are well established (Gupta and Bhat, 1997; Hesketh and Xing, 2006) and readily visible in the graph. They hover between 106-108 in 1980 while increasing to between 110-114 in 2015. Moreover, the gap between the rural and urban sectors of India is increasing over time. The gap has roughly doubled over time with stronger biases observed in the urban sector where women have easier access to technological advances facilitating foetal sex identification (Madan and Breunig, 2014). As rural populations gain better access to maternal health care, easier access to ultrasound and other technologies may lead to higher rural child sex ratios and reductions in the gap between the rural and urban sectors over time.

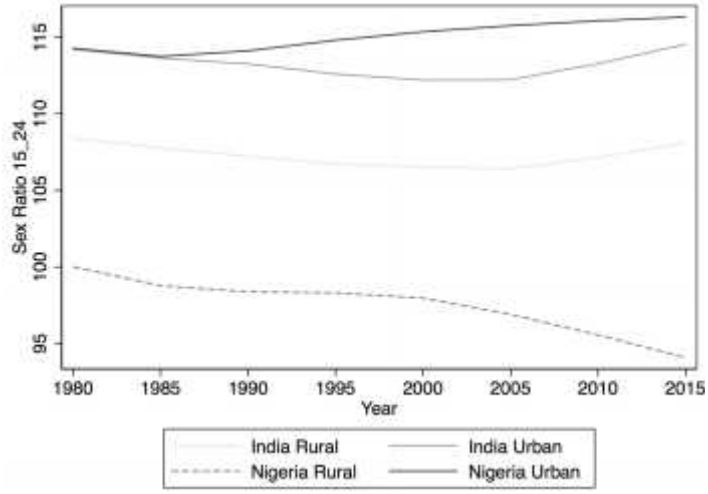
Figure 8. Sex ratios ages 0-4 for India and Nigeria by urban-rural residence, 1980-2015



Source: UN-DESA URPAS

Of course, cohorts will carry their sex ratios forward as they age. Thus, it is no surprise that the sex ratios identified among 0-4-year-olds are also apparent for youths and adults. However, while migration – though not trivial - is not as consequential for children, it is very meaningful beyond childhood. Migration helps explain the very different pattern of youth sex ratios and their sectoral gaps in India and Nigeria (figure 9). Overall, the youth sex ratios remain high in India, but the sectoral gap is stable and relatively modest. In comparison, while Nigeria's overall youth sex ratios are more balanced overall, urban youth sex ratios over the period of observation are higher even than urban sex ratios for India, whereas rural youth sex ratios are extremely low and even declining since 2000. In consequence, there is a huge gap in the youth sex ratios between Nigeria's urban and rural sectors. This large gap is driven by rural-to-urban migration of males, although international migration flows likely also contributes to these patterns.

Figure 9. Youth sex ratio ages 15 to 24 for India and Nigeria by rural and urban residence from 1980-2015, UN URPAS Data 2015



Source: UN-DESA URPAS

The contrasting gaps in sex ratios shed light on both the distinctive demographic structures of the rural and urban sectors and the principal drivers behind these population profiles. In some cases, particularly in countries such as India, large discrepancies in youth sex ratios appear driven in large part by enduring biases against female births with permanent effects on cohort sex ratios as they age. In contrast, other regions such as Nigeria, demonstrate differential youth sex ratios primarily driven by migration. The root cause of differential sex ratios of course matters tremendously as they signal a host of inequalities and forces of discrimination that constrain behaviour. In both cases these unbalanced sex ratios for youths are very meaningful for development.

The link between sex ratios in rural and urban sectors and structural and rural transformation is not always direct, but there are important connections that need to be considered. At young ages, biased sex ratios are facilitated by technology. Easier access to technology in urban areas suggests sex ratios at birth will be more biased in cities (Jha et al., 2006). However, in areas such as rural India, there may be particularly strong pressure for parents to construct specific types of family structures, further enhancing their desire for sex-selection (Das Gupta 2010; Das Gupta and Bhat, 1997). The growth of technology and wages in the rural sector, both part of the structural transformation, suggest this may be important. Indeed, on the one hand rural transformation may increase sex ratios in the rural sector while on the other it may potentially reduce patriarchal pressures and push sex ratios to return to more equitable patterns.

It is equally fascinating to consider SSA's rural-urban difference in sex ratios at the youngest ages as an indication of different cultural patterns and just as much a function of structural transformation. The increase of girls between ages 5 to 14 in cities seems may be tied to rural parents becoming more likely to invest in their daughters' education – a step that might often require them to send the girls to schools in the urban sector (Isiugo-Abanihe, 1985). However, it is also likely a reflection of how girls are sent at younger ages to help in urban households of extended family members (Awumbila et al., 2016). The sex ratio pattern for youth in SSA suggests a decline in the role of agriculture that has led many youth – particularly males – to move to towns and cities in search of opportunities.

Agricultural transformation should follow as men leave the rural sector – depending on the role women take. Women may continue to be self-employed and in non-agricultural activities (McCullough, 2017), or they engage in more principal roles in agriculture – often managerial (Lastarria-Cornhiel, 2008; Radel et al., 2012). Yet questions remain about whether capital is depleted along with the male migration. Thus, if women are increasingly taking on principal roles in agriculture but capital is not being invested in farming, their productivity and wages may remain low.

2.3 Drivers of change

Shifting proportions of youth over time and across sectors, as well as the differences between rural and urban youth populations are driven by the intertwined processes of urbanization and the demographic transition (Dyson, 2011). However, to fully understand these differences it is essential to explore the main drivers of population change – fertility and mortality – and how they vary across rural and urban populations.

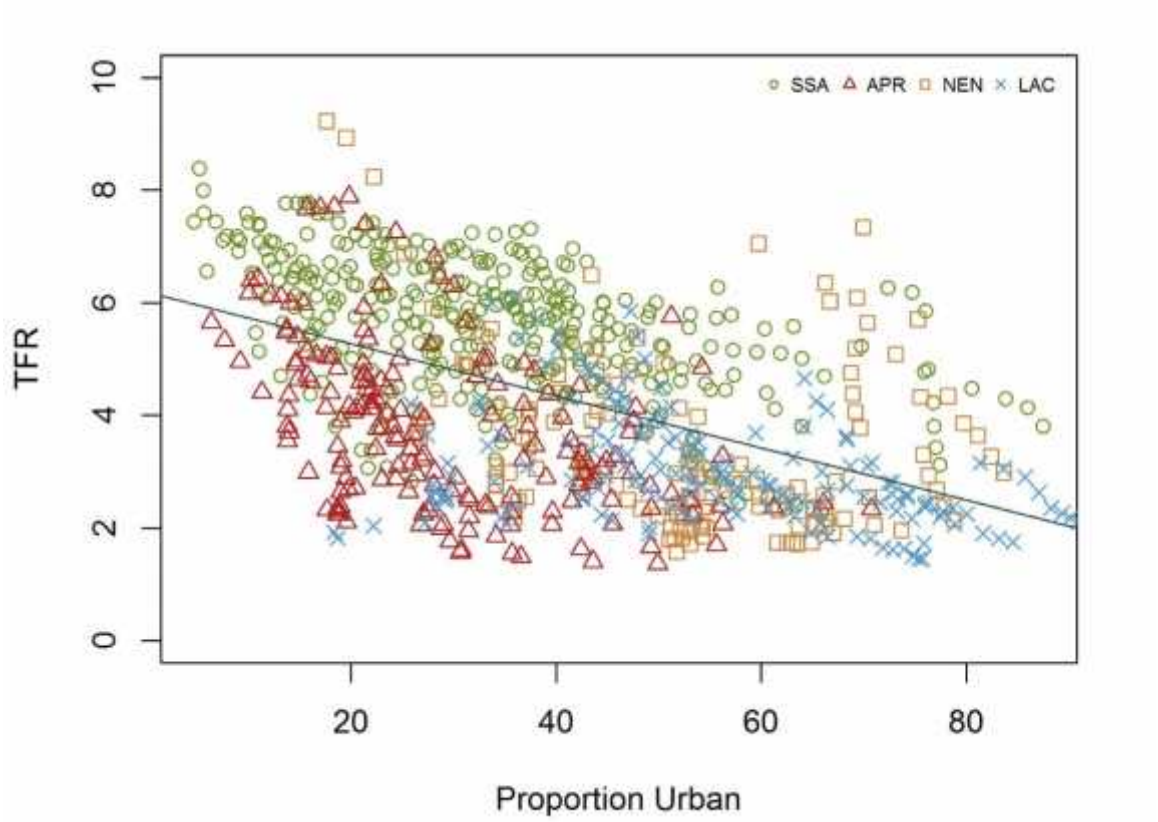
Fertility

The relationship between fertility decline and urbanization is shown in figure 10. Each point represents a national estimate of total fertility rate (TFR) by urban proportion for every five-year period between 1980-2015. There is an obvious negative association with lower fertility correlating with higher levels of urbanization, shifting from a TFR of around 5.7 when the urban proportion is below 20 per cent to 3 when the urban proportion level exceeds 70 per cent. Fertility declines first in the urban sector (de Vries, 1990; Dyson, 2011; Shapiro and Tambashe, 2002), although the onset of national fertility decline is highly variable across contexts. Basically, all world populations have now begun some level of fertility decline, the extent of decline varies dramatically across countries and the pace of change tends to be more powerful and consistent in the urban sector. As populations become more urban, the national fertility rate reflects the lower fertility typically found in urban populations.

