Achieving the Demographic Dividend
Learning from the Experience of Bangladesh, Chile, Ethiopia, Rwanda, & Thailand

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The purpose of this case study is to examine and compare evidence from five countries (Bangladesh, Chile, Ethiopia, Rwanda, Thailand) across three regions to better understand the policies and programs they have implemented towards optimizing prospects of a demographic dividend.

Bangladesh, Chile and Thailand are already at a mature stage, while Ethiopia and Rwanda are potentially on the edge of realizing a demographic dividend in the years ahead. Despite vast differences in geography, culture, history, industry, etc. across the five countries examined in this case study, the common denominator is their progress in reducing child mortality and fertility rates, improving female educational enrollment and attainment, as well as diversifying economic models and increased economic participation by women. Each these factors correlates with accelerated economic development, specifically GDP per capita growth. All countries examined integrated their social sector plans into their long-term economic development plans. This suggests an underlying recognition of the importance of social sectors as drivers of economic growth

Demographic Dividend

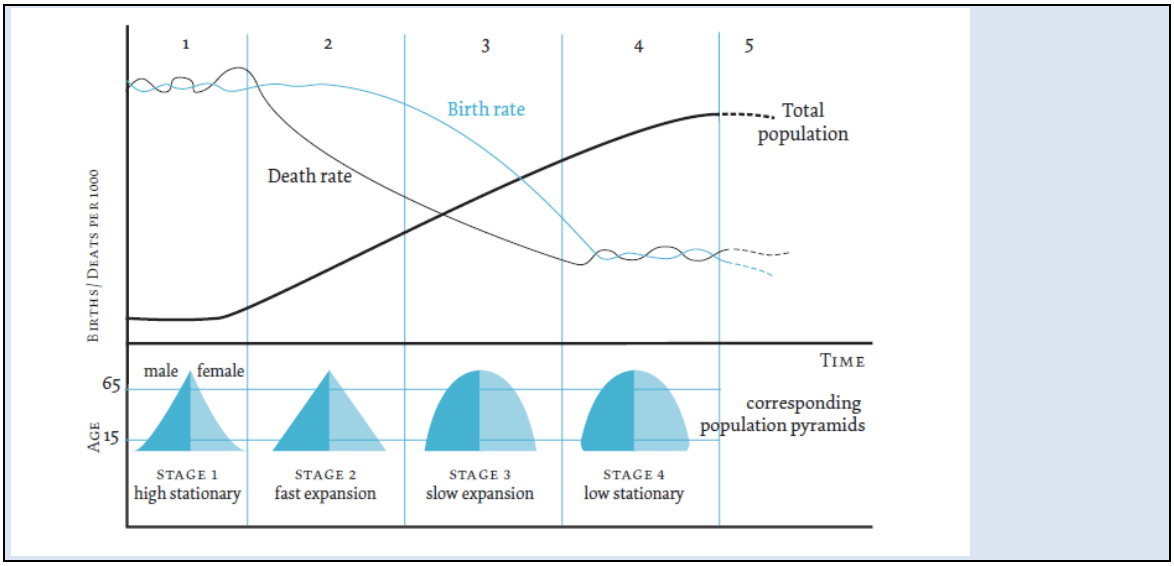
The **demographic transition** is an academic concept used to describe changing patterns of fertility, mortality, and population growth exhibited by countries around the world over the past two centuries. It is most commonly used to identify the development stage and trajectory of a country as it relates to its population structure.

In Detail: The four stages of demographic transition

Figure 1 outlines the four stages of the classical model of demographic transition. **Stage 1** (high stationary) is characterized by a high birth rate and a high death rate. This results in slow and sometimes fluctuating population growth, which has historically been due to wars or pandemics. **Stage 2** (early expanding) is characterized by a high birth rate and a falling death rate, which has historically been due to increases in access to medicine, sanitation, and nutrition, and particularly driven by decreases in child mortality. This stage leads to a period of high population growth and is immediately followed by **Stage 3** (late expanding) where the birth rate falls towards the death rate, often due to lower child mortality from the previous stage and increase in family planning, resulting in moderate population growth. **Stage 4** (low stationary) occurs when birth rates reach the same level as death rates and population growth slows. Resources are allocated towards greater investment in fewer children resulting in smaller, more educated families with greater workforce participation.