Impressive differences also emerge if we examine the separate regions shown in figure 10. National fertility in SSA is high, with low urbanization levels, a factor consistent with other evidence that SSA urbanization has occurred at relatively low levels of development (Cohen, 2004; de Brauw, et al. 2014; Potts, 2016). In contrast, APR fertility is low although at broadly similar urbanization levels. In part, these differences can be explained by the low proportion of women using modern contraception in SSA – especially in the rural sector. In contrast, contraceptive use is high in both urban and rural sectors across much of APR. In LAC, where urban proportions are far higher, the percentage of women married is relatively low, contributing to lower fertility.[3]

[3] Using the DHS data, we also explored the determinants of fertility levels by rural/urban sector across regions, including modern contraception use and proportion of women married. In brief, results indicate that marriage is near universal by age 25 in APR and NEN. In APR, around 40 per cent of 15- to 19-year-olds are married in the urban sector, and over 60 per cent in the rural sector. In LAC and SSA, the proportions married by age 25 are lower. Across regions rural proportions married are highest. Contraception use is lowest in the rural sector. However, only in SSA is there a large difference of around 10 per cent less use in rural areas than there is in towns. In addition, in SSA contraception use among 20 to 24-year-olds is not related to marital status.

Figure 10. National fertility by sector over urban proportion, 1980-2015

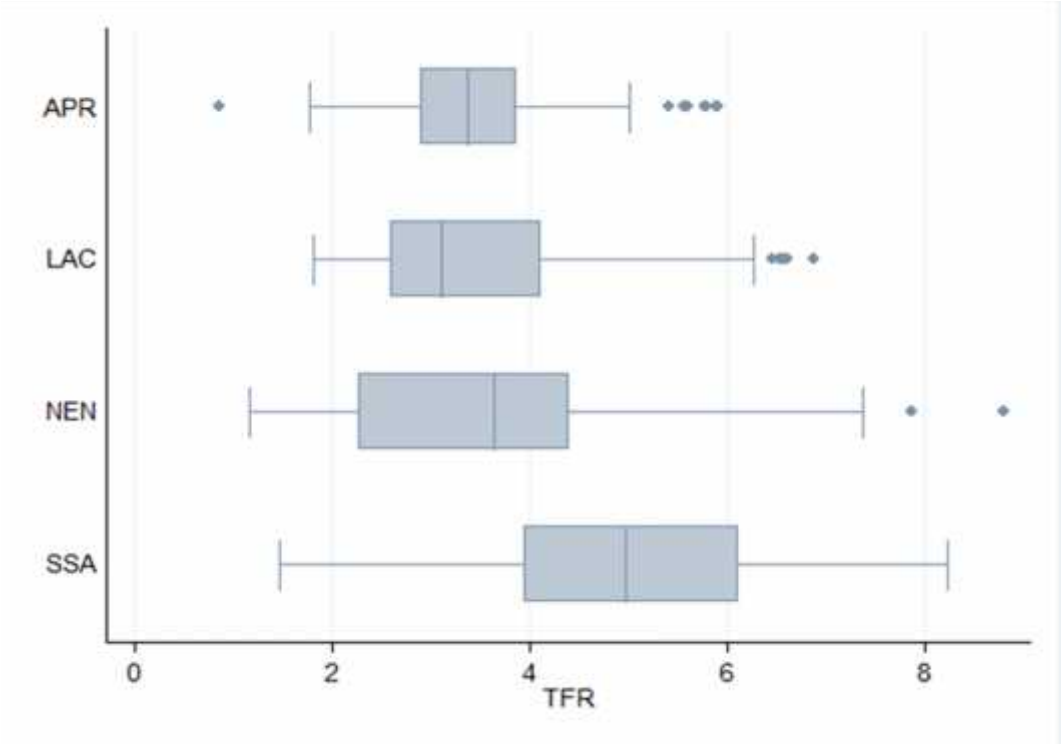


Source: UN-DESA URPAS and UN

Across regions for the period 1986 to 2014, SSA has the highest mean TFR with an estimated 5.0 children per woman (over all DHS surveys) and LAC has the lowest average TFR of 3.5, as shown in figure 11.[45] There is also far less variation in TFR within APR and to a lesser extent LAC, and much greater internal variability within NEN and SSA as depicted by the interquartile ranges of the boxes in the figure. Thus, SSA and NEN, which remain less urbanized have higher TFRs and also more variability in the TFR levels within region and over time.

[4] Total fertility is calculated based on births to women aged 15-49 over the five years preceding the date of the survey.
[5] Note these data are not comparable with figure 10 as they are based on DHS data.

Figure 11. Total fertility rate across regions, 1986-2014



Source: DHS

The regional averages conceal substantial variation within countries – differences that appear in comparing rural and urban sectors. However, the DHS data allow us to move beyond the binary categorization of sectors and present TFR differences by region and by level of urbanicity (figure 12).[6] The results indicate a gradient by urbanicity evident in differences between main cities, smaller cities and towns. However, the sharpest distinction is quite consistently between rural sector TFR and the TFR in the other three sectors. In fact, averaging across all regions, TFR in main cities is 3.4, 3.9 in smaller cities, 4.3 in towns and 5.5 in the rural sector. Furthermore, there remains a notable distinction in fertility between towns and rural areas, even in NEN and LAC where fertility is lower.

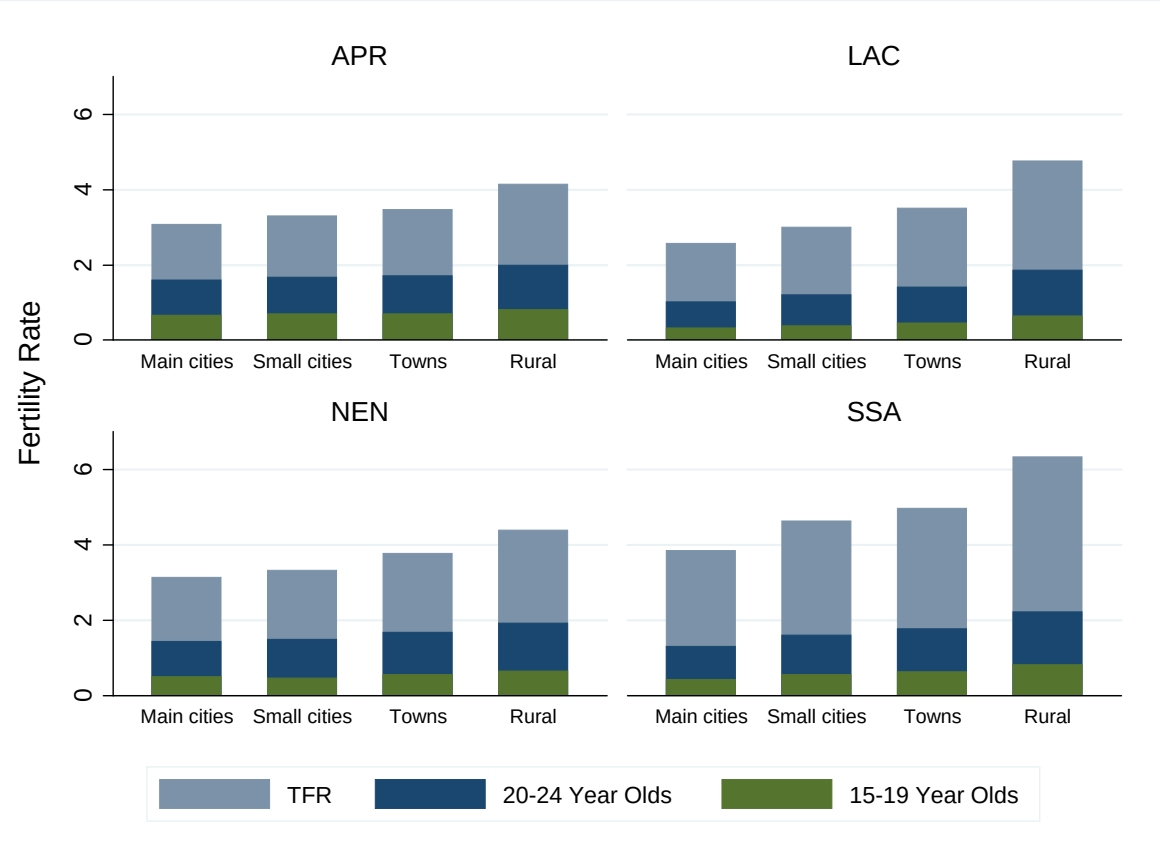
Figure 12 also depicts age-specific fertility rates for youth and makes it easy to identify the proportion of the total fertility attributed to 15 to 19-year-olds and 20 to 24 years. While the TFR and youth fertility rates across sectors decline the more urban the settlement, the share of fertility due to youth remains consistent across all sectors - roughly 40 per cent. This indicates that fertility of young women is not a particularly key explanation of the differences between sectors.

The link between urban living and fertility is well established (Shapiro and Tambashe, 2002; White et al.. 2005). Urban settings have less traditional pressures, mortality decline is often more pronounced, housing markets cause pressure on larger families, and the advantages of fertility decline may be more apparent for young families. Alongside these constraints on fertility, increased returns to human capital investments in the urban sector will further push desired family size to decline. Rural households on the other hand are typically slower to respond and reduce childbearing. The share of

[6] The DHS uses four categories to define urbanicity- main cities (which often include capital cities), small cities, towns and rural. Further details on this definition and how it differs by survey and country is found in the Appendix.

youth in the working-age population in the rural sector will, therefore, not fall as quickly as long as it remains supported by higher fertility.

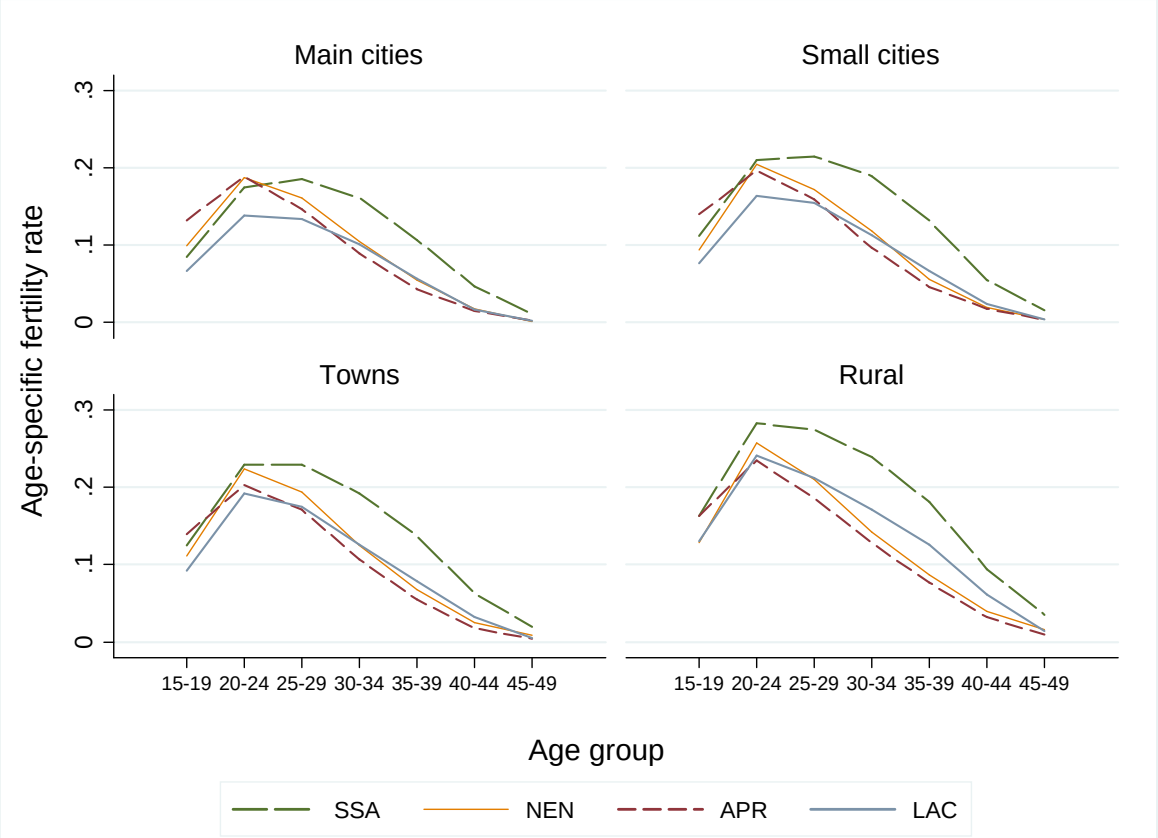
Figure 12. Total fertility rate and age-specific fertility rates for youth by region and urbanicity, 1986-2014



Source: DHS

A more detailed perspective on age specific fertility is shown in figure 13. Here, age-specific fertility rates are shown across all ages by sector and region. For youth, fertility rates tend to be lowest in LAC across most sectors. In contrast, rates in APR tend to be quite high for 15 to19 year olds but then fall for 20-24-year-olds. Two features of SSA fertility stand out clearly in figure 13. First, SSA fertility rates *for youth* are mostly unexceptional in all urban sectors compared to other regions. Second, the fertility rates in SSA are clearly distinct AFTER the youth years. That is, across all sectors, we see that from age 25 fertility rates are markedly higher in SSA than for all other regions.

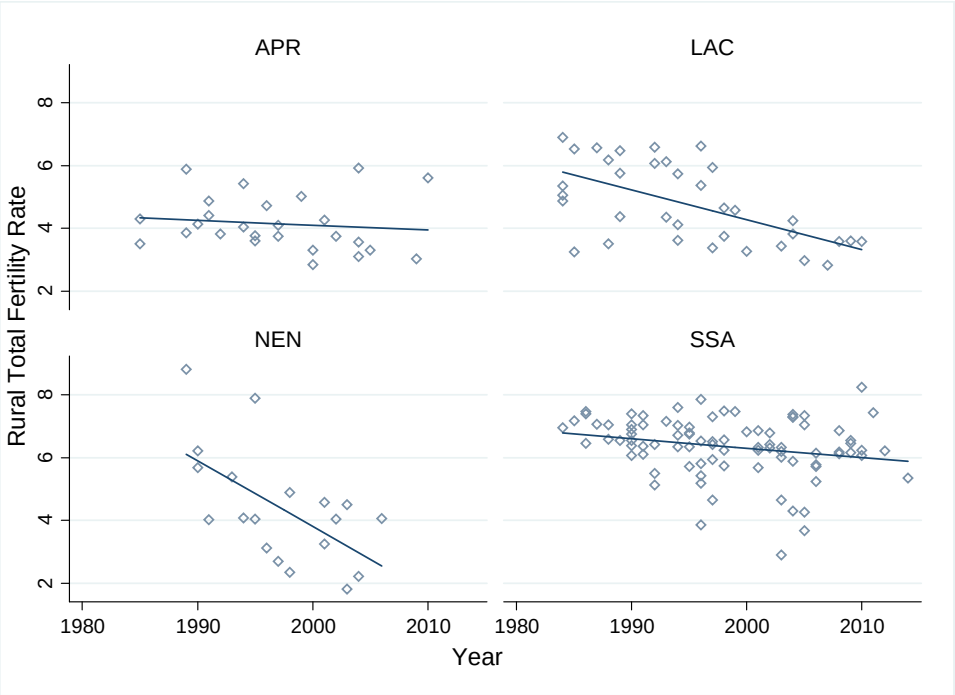
Figure 13. Age-specific fertility rate by sector and region, 1986-2014



Source: DHS

Higher rural fertility levels produce large rural youth cohorts that help drive rural-to-urban migration flows, but the evidence shows that fertility in the rural sector is also declining although with more variability in SSA (Lerch, 2017). In figure 14, linear fitted lines offer an indication of the downward trends seen in rural TFR across regions. One important consequence of fertility decline in the rural sector is a rise in the population share of youth– a youth bulge – which is expected in all regions. The slower and more variable declines in fertility in APR and SSA may generate longer periods where youth bulges are present, but those bulges may be less pronounced. Thus, if youth bulges have positive or negative impacts on society and economic growth, these consequences may vary by the delayed rural fertility transition, particularly where the proportion of rural population remains high as found in SSA.

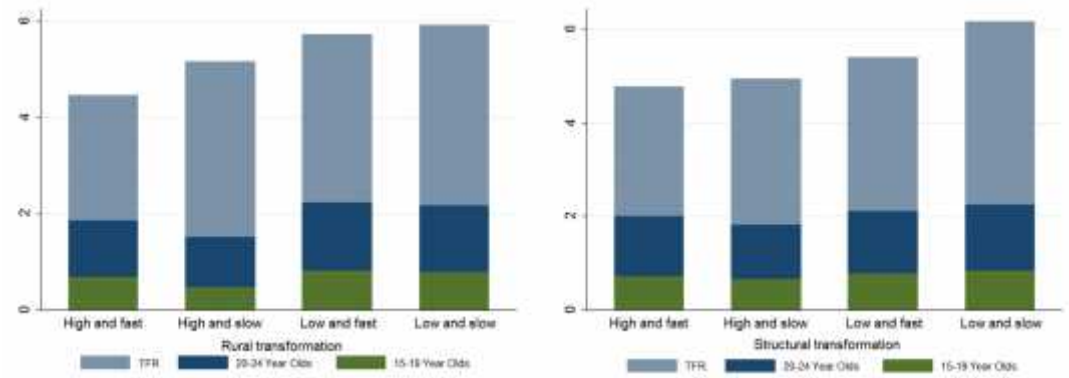
Figure 14. Total fertility rate in rural sector by region between 1986-2014



Source: DHS

A potential economic growth dividend (see more below), particularly due to an abundance of youth and declining fertility, is intrinsically related to rural and structural transformation through a shift to investments in non-agricultural sectors and increased productivity. We re-examine in figure 15 the TFR data but along the lines of rural and structural transformation. The figure needs to be carefully considered because the rural and structural transformation categories are national level categories. Nonetheless, it suggests that countries with low levels of rural transformation experience relatively high fertility (figure 15). Yet, it is precisely in this context where larger youth bulges are anticipated that diversification of the rural economy will be most needed. Lower fertility in countries with high and fast rural transformation suggests that a youth dividend is more likely albeit its magnitude will likely be smaller. A similar picture appears when considering structural transformation – lower fertility in high and fast structural transformation countries where the value of non-agricultural production is high. All the same, TFR in the rural sector, no matter what level and speed of transformation countries are at, remains high, above four.