Figure 1: The demographic transition model

(Source: World Economic Forum, 2015, https://www.weforum.org/agenda/2015/11/5-trends-for-the-future-of-economic-growth/)

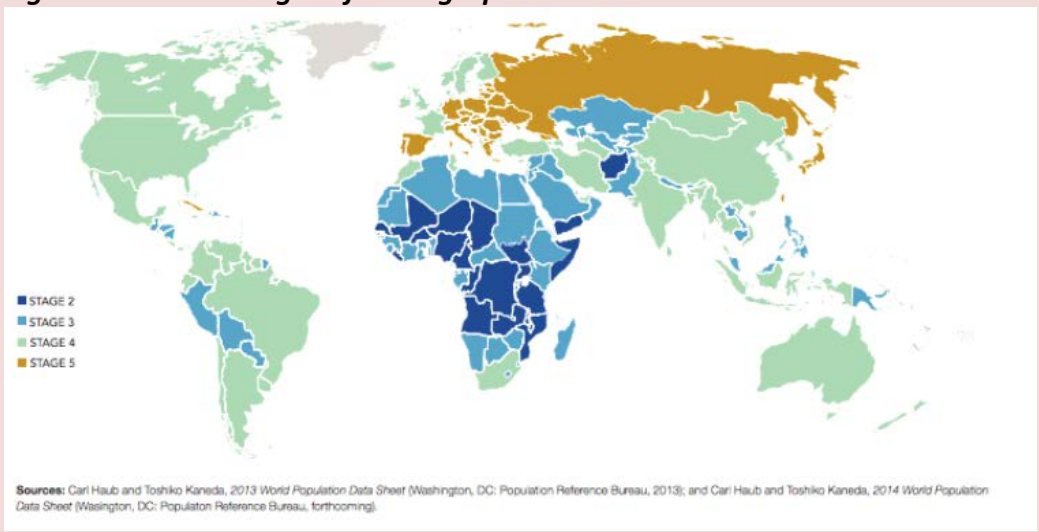


The **demographic dividend** is used to describe an opportunity for accelerated economic growth that a country can experience as it moves through Stages 2 and 3 of the demographic transition. Specifically, when birth and death rates fall in succession they give way to a bulging youth cohort in a population's age structure. This change yields a smaller child dependency ratio, or the proportion of the population under age 15 relative to the working age population aged 15 to 64. During this period, assuming an appropriate policy environment, there are more people in the labor force who, because they are better off financially, generally have smaller families and more resources to invest in their children. This moment is known as the demographic dividend – a period when a country can reap rapid economic growth if it makes the right policy and investment choices. The demographic dividend tapers off when the child dependency ratio ceases to decrease and the bulging cohort ages out of the workforce.

In Detail: World progress through the demographic transition

Historically, many developed countries have experienced changes in fertility, mortality, and population growth as outlined by the demographic transition but they have varied in terms of timing and pace. Most of these countries are in Stage 4 or some may have moved into a possible fifth stage of transition where birth rates fall below death rates resulting in population shrinkage. Conversely, many developing countries are moving slowly or stalled in around Stage 3 while the least developed countries remain in Stage 2. Figure 2 outlines various stages of demographic transition across the world.

Figure 2: Various stages of demographic transition across the world

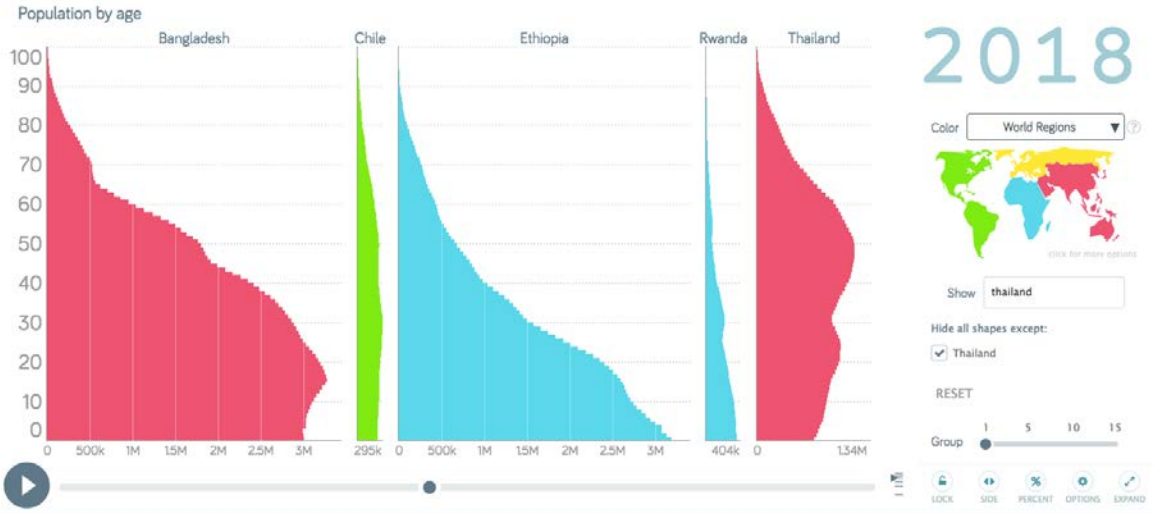


Sources: Carl Haub and Toshiko Kaneda, *2013 World Population Data Sheet* (Washington, DC: Population Reference Bureau, 2013); and Carl Haub and Toshiko Kaneda, *2014 World Population Data Sheet* (Wasington, DC: Populaton Reference Bureau, forthcoming).

Within a supportive policy environment, the economic benefits of the demographic dividend are driven by three key factors: labor supply, personal savings, and human capital. **Labor supply** increases both due to the increase in working-age population relative to dependents and also the increase in female workforce participation that comes with decreased family size. This is magnified by the fact that workers may be more educated having been brought up in smaller families. **Personal savings** increase because the healthier, working-age population invests less in their children as they age, and save more to prepare for longer retirements. As the population lives longer and healthier lives, **human capital** becomes an asset as people deepen their investment in the health and education of their children. Also, attitudes about education, family, the role of women, and other social and political issues evolve. It is important to note that the economic benefits of the demographic dividend can only be captured if there are sufficient employment opportunities to absorb the increase in labor supply and translate it into increased economic productivity. Furthermore, the long-term implications of achieving the demographic dividend must be considered. While an increase in working-age population can drive increased incomes, it is also accompanied by an increase in public costs, as the population ages and demand for healthcare and pensions increase.

The countries examined in this case study are at different stages of demographic transition. They have achieved varying successes and encountered challenges in their pursuit of the demographic dividend (Figure 3). Rwanda and Ethiopia's population pyramids have wide bases signaling high population growth rates and high dependency ratios. Increased access to and acceptance of family planning can narrow these bases to reduce dependency ratios and allow for a demographic dividend in the future. Bangladesh has a visible working-age population 'bulge' and can achieve economic benefits from it if it can further narrow the base of its pyramid with stronger family planning programs. Thailand has an older working-age 'bulge' that is nearing retirement fresh from completing its demographic dividend while Chile has a more streamlined pyramid that has since completed the demographic dividend, but both countries will face challenges as their ageing workforces enter retirement while experiencing longer life expectancies.

Figure 3: Comparison population pyramids, 2018

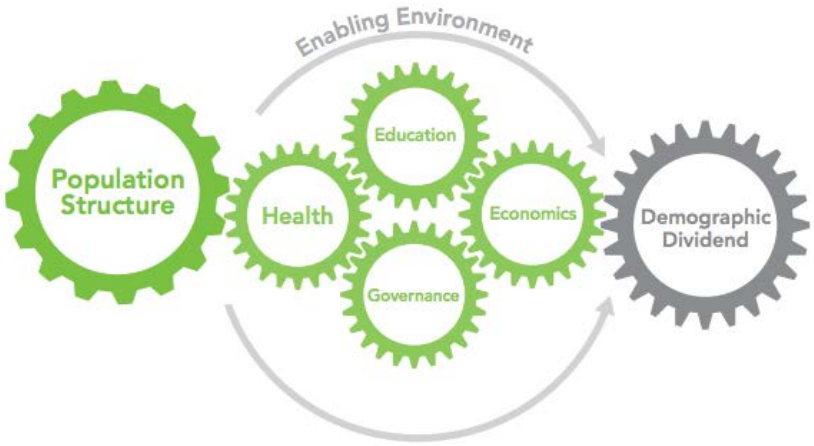


Source: Gapminder, 2018. http://bit.ly/2Ea6Iwd

Investments to achieve the demographic dividend

The ability of a country to achieve a demographic dividend and the extent to which it reaps economic benefits is dependent on the policy environment (Figure 4).

Figure 4: Policy interventions facilitating a demographic dividend



Source: Gribble JN, Bremner J. Achieving a Demographic Dividend. Population Research Bulleting, 2012.