Figure 15. Total fertility rate by rural and structural transformation levels and speed



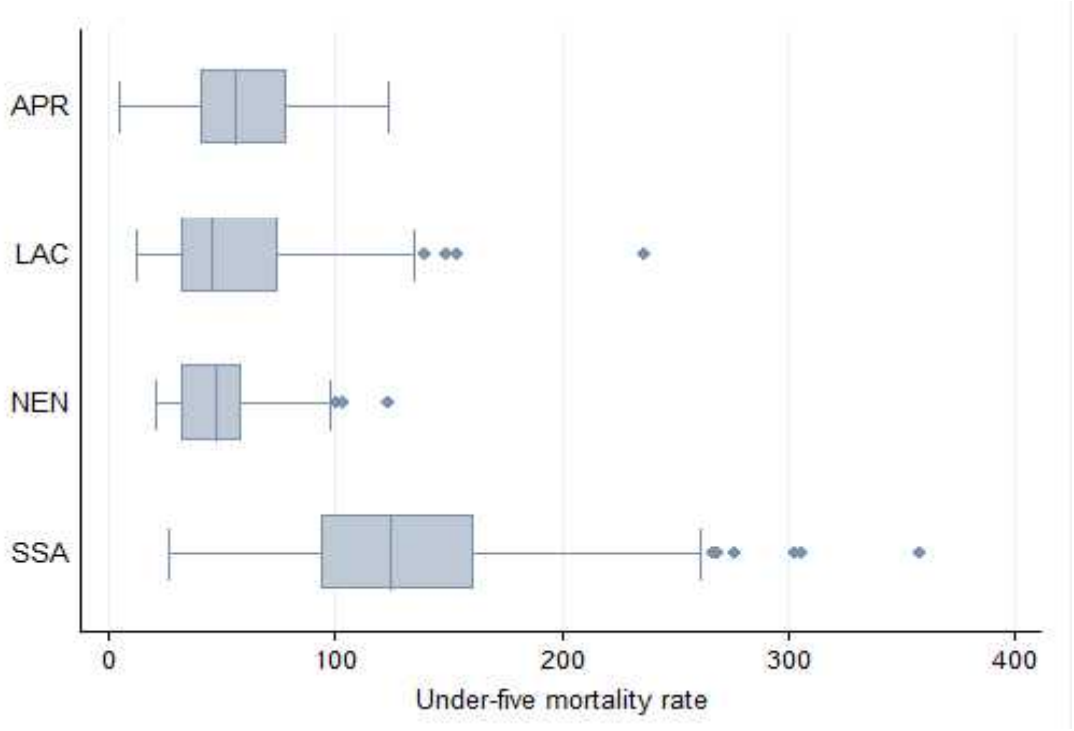
Source: DHS and IFAD

Mortality

Mortality decline is the primary demographic force behind the demographic transition (Dyson, 2015), with all countries have experienced substantial mortality decline across all age groups. Historically, urban mortality was higher than rural until the completion of the epidemiological transition (Reher, 2001; Woods, 2003) – a process where the major causes of death shift from under-nutrition and infectious diseases to chronic diseases. Urban populations in developing countries typically suffer from both higher rates of infectious disease sickness and mortality related to slum residence, crowding and poor infrastructure and from chronic illnesses related in part to a diet transformation– leading to a double burden of disease (Agyei-Mensah and Aikins, 2010, Mberu et al., 2015). As public health, sanitation and nutrition improvements take hold, urban mortality has tended to fall more sharply and in many cases urban mortality is often assumed to be lower than rural (Akoto and Tambashe, 2002; Fink et al., 2014; Menashe-Oren and Stecklov, forthcoming).

Figure 16 shows that under-five mortality is low in comparison to historical highs. For example, the median under-5 mortality rate was about 176 for least developed countries in 1990 according to UNICEF. In contrast, levels in APR, LAC and NEN are now well below this level with few outliers even nearing these figures. However, SSA mortality decline is still in progress – evidenced by the relatively higher median under-five mortality rate and the far greater internal variability.

Figure 16. Under-5 mortality by region,1986-2014



Source: DHS

We examine mean differences in mortality across all regions and by level of urbanicity to gain a better perspective on within regional variation (figure 17). Alongside the regional differences observed above, we note the consistency of under-5 mortality rate differences within regions. In all cases, cities, particularly main cities, have the lowest level of mortality. Furthermore, small cities and towns experience slightly higher mortality in all regions, but in all cases the substantial gap between urban mortality and rural mortality is readily apparent.

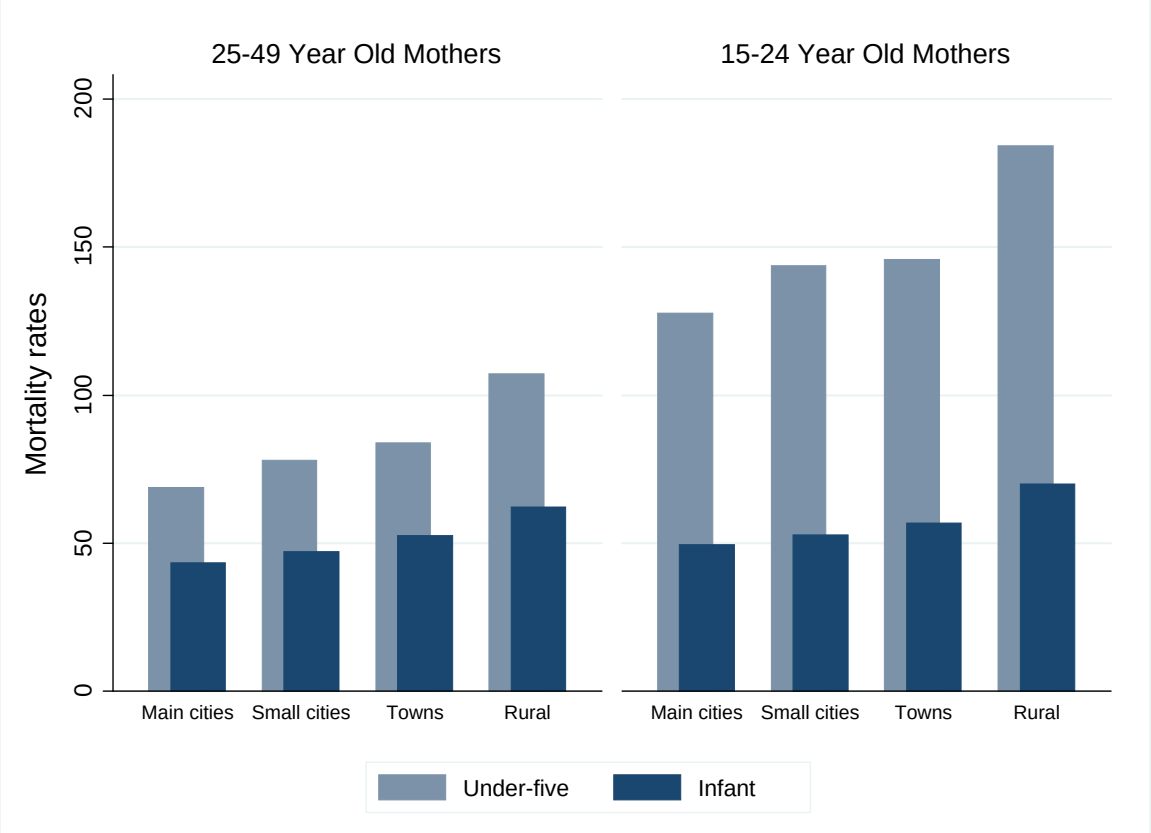
Infant mortality rates, measured by the number of deaths of children aged 0-1 as a ratio of the number of births in a given year, offers a possible method of reducing bias from migration. This is because the probability of maternal migration is reduced when limiting to a single year since birth. In addition, the under-5 mortality is more sensitive to particular types of health investments occurring after the first year of life. Broadly speaking, results using infant mortality paint a similar picture of higher rural mortality, suggesting that there is little if any selection of mothers migrating to urban sectors. One impressive difference, however, is evident in the large gap in rural SSA for under-5 mortality, which is particularly high relative to the urban areas. Life in the urban sector is beneficial to children, in part because they enjoy access to better healthcare including access to primary services. Thus, despite the existence of slums and crowding, which are more common, under-5 and infant mortality is lower in the cities (Fink et al., 2014). This last finding clearly points to the importance of investments in rural infrastructure to help reduce mortality and to provide better services.

Figure 17. Under-5 and infant mortality rates by region and urbanicity, 1986-2014

Source: DHS

In many societies, parenthood is a given for a very large share of women reaching their youth years. However, younger mothers who are less experienced and less established may have fewer resources to employ during pregnancy and may experience more negative health effects, including mortality as well as child loss (Zabin and Kiragu ,1998; Conde-Agudelo et al., 2005). In figure 18, we examine the differences in mortality according to maternal age. In all sectors both under-5 and infant mortality is higher among young mothers. In the rural sector, the gap is even larger, with young mothers losing 77 more under-5-year-olds than older mothers, and 8 more infants for every 1,000 births. With high fertility rates among 20 to24-year-olds, these child mortality rates suggest that high numbers of children die to young mothers. However, these mortality rates are declining in all regions – and the decline among young mothers is sharpest (results not shown). Our findings point to key concerns with rural youth mothers in building families and potentially facing single motherhood as structural transformation draws partners – most often males – to cities.