Health

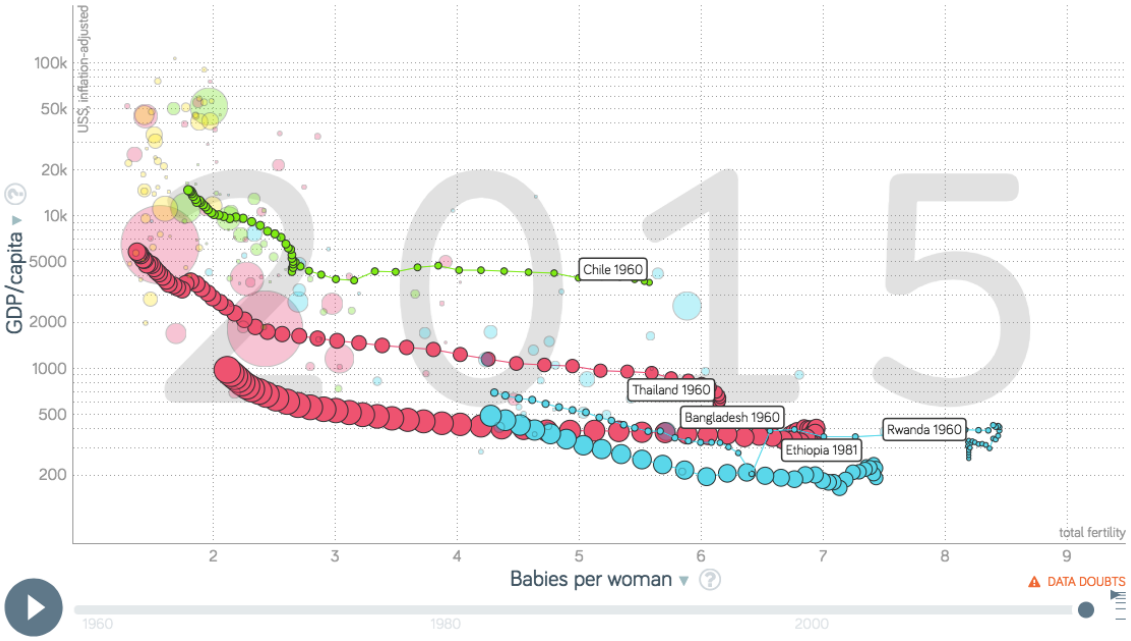
To facilitate the transition out of Stage 1 of the demographic transition, countries must support policies that reduce birth *and* death rates. **Family planning** is the starting point for any progress towards the demographic dividend because without it fertility cannot be effectively reduced. Men and women, especially the poor, need access to voluntary family

planning information and services to avoid unintended pregnancies so they can invest more in the health and education of fewer children (Figure 5).

Ethiopia has experienced increased contraceptive use from 4.2% in 1990 to 34.2% in 2014 and reduced fertility from 5.9 children per woman in 2000 to 4.1 in 2014. A driving force behind this achievement was the implementation of the Health Extension Program (HEP) to train and deploy over 33,000 paid health extension workers to provide basic health services over 15,000 health posts in rural areas. This program has been credited with increasing contraceptive prevalence by 17% and is the foundation for Ethiopia's Health Development Army (HDA) that promotes contraceptive use and other essential practices through social mobilization of volunteer 'model families.'

Similarly, Bangladesh has experienced fertility declines from 6.3 births per woman in 1975 to 2.4 in 2015 which has been strongly linked to its increase in contraceptive prevalence rate (CPR) from 7.7% to 61.2% over the same time period. This progress has been largely driven by interventions such as increased contraceptive method mix, introduction of menstrual regulation, integration of maternal and child health services with family planning services at the sub-district level, increased community outreach activities to generate demand, and financial incentives to have fewer children until the mid-1990s as well as the involvement of non-state providers in the early 2000s.

Figure 5: Total fertility (babies per woman) vs. GDP per capita (US$, inflation adjusted), 1960 - 2015



Source: Gapminder, 2018. http://bit.ly/2C2WLim

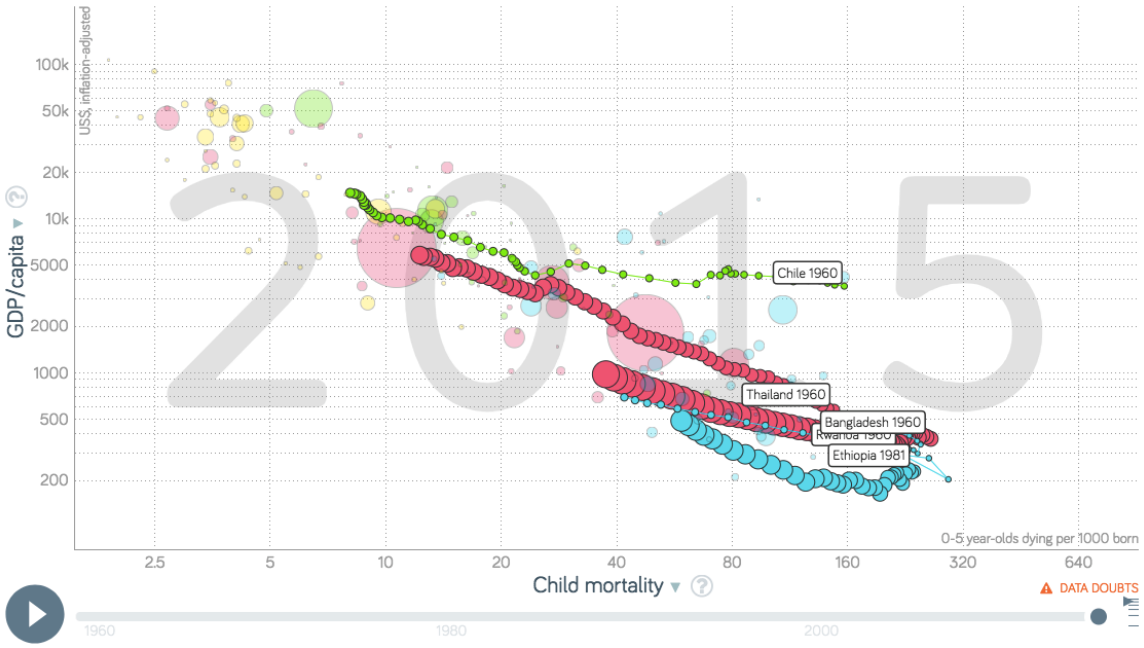
Investments in **child health** are also critical because reduced child mortality motivates reduced fertility and increased desire for family planning information and services. Immunization and nutrition programs can be particularly beneficial because they address