Figure 18. Under-5 and infant mortality rates by urbanicity and age of mother



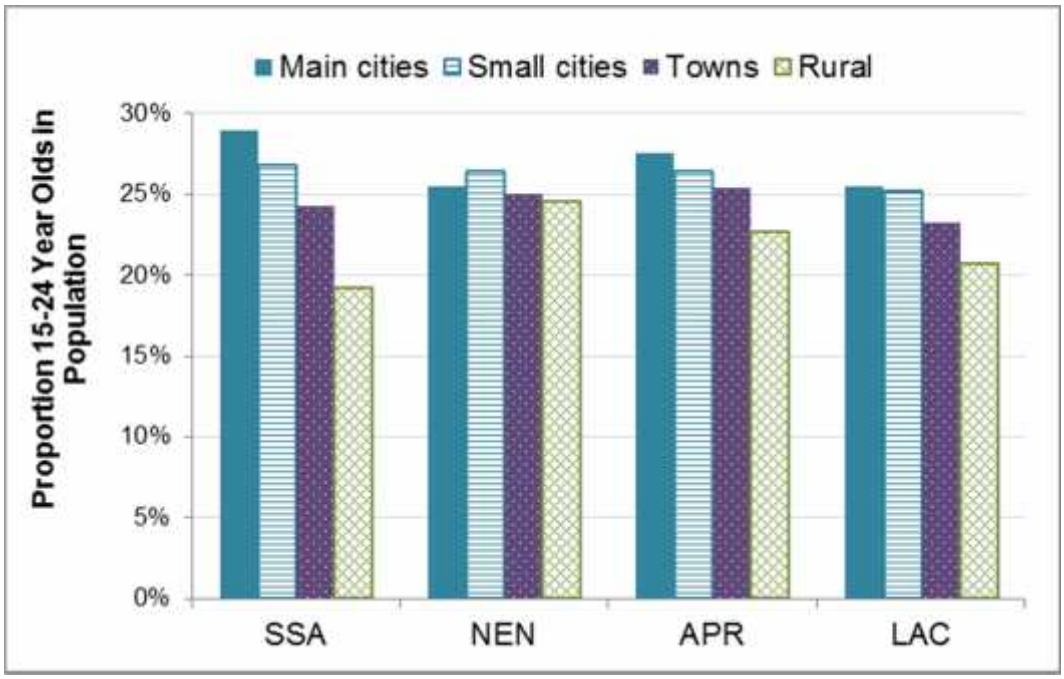
Source: DHS

Household structures and rural youth

While a macro population perspective can show how the share of the rural youth is changing in different societies, it tends to ignore how the youth are distributed within households. Households provide the roofs under which individuals share resources and support each other. They also provide the setting in which labour experience may be transmitted from generation to generation or where decisions, such as reproductive behaviours of young women, may be constrained by traditional patriarchal authority structures. While many factors such as fertility, marriage patterns, life expectancy, housing density and land rights may all affect household formation and disbandment, relatively little empirical evidence has yet emerged on how youth in the Global South are positioned in households and how this varies across sectors within and across regions.

Our earlier analysis showed clear declines in the proportion of 15 to 24-year-olds across regions (see figure 5). Here, the proportion of youth are calculated across levels of urbanicity in figure 19 using the DHS data. In all regions, and most dramatically in SSA, the proportion of youth in the rural population is lowest and while most regions show a gradient between level of urbanicity and share urban, NEN being a possible exception, the SSA gradient is steepest with the proportion less than 20 per cent in the rural sector. The higher shares of youth in cities is well known and the role of rural-to-urban migration in this pattern is established (Beauchemin, 2011; Gultiano and Xenos, 2006; Heckert, 2015; Rogers et al., 2002). This result however demonstrates a gradient that does exist and is more appropriate to consider where possible in place of a binary rural-to-urban classification.

Figure 19. Proportion of 15 to 24-year-olds in population by region and urbanicity, 1986-2014

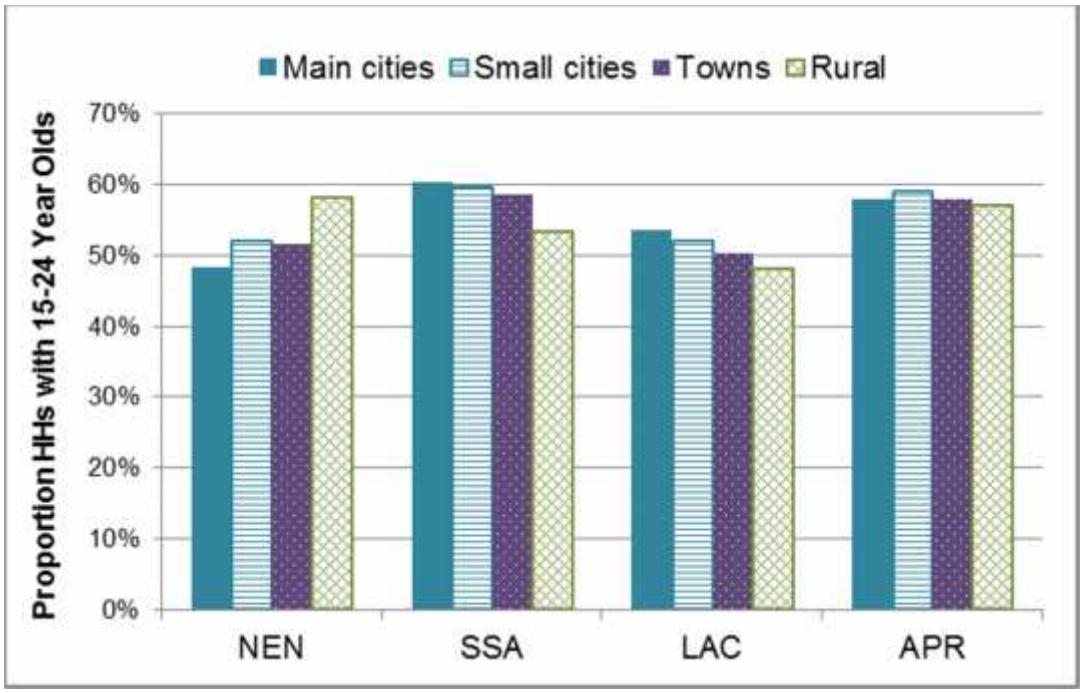


Source: DHS

From a household perspective, however, the data present a rather different picture. Our analyses show that the percentage of households that include at least one 15 to 24-year-old member is surprisingly stable across regions (see figure 20).[7] Yet, what sets these regions apart is the degree of variation across settlement types. Thus, in APR the percentage of households with youth is rather consistent while in SSA cities (main and small) about 60 per cent of households include youth while we find only 53 per cent of households in the rural sector with youth. An even bigger gap is shown between sectors in NEN, with rural households having higher proportions of youth - in contrast to SSA.

[7] The DHS household questionnaire is normally filled in without regard to the survey target population (mostly 15 to 49-year-old women). The main reason to expect bias in household composition based on DHS surveys is if interviewers seek less work and drop eligible household members for individual interviews by not marking them earlier on. However, data quality assurance measures are employed to reduce this sort of manipulation.

Figure 20. Percentage of households with 15 to 24-year-olds by region and urbanicity,1986-2014

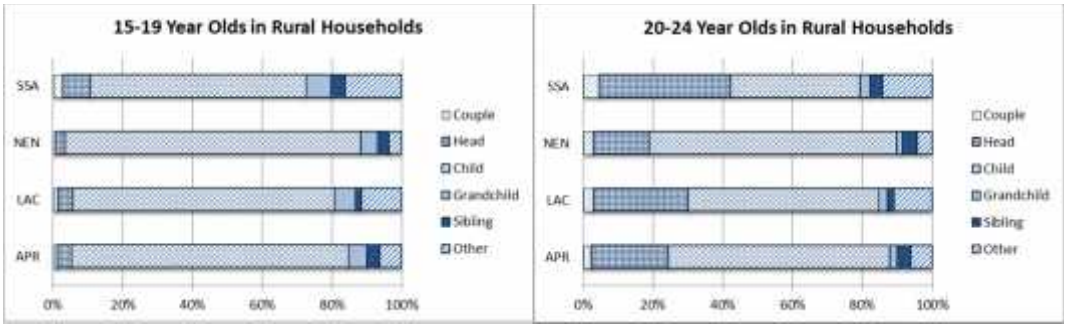


Source: DHS

These differences within regions are likely driven by several key factors. One, as mentioned, is the differential levels of past birth rates. However, migration and marriage processes in combination with household formation dynamics are also key factors in this process. This is partly because youth migrating to the urban sector will often co-reside with extended kin in cities (Caldwell,1968). Our analysis explores this question by categorizing households into a small number of classical types and examining how youth are distributed in this household classification.

The primary role of marriage and family formation is evident in observing the shift in youth household belonging when 15 to 19-year-olds are compared to the 20 to24-years-old (figure 21). This division helps capture the ages when many women (and some but fewer men) transition to marriage. This increase from the first to the second youth age category in SSA is seen in other regions but not in the same magnitude. Also, a far larger share of youth in SSA are found to be living with grandparents or with other kin or in non-kin households. Several other regional differences stand out, including the fact that by far the largest share of youth that remain children in households is in NEN and APR. The smallest share is in SSA where youths make the transition to headship at much younger ages.

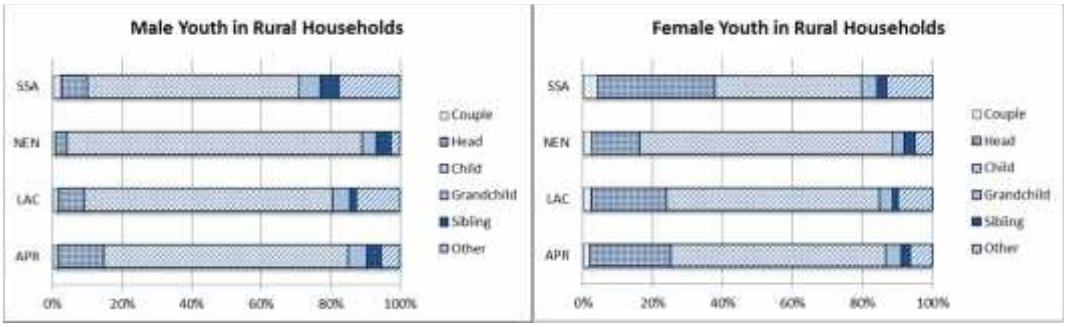
Figure 21. Rural youth household composition by age and region



Source: DHS

Powerful gender dimensions to these patterns highlight distinct patterns of family formation and women's empowerment in different societies. Thus, in figure 22, female youth are more often found as household heads in the rural sector - likely because men migrate to the urban sector leaving women in control. Young women in the rural sector therefore partake in decision-making processes allowing them access to productive resources, particularly agricultural land. Empowered women are beneficial for children's nutritional and educational outcomes (Beegle et al., 2001), and women's living arrangements are key mediators of the number of children they bear (Moultrie and Timæus, 2001).

Figure 22. Rural youth household composition by sex and region, 1986-2014



Source: DHS

3. Perspectives on rural youth demography

3.1 Unique challenges in sub-Saharan Africa

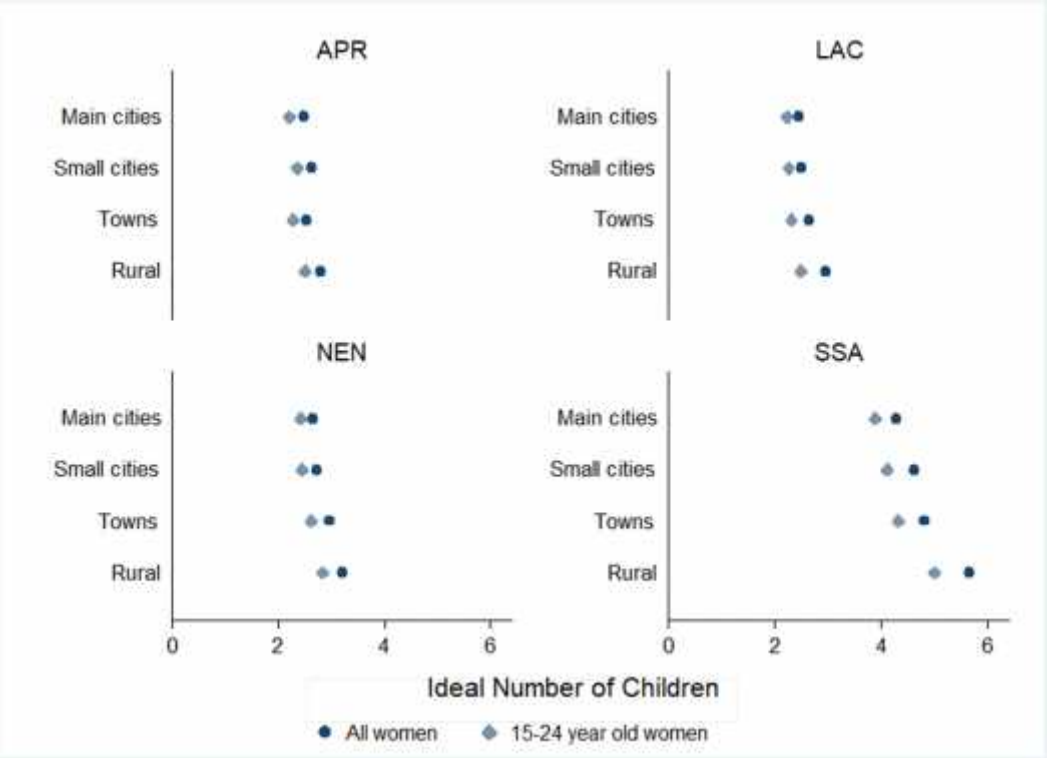
Since the early 1990s, the fertility transition in Africa has been regarded as exceptional (Caldwell et al., 1992; Kalipeni, 1995). The decline in fertility in SSA was delayed, leaving SSA as the last major world region to experience substantial fertility declines. Alongside delayed declines in demand for children in SSA, recent stalls in fertility decline may be due to the spread of HIV/AIDS (Bongaarts, 2016; Ezeh et al., 2009; Shapiro and Gebreselassie, 2008). The implication of SSA's continued high fertility levels has been enduring, rapid population growth and an exceptionally young age structure. As noted earlier, projections suggest that SSA will be the main source of increase in the world's youth population to 2100. At present, the majority of the youth population in SSA are rural, where total fertility rates (TFRs) remain considerably higher than those found in urban areas. Thus, Africa's current low rate of urbanization (Bocquier, 2004; Potts, 2009) suggests that a demographic gap between the rural

and urban sectors will persist for some time. Here, we examine the uniqueness of Africa's demographic transition by rural/urban sector and consider its relationships to development.

The pathways through which fertility decline is achieved varies dramatically, but a shift in the number of children desired by parents is a key condition for fertility decline (Pritchett, 1994). As indicated in our DHS fertility analysis (see figure 23), the degree of urbanicity is strongly associated with the number of children women desire. While this gradient is mostly present across APR, NEN and LAC, the data suggest that rural women in SSA want at least one more child than women in the main cities. The size of the gap between fertility ideals in rural areas and towns highlights the particularly unique situation faced by women in rural areas in SSA relative to women in other sectors. Given that fertility ideals imply future trends, this evidence suggests continued gaps in the future between sectors, and the need for greater reproductive health investments in rural SSA, which will make it easier for individuals to achieve their desired childbearing (Casterline and Agyei-Mensah, 2017) and possibly facilitate reducing the rural-urban gap over time.

In addition, our earlier discussion of the age pattern of childbearing demonstrated that fertility differences across sectors of SSA, as in other areas, were only partly driven by differences in sector fertility rates of youth. In fact, while rural youth fertility rates exceed those in other areas, the main differences in fertility rates explaining the TFR gap are driven by fertility rates after age 25. However, the evidence on fertility ideals put this into context. The findings shown in figure 23 suggest that the sectoral fertility gap in SSA will likely continue for some time given that the ideal number of children reported by rural youth remains considerably above that expressed by youth in other sectors. These high levels of rural desired fertility indicate that rural fertility is unlikely to experience dramatic declines in the coming years. This is also consistent with evidence on ongoing fertility stalls across parts of SSA (Bongaarts, 2008).

Figure 23. Ideal number of children among all 15 to 49-year-old women and young women according to region and sector



Source: DHS

One consequence of rural SSA's high ideal fertility levels is a slower decline in national levels of fertility, although this clearly depends on the share of women in the rural sector. As urbanization levels rise over time, the weight of rural fertility will eventually become smaller. Serious debate exists about urbanization levels for SSA with some questioning data quality and arguing that urbanization in SSA may already have slowed considerably (Beauchemin, 2011; Bocquier, 2004; Potts, 2009). While this is beyond the scope here, such a slowdown may well underlie part of the stagnation that has been identified in SSA national fertility level stalls (Shapiro and Gebreselassie, 2013; Shapiro and Tambashe, 2000).

In addition to slowed urbanization having a potential role in stalled fertility, additional unique features of urbanization in SSA may help to explain the large sex ratio gap that has emerged. The sex ratio gap between urban and rural sectors for ages 15 to 24 and more broadly 15 to 64 are quite different in SSA relative to those observed for other developing regions. While these are shown earlier in detail (see figure 7 above), the overall aged 15 to 64 sex ratio in urban SSA is 1.05 and in the rural sector it is 0.96. In comparison, for the developing world as a whole, the urban sex ratio is estimated at 1.05 and the rural at 1.02.

Net rural-to-urban migration has been shown to play a key role in age structure differences across sectors in SSA (Menashe-Oren and Stecklov, 2018). Relatively high rates of male migration to the urban sector are partly responsible for creating these unique age structures. The underlying explanation may be that urbanization started but without sufficient structural transformation in SSA (Gollin et al., 2016). While food prices have risen, many urban families struggle to make ends meet and rural families remain predominantly agricultural. Although there has been some feminization of agriculture (Casale and Posel, 2002; Lastarria-Cornhiel, 2008), the rural transformation is slowed because it is primarily male labour that leaves the rural sector. In some cases, men in cities may drain

capital accumulation that should otherwise be invested back into the rural sector. Furthermore, the demographic dividend effects of age structure shifts (see below) will be reduced if women are not incorporated into labour force or are stuck with low productivity. Poverty in the rural sector means individuals will not be saving and contributing to a second demographic dividend unless conditions are altered.