preventable illness, improve cognitive development, and prepare children to attend school more frequently, attain higher levels of education, and eventually contribute more to the workforce (Figure 6).

Rwanda has made significant progress in improving its child health, even achieving its MDG 4 goal to reduce under-five mortality by two-thirds between 1990 and 2015. One strategy it implemented to achieve this involved investing in systems-building approaches such as developing its community health workforce which now has over 45,000 community health workers (CHWs) countrywide, with one male and one female CHW providing care in each village. These CHWs are credited with implementing national prevention programs such as mosquito net provision, immunization campaigns, medical follow-ups, and family planning at the community and village levels.

While health and economic opportunity are quite interconnected, Thailand's investment in increasing the quality of maternal and child health care along with its improving economic status in the 1980's helped significantly reduce infant and maternal mortality. The universal health insurance program that was introduced later in 2002 has been credited with increasing access to health care and reducing poverty through decreasing health spending by poorer populations and reducing families facing catastrophic illnesses.

Figure 6: Child mortality (under-5 mortality rate) vs. GDP per capita (US$, inflation adjusted), 1960 - 2015



Source: Gapminder, 2018. http://bit.ly/2C4uaZW

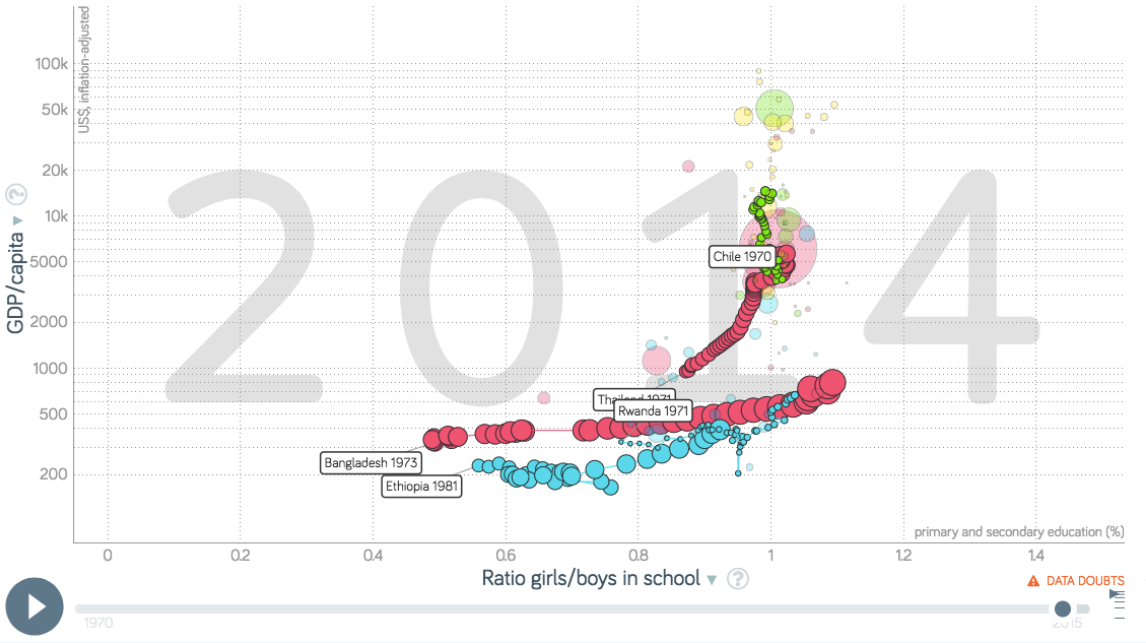
Education

To capitalize on the changing population structure that results from reduced fertility and mortality, countries must support policies that prepare the dividend cohort to achieve maximal economic gains. Policies that increase **access to education** are critical for all

children, particularly girls for whom secondary school education can help delay marriage and pregnancy (Figure 7).