3.2 The demographic dividend

One direct consequence of the mortality and fertility transitions is that population age structures typically undergo a period of intense change as the proportion of the population in different age groups fluctuates over time (Coale, 1972; Keyfitz, 1968). The shifting age structures at the national level are well known but only recent work has expressed how these imbalances are further connected – and perhaps intensified – by the urban transition (Dyson, 2011; Menashe-Oren and Stecklov, 2018). The consequences of these age structural changes, particularly of lower dependency ratios along with youth bulges, have received both positive and negative attention in the media as well as in the scholarly literature.

On the negative side, the dramatic growth of the youth population in both the rural and the urban sectors has raised concerns about whether high shares of young men facilitates violence and political instability (Cincotta et al,. 2003; Goldstone, 2002; Mesquida and Wiener, 1999; Urdal 2004, 2008). Concern with youth bulges in developing countries is often focused on urban youth bulges because the demographic transition typically occurs more quickly in the urban sector than in the rural (Dyson, 2011; Montgomery et al., 2003). Furthermore, rural-to-urban migration occurs primarily in young ages, accelerating the youth bulge in cities (Montgomery et al., 2003). Recent evidence from SSA indicates that youth bulges in cities, whether composed primarily of rural-to-urban migrants or not, may not have the anticipated impact on social unrest (Menashe-Oren, 2017). Notwithstanding, rapidly growing, young rural age structures may create even stronger migratory flows to cities and exacerbate urban challenges. Alternatively, rural bulges may also lead to unrest within the rural sector, especially when other factors are at play, such as limited resources and ethnic fractionalization.

On the positive side, the economic consequences of concentrated youth populations and their implications for dependency ratios and economic growth have been the focus of greatly expanded attention over the past two decades (Bloom et al., 2003; Lee, Mason and NTA Network, 2014). Much of this interest centres on the demographic dividend, which focuses on the value of age structural shifts in terms of potential economic growth during particular periods of the demographic transition (Bloom et al., 2003; Lee and Mason, 2010). The argument for the first demographic dividend is that over the course of transition from young to old age structures, countries pass through a phase with relatively low dependency ratios – with fewer children and a small elderly population - which may allow them to enjoy greater rates of capital investment and reap higher levels of economic growth. This period of reduced dependency ratios, which is transitory and typically lasts several decades, is argued to have played an important factor in growth for a number of Asian states (Mason, 2005). A second demographic dividend may also arise later in the transition – a point discussed in more detail below.

Achieving the first demographic dividend is a direct consequence of economic support ratios, which are calculated by multiplying the age- and sex-specific labour income profiles by the age and sex structure of a population (Mason et al., 2017; Prskawetz and Sambt, 2014). Yet, the dividend is not exogenous to local institutions, public policy and demographic behaviours (Bloom et al., 2003). Consumption and production profiles may be deeply affected by the ability of the workforce to incorporate individuals, by the productivity levels of individuals in the workforce that are constantly shifting with age, as well as according to where individuals are located relative to labour market opportunities. Macro-simulation models on African countries highlight the importance of investments in

human capital for achieving the dividend (Drummond et al., 2014). Furthermore, in some contexts such as India, failure to address the absence of women from labour markets and ongoing wage discrimination may complicate the chances of reaping a large dividend (Desai, 2010). Whenever structural transformation unfolds and certain groups, such as women, are not sufficiently incorporated in the new and emerging economic system, the benefits of the demographic dividend may be reduced.

We focus on two key points related to the debate on the demographic dividend that are of particular relevance in considering development, youth and rural society. The first involves the weight of youth in the overall calculation of the dividend and reinforces the key value of investing in youth populations throughout the country. The second focuses on gaps in age and sex structures across rural and urban sectors and on whether this information can be used strategically in order to benefit from the first demographic dividend.

Our calculations, based on URPAS data, show that the youth (15 to 24-year-olds) comprised 35 per cent of the SSA working-age population (15-64) in 2015 and 26 per cent of the working population for the less developed regions as a whole. Given that youth account for such a large share of the working population, small changes in their productivity levels will generate relatively large value for growth. Thus, states should focus heavily on enhancing the potential through investments in youth. One clear focus should be human capital accumulation to raise productivity upon entry into the workforce. Of course, debates continue about how to achieve increased schooling in poor societies and understanding the link between schooling and labour market participation of youth (Ravallion and Wodon ,2000; de Janvry et al., 2006). If youth remain outside the labour market due to schooling investments, their immediate incomes may be lower, but their later productivity may be higher leading to higher long-term economic growth (Ahmed et al., 2016). However, if youth are neither in schools nor in the labour market their potential contribution may be lost or diminished. In understanding the role of youth, it is clear that it is through increased schooling, job preparation and labour market conditions that the first demographic dividend may be most efficiently captured.

Unfortunately, youth employment, which plays a key role in achieving a strong first dividend, remains a challenge across much of SSA (Filmer and Fox, 2014). Thus, despite higher shares of youth and lowering dependency ratios, the economic magnitude of the demographic dividend may not reach its potential. This may be particularly relevant to the rural sector. Although evidence shows that agricultural productivity levels are not nearly as low as once thought compared with urban levels (McCullough, 2017), state policies are needed to expand rural market opportunities to increase overall production and raise rural wages. These efforts will need to face increasing youth disenchantment with spending their lives in commercial farming (Bryceson, 2002). The alternative is bleak: for example in Ethiopia where land markets are tightly regulated by the state, rural youth may see little future in remaining in agriculture and this may stimulate more out-migration as well as unemployment (Bezu and Holden, 2014).

Alongside the evidence pointing to dramatic demographic changes in Africa potentially paving the way for states to benefit from a substantial demographic dividend, more attention should be paid to the rural-urban gaps – both demographic and economic – and their implications. This is part of a broader process of understanding how lags in the transition across the rural and urban sectors could reduce economic growth and increase inter-sectoral wage inequality (Williamson, 2013). Concern with gaps between the sectors becomes particularly relevant when adopting a sub-national perspective on the demographic dividend. Regardless of whether economic growth rates are calculated at the national level, strategies to maximize growth rely on states' investment practices that aim for long term growth outcomes. From the perspective of the dividend, alongside the demographic gap dividing the sectors, equally stark differences in economic behaviour patterns by age and sex divide the two sectors. A sub-

national approach to the demographic dividend can contribute to more efficient planning for how and when resources should be optimally targeted for maximizing benefits. This sub-national perspective builds on the fact that the two sectors go through the demographic transition at different times and different rates.

The divergence of rural and urban population structures over the course of the demographic and urban transition, seen clearly in the case of SSA, make the benefits of a sub-national approach more salient. While economic growth at the national level will be a product of the growth rates in each sector, investments in education, job creation and productivity growth should consider where forthcoming age structures will be more conducive to growth and dividends in order to maximize total growth. More attention to local demographic variability would allow a more efficient approach to capitalizing on the first demographic dividend. Thus, all else equal, more resources should be geared to human capital investments and preparing markets for future large cohorts in areas that remain young while investments aimed at more immediate economic returns might be targeted to sectors or areas already in the midst of lower dependency ratios and enjoying more immediate dividend returns.

Because 55 per cent of the youth population of SSA remains in the rural sector, with signs of slower migration potentially indicative that this share will not change dramatically in the coming decades, strategies must consider two further points. One is that the growth will depend considerably on the extent to which both rural and urban youth are integrated into productive labour. This will involve human capital investments and labour employment strategies in both regions, although not necessarily with the same priority, and a recognition that rural youth that migrate to cities will tend to be more productive with better education and will contribute more strongly to future growth. Agricultural transformation may too play a key role as high shares of rural youth need to be met with productive opportunities for the dividend to be reaped. Two, that total rural productivity for youth and young adults will likely depend even more strongly on what can be done to enhance the human capital and labour tracks for women. As noted earlier, women comprise large shares of the rural population, but this share is particularly high in the young adult age groups so their labour outcomes have a very large impact on the dividend.

While most of this discussion is focused on the first demographic dividend, in part because many developing societies have yet to reach this stage, the second demographic dividend may play an even bigger role for future economic growth (Mason et al., 2017). A second demographic dividend is enabled if stable and efficient financial markets and regulatory and legislative structures come into effect and allow states with high shares of working-age populations to see higher rates of savings for retirement and subsequently capital growth (Mason, 2005). The second dividend builds on lower rates of fertility and increased life expectancy, “which create powerful incentives for individuals to accumulate assets to provide for old age” (Mason and Lee, 2006). In contrast to the transitory nature of the first demographic dividend – transitory because it builds during a discrete period in the demographic transition when dependency ratios are low – the second demographic dividend is due to increased accumulation of assets and may allow income to stabilize at permanently higher levels. Furthermore, the second demographic dividend may benefit even more strongly from a sub-national perspective because it offers more opportunity for policy changes to have a long-term impact.