Rwanda has supplemented its improvements in child health by achieving near universal primary education with net enrolment increasing by 30% to 95% between 2000 and 2015. Critical to this success is the fact that these enrollment rates are also nearly equal in terms of male and female enrolment. However, primary completion rates and enrolment in secondary and tertiary education are significantly unequal. Thailand has focused on increasing access to education in rural areas by expanding rural school coverage and rural teacher recruitment. However, Thailand continues to struggle with the quality of its education system and its graduates are generally not well equipped to compete in a knowledge-based economy.

Figure 7: Gender parity in education (ratio girls/boys in school (%), primary and secondary education) vs. GDP per capita (US$, inflation adjusted), 1970 - 2014



Source: Gapminder, 2018. http://bit.ly/2C49UHT

Additionally, **skills-training** is essential to equip the future workforce to changing labor market needs. The type of skills-training required can change as economies grows and diversify.

Ethiopia's Technical Vocational Education and Training (TVET) program is a good example of skills-training policy at work. TVET is a key part of the country's capacity building program, whose aim is to motivate entrepreneurship, create job opportunities, and train mid-level industry workers. Ethiopia aims to increase the number of trainees in its TVET program to over 600,000. Though implementation has been slow, Bangladesh also aims

to support technical and vocational education but it has a particular focus on increasing female enrolment and achieving gender parity in tertiary education and literacy.

Governance

As the demographic transition progresses and households become smaller and more educated, their disposable income and savings increases. Governance structures such as established legal and regulatory systems, particularly with regards to **contract law** and **financial standards**, can help attract domestic and foreign investments which can create jobs and stimulate economic growth. Conversely, systemic **corruption** can significantly hinder progress by diminishing trust in systems and discouraging investment. **Gender equity** policies, such as access to credit and property rights, can also foster the demographic transition by enabling women to achieve their desired fertility and free them up to participate in the workforce.

Bangladesh specifically aims to improve its governance through a legal aid program; enhanced integrity and corruption control regulations; improved Right to Information laws; and reforms to make the parliamentary process more effective. Ethiopia is working to improve governance by highlighting women and youth empowerment as a crosscutting issue in its current national development plan. It aims to promote gender equity in education, employment, asset ownership, access to capital, etc.; supportive environment and financial aid for female students; increased number of female teachers; eradication of harmful traditional practices; access to capital for youth; and more. Chile ranks high in terms of democracy and rule-of-law which has fostered a very active private sector and supported its economic growth. It also has an independent central bank and special courts to oversee competition.

Rwanda has enshrined the importance of gender equity in its constitution and invested heavily to reach a ranking of fifth in the World Economic Forum's 2016 Global Gender Gap Index. Nearly two-thirds of seats in Rwandan Parliament are filled by women, female labor participation is 54% with the smallest salary gap between men and women in the world.

Economics

Effective economic policies can catalyze the demographic transition in a number of direct and indirect ways. These include **labor market flexibility** to respond to a diversified economy; **openness to trade** to bring local products to international markets and vice versa; **incentives** to encourage savings and investment; and physical and communications **infrastructure** to support domestic and international trade. Without the synergy of effective health, education, governance, and economic policies, countries cannot optimally take advantage of a demographic dividend as they move through the demographic transition.

Economic policies and programs to achieve the demographic dividend can vary based on the stage of a particular country. Rwanda and Bangladesh have implemented programs to support grassroots economic development such as Grinka (one cow per poor family) in

Rwanda and "One House, One Farm" in Bangladesh which helps small hold farmers create village cooperatives to alleviate poverty and develop sustainably. Thailand's shift from an agriculture to more industry-based economy increased economic productivity and subsequent production for export. Health insurance reduced the likelihood of workers being prevented from going to work due to illness thereby improving labor productivity. From a more outward-looking perspective, Chile has focused on reducing tariffs and signing numerous free-trade agreements to support international trade.

General Strategies

All countries examined have made an effort to **integrate** their **social sector plans** into their long-term economic development plans. Thailand included education but not health in its first two National Economic Development Plans but since the 1970s has continued to include both. This suggests an underlying recognition of the importance of social sectors as drivers of economic growth. Additionally, it suggests that they understand the intersectional nature of economic development and the role that social sectors such as health and education have to play. For example, Bangladesh explicitly states its goal of achieving the demographic dividend in its Five-Year Plan and considers its position in the demographic transition in its policy agenda.

Complementing vertical programs with **horizontal, capacity-building efforts** is a necessary approach. For example, Rwanda and Ethiopia have both invested heavily in human resources for health by strengthening their community health workforces. On their own investments such as these can increase the size of the health workforce, create jobs, promote health-seeking behavior, and improve health education among local populations. Arguably more important, however, is how these investments serve to support the implementation of vertical programs and magnify their potential effect. Ethiopia's Health Development Army has even gone a step farther to actively generate demand for health care at the grassroots level. Horizontal, systems strengthening programs can be put in place at any time (even before a country is ready to capture the demographic dividend) as they can serve to support and magnify the impacts of vertical programs that are targeted to moving through the demographic transition.

Some issues that promote success do not fall into any particular sector but rather affect many sectors in different ways. These **crosscutting issues** need to be addressed in a targeted and collaborative way. For example, gender equity persists as an issue in primary school enrollment to secondary school attainment to age at marriage to labor force participation to access to capital and more. Tackling such an issue requires joint effort across sectors to ensure that progress made in one sector is complemented by policies in another. Gender equity is of particular importance to the demographic dividend given the potential economic benefits to increased female workforce participation, but policies to maximize this benefit must cross sectors and target females across their lifecycle. Ethiopia and Rwanda both explicitly state efforts to address gender equity in a comprehensive way while Bangladesh is more focused on tackling it within the working age population.

Subnational variation is a universal concern. High-level political commitment is necessary to drive national progress, but a top-down approach is insufficient to move the entire country forward. Inequalities between rural and urban populations as well as between the wealthy and the poor exist in every sector and can be exacerbated by policies that are not sufficiently pro-poor. Rwanda experienced this after completing implementation of its national policy in 2002 that led to reductions in infant and maternal mortality, but also increased inequality and similarly, Ethiopia's 2010-2015 plans resulted in overall improvements, but no change in inequality.

Despite vast differences in geography, culture, history, industry, etc. across the countries examined in this case study, their progress in reducing child mortality, fertility, and improving female educational enrollment and attainment have all been correlated with economic development, specifically GDP per capita growth. Notably, all countries examined integrated their social sector plans into their long-term economic development plans. This suggests an underlying recognition of the importance of social sectors as drivers of economic growth.

The next section provides a more in-depth discussion of each country's progress and policy efforts towards achieving the demographic dividend.

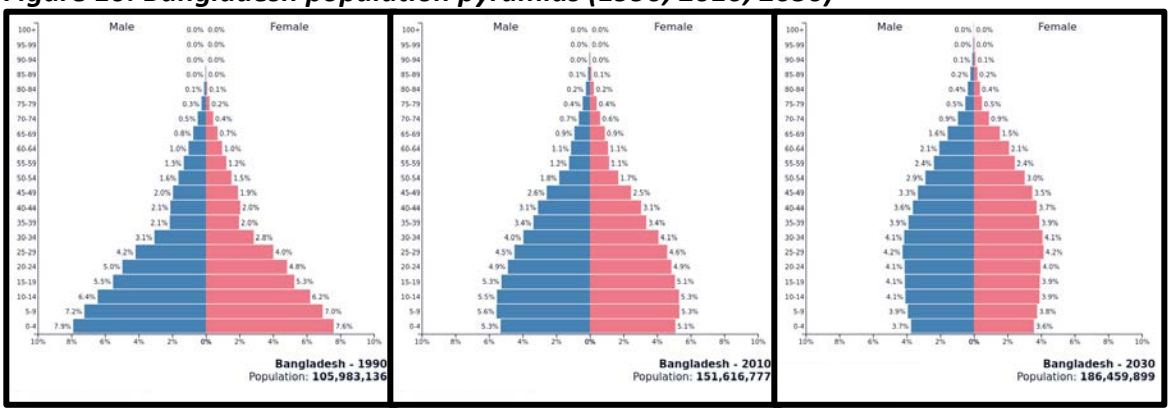
Country Cases

Bangladesh

Progress

Bangladesh is well into the demographic transition and its opportunity to take advantage of the demographic dividend is imminent. Bangladesh has already experienced decreased birth and death rates resulting in a dependency ratio of 54% and a population growth rate of 1.6% in 2014. To achieve this, Bangladesh maintained significant drop in under-five mortality from 146 deaths per 1,000 live births in 1990 to 46 in 2015, fulfilling its MDG target. The effect of these efforts are depicted by a bulging cohort in Bangladesh's population pyramid that is about to enter working age. Over the next three decades, it is expected that the proportion of Bangladesh's under-15 population will decline, the working age population will stabilize, and the elderly population will increase as the bulging cohort moves towards old-age. With declining fertility and increasing life expectancy, it is estimated that Bangladesh has 10 to 20 year window during which to take advantage of a favorable dependency ratio. It is estimated that by 2050 the elderly will make up almost 15% of the Bangladeshi population and old-age dependency will be greater than youth-dependency.