Several key factors determine whether the second demographic dividend will ultimately be achieved. Individuals must recognize substantial increases to life expectancy and raise their awareness of the needs for old age. Increased life expectancy, particularly in the rural sector, is one valuable dimension to rural transformation (IFAD, 2016). Alongside this increased life expectancy, working-age adults must not expect to rely on family or government transfers to fully support their needs later in life. A

reduced reliance on family transfers for old age is likely to be affected by ongoing declines in fertility, which mean that every ageing adult will ultimately have few working age children to support them in their old age. Likewise, if PAYGO type pension systems are established, the incentive to save for one's own retirement may be substantially reduced (Mason and Lee, 2006).

The broader process of structural transformation that can influence the second demographic dividend is the ability to harness the savings generated in the rural sector. The effects of "…corruption and rent seeking by an extractive ruling elite" could further threaten the potential for dividend gains (Bloom et al., 2017). Open access to trading markets for rural (as well as urban) production output is clearly one key part of rural transformation that facilitates wage increases in the rural sector and thus increased savings. Ignoring these assets and failure to incorporate them into the market would reduce the second demographic dividend.

State policies that help promote savings institutions in the rural sector and mobilize investments may be an essential step. Research from Western Kenya highlights some of the challenges to expand savings among rural households where there is little confidence in formal government institutions (Dupas et al., 2012). However, research also indicates that households' savings can be increased (Dupas and Robinson, 2013), and a recent meta-analytic study shows that expanded supply of savings opportunities for households in SSA can raise savings levels (Steinert et al., 2018). Building on these efforts and increasing investment so that the rural population, particularly young working adults including youth, increase life cycle savings is one important step. Creating these opportunities in the rural sector before the dependency ratio falls will create strong conditions to enjoy the benefits from a second demographic dividend.

4. Conclusion

Much attention has focused on youth bulges and their economic growth potential as well as their threats to civil order in the urban context, while the rural youth population has received relatively little attention. This chapter focuses on rural youth demography and makes the case that today's rural youth populations bear the consequences of decisions made, both at the household and institutional levels, for yesterday's children. Similarly, today's rural youth population cannot be viewed in isolation from the urban youth population. Core forces such as structural and rural transformation create both opportunity and challenges for rural youth and link urban and rural youth together – whether because they are part of kinship networks, because they are jointly raising families across these great distances, or because they are partners in exchange and/or support networks.

There are several clear lessons to be understood for the future of rural youth demography in developing countries. One is that, in the coming decades, the largest share of youth population of the Global South will be found in SSA. This raises the importance of key transitions facing youth including the transition into family formation, the migration steps that so many take, and entry into the labour force. These factors are deeply tied to the process of structural transformation (IFAD, 2016). As agriculture plays an increasingly small role in employment, and as its role in the lives of youth and young adults becomes less obvious (Sumberg et al., 2012), more youth will likely find themselves seeking non-agricultural jobs, even in the rural sector. Facilitating this shift will be a key challenge in all societies and is a major priority in SSA where youth populations are to grow dramatically in the coming decades.

A second lesson is that population age and sex structures in certain regions have become extremely imbalanced across the rural and urban sectors. This imbalance across sectors is partly due to different vital rates but it is exacerbated when sex ratios are examined by age for each sector. Thus, in some regions such as SSA and APR, women are far more likely to be living and working in rural areas while

young men are much more likely to be in cities. Analyses indicate that these imbalances are largely caused by higher rates of rural-to-urban migration for young men. The implications of these imbalances may not yet be obvious. However, they have immediate impacts on the roles played by women in the rural economy – both in and outside of agriculture – as well as in the family. Some of this is already evident in the increasing feminization of agriculture. Whether these processes lead to longer-term impacts on women's status remains to be seen. On the one hand, women are able to take more control of finances and decision-making. However, they may end up needing to take care not only of their own children but also of the parents of their urban-residing spouses. Thus, these types of constraints may also impose heavy and unanticipated burdens on women. Efforts by states to invest in rural women may do well to explore investments that accommodate some of the increased burden of care imposed on women and enable them to be more productive in the labour force.

Finally, our study also focuses attention on the critical period of the demographic dividend. We argue that policies that help increase the productivity of rural youth through more and better educational investments at earlier ages and that help to incorporate them into productive jobs as they enter the labour force, will be sure ways to increase the first demographic dividend. This also means that efforts to increase female productivity should be a principal concern. Alongside these strategies, rural sector households must become confident in their options for life cycle savings and this will depend to a great extent on how credit markets develop. Here, policies that create greater trust and confidence in savings institutions – and this will depend on performance and accountability – will help foster a behavioural shift by households. The second demographic dividend, which can produce a permanent increase in economic growth, may depend on the ability of states to enact such policies.

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Appendix - Data and Methodology

This background paper builds mainly on data from two sources- 1) United Nations Population Division Estimates of Urban and Rural Populations by Age and Sex (URPAS) for all countries in the world (United Nations, 2014b) and, 2) Demographic and Health Surveys (DHS) for many developing countries (ICF International, 2018). The URPAS data covers five-year intervals between 1980 and 2015 and are based on the observed changes in the proportion of the population living in urban areas by sex and five-year age groups. Each country uses its own definition of urban, thus the grouping of countries into regions is not exact. In addition, the binary definition of urbanicity often conceals great variance within different types of settlements- differences between capital cities and "middle" settlements, and emerging urban centres from the growing rural sector. We thus employ the DHS from 1986 to 2014 where urbanicity can be defined according to four categories of urbanicity – main cities (capital and large), small cities, towns and rural (countryside) – explained in Table A1. The surveys with this rural/urban categorization, and which are included in the analysis, are presented in Table A2. Clearly, in earlier years, there were fewer surveys and data referring only to 1980 need to be treated with caution, as they represent fewer countries (and none in NEN). The number of surveys in SSA is much higher. However, this in part is due to multiple surveys within each country. In fact, because of this, some countries may be weighing our results more than others.

To calculate fertility of women over the five years preceding the date of survey, the TFR2 function was used with the DHS data in Stata 11. Child mortality was calculated from the DHS through direct estimation from birth histories over ten years preceding the date of the survey, also in Stata 11. R was used in analysis of URPAS data.

Table A1. DHS definitions of urbanicity

	Number surveys	Typology				
Common code (v026)	99	0 Capital, large city				
		1 Small city				
		2 Town				
		3 Countryside [Rural]				
Capital and/or small cities are used by name	29	Bangladesh (4), Morocco (2), Albania, Burkina Faso (5),Congo, Ivory Coast, Cameroon, Gabon, Kenya, Liberia (2), Mali, Nigeria, Niger, Rwanda, Sierra Leone, Senegal (2), Tanzania, Uganda, Zambia				
Other	5	Dominican Republic	Ghana	Malawi	Haiti	Haiti
		3 Countryside	1 City	0 Capital	metropolitan area	capital, large city (without camp)
			2 Town	1 Major city	cape haitian-gonaives- les	small city (without camp)
			3 Countryside	2 Town	town	countryside (without camp)
				3 Rural	countryside	camp urban
						camp rural
Different variable (v134) and by size of settlement	15	Kenya, Uganda, Liberia, Mali, Sudan, Togo, Zimbabwe, Thailand, Indonesia, Bolivia, Brazil, Columbia, Dominican Republic, Peru, Guatemala				
		1 City				
		2 Town				
		3 Countryside				
Different variable (v134) and by size of settlement	1	Mexico				
		1 less than 2,500				
		2 2,500 - 19,999				
		3 20,000 and above				
		4 areas				
Total	**149**					

Table A2. DHS surveys by decade and region

APR	LAC	NEN	SSA		
1980s					
ID	BO		KE		
TH	BR		LB		
	CO		ML		
	DR		SD		
	GU		TG		
	MX		UG		
	PE		ZW		
1990s					
BD3	BO3	EG2	BF2	MD2	TG3
IA2	BR2	EG3	BF3	MD3	TZ2
IA3	BR3	JO3	BJ3	ML3	TZ3
ID2	CO2	KK3	CF3	MW2	UG3
ID3	CO3	KY3	CI3	MZ3	ZA3
NP3	DR2	MA2	CM2	NG2	ZM2
PH2	DR3	TR2	CM3	NI2	ZM3
PH3	GU3	TR3	ET4	NI3	ZW3
PK2	HT3	UZ3	GH2	NM2	ZW4
VNT	NC3	YE2	GH3	RW2	
	PE2		GN3	SD	
	PE3		KE2	SN2	
	PY2		KE3	TD3	

APR	LAC	NEN	SSA	APR	LAC
2000s					
BD3	CO4	AM4	BF4	NM5	
BD4	DR4	AZ5	CD5	RW4	
BD5	DR5	EG4	CG5	RW5	
IA3	HN5	EG5	CM4	SL5	
IA5	NC4	MA4	GA3	SN4	
ID4	PE4	TR4	GN4	SZ5	
NP4	PE5		KE5	TD4	
NP5			MD4	TZ5	
PH4			ML4	UG4	
PK5			ML5	UG5	
VNT			MW4	ZM4	
			MZ4	ZM5	
			NG4	ZW5	
			NI5		
2010s					
BD6	PE6		BF6	GN6	
PK6			CD6	MW5	
			CG6	NI6	
			CI6	TZ5	
			CM6	UG6	
			GA6		

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