Figure 10: Bangladesh population pyramids (1990, 2010, 2030)



Bangladesh has experienced declines in fertility from 6.3 births per woman in 1975 to 2.4 in 2015. In western regions (Rajshahi, Khulna), the number of births per woman have already reached replacement levels (2.1) and if current family planning methods are sustained, the national average is expected to catch up by 2025. This overall decline in fertility has been strongly linked to Bangladesh's increase in contraceptive prevalence rate (CPR) from 7.7% to 61.2% over the same time period. However, eastern regions (Sylhet, Chittagong) experience lower levels of CPR and thus lag behind in reducing fertility. Despite this overall progress, there have been some setbacks. Half of all teenage girls have at least one child and early marriage remains common with 52% of Bangladeshis married by the age of 18 – the second-highest rate of child marriage in the world. While this is a decline from 66% a few years ago, in 2017 Bangladesh relaxed the minimum marital age of 18 for women to allow for "special cases" in the "best interests" of the adolescent. There are concerns that this new legal loophole effectively reduces the legal marital age to zero.

Bangladesh has primary net enrollment above 90% and secondary enrolment close to 60% with female primary enrollment exceeding male. On the supply side, poor quality and unskilled teachers persist as challenges. Bangladesh has a large migrant workforce that sends remittances exceeding $15 billion per year and households receiving remittances are generally better off. However, this workforce is stunted by poor formal education, minimal English skills, and few industry-specific skills, particularly in technology, resulting in low wages and exploitative work conditions.

Policy Environment

Bangladesh has implemented Five Year Plans to drive development and growth since 1973 (except for a seven-year period from 2003 to 2010 where it switched to three-year Poverty Reduction Strategy Papers). The Sixth Five Year Plan, the first after the hiatus, spanned 2011 to 2015. It aimed to achieve 7.3% annual GDP growth but actually achieved 6.3%. By the end of this period, the poverty ratio had declined to 25%. Digital Centers for government services were established in all (approximately 4,500) Union Parishads as well as 13,000 Community Clinics to provide greater access to services for poor and rural populations. More than 140 social safety net programs covering 25% of households have been implemented by the government and disbursed USD 1.6 billion to date. Additional programs such as "One House, One Farm," which helps small hold farmers create village cooperatives, provides them with skill development training on management and farming, and offers grants to ultimately alleviate poverty and develop sustainably; and "Food for Work," which since 1975 has been providing in-kind payments of wheat rather than cash to the rural poor during off-seasons for agriculture to provide them with food security and nutrition. Programs that disburse funds use e-payment systems to help recipients build credit and promote savings behavior, particularly among women. Additional social programs that Bangladesh has implemented include "Asroyan," which leases low-cost shelter in perpetuity to female household members; the ability to open bank accounts with only Tk 10.00 (equivalent of USD $0.125) and transfer of government assistance through those bank accounts; and the Rural Savings Bank where government contributes an equity fund equal to a household equity contribution and further matches it with a low-interest loan, thereby enlarging the trading capital of a household by three times.

The most recent plan, known as the Seventh Five Year Plan: Accelerating Growth and Empowering Citizens, covers 2016 to 2020. The key objectives of this plan are to increase annual growth in an inclusive, pro-poor, and environmentally sustainably way to 7.4% (which has since been exceeded); to reduce extreme poverty to 8.9%; and to eradicate unemployment and underemployment. With regards to health, Bangladesh aims to reduce its under-five mortality rate from 41 to 37 by increasing immunization coverage to 100% and skilled birth attendance to 65%. It aims to reduce fertility to 2.0 by increasing the contraceptive prevalence rate to 75%. To achieve this it plans to improve service delivery and decentralization of the health system; to improve access to care for poor and marginalized populations; to improve regulations and supply to encourage public facility use (versus private); to more effectively train and deploy government trained Community

Skilled Birth Attendants; to educate the population about prevention of non-communicable diseases; to provide gender and adolescent friendly services; and to address horizontal systemic issues such as health workforce, management and administration, finance, surveillance, drugs and equipment, and research. For family planning specifically, key interventions include using mass communication efforts to promote delayed marriage, childbearing, and awareness of family planning methods as well as encouraging male participation in family planning decisions. (These efforts are at odds with the loophole introduced in 2017 to the Child Marriage Restraint Act that allows for younger brides and grooms in special circumstances, rather than the strict minimum marital age of 18 for women and 21 for men that was previously in place.) With regards to education, it aims to achieve 100% net enrollment rate for primary and secondary school; to improve education quality at all levels through capacity building for teachers; to ensure 30% of primary public schools and 100% of secondary schools have a computer laboratory; and to increase grade five completion rate to 100% from 80%. The main focus to achieve the demographic dividend, however, is on secondary and tertiary education as well as vocational and technical education. To support gender equity, it aims to achieve gender parity in tertiary education and literacy; to encourage female enrolment in technical and vocational education; and to increase female participation in government service to 25% by 2020 (though this quota has since been discontinued due to mass demonstrations but it did help female recruitment). To strengthen governance, it plans to give legal aid to at least 37,000 victims annually, enhance integrity and corruption control regulations, improve Right to Information laws, and make the parliamentary process more effective.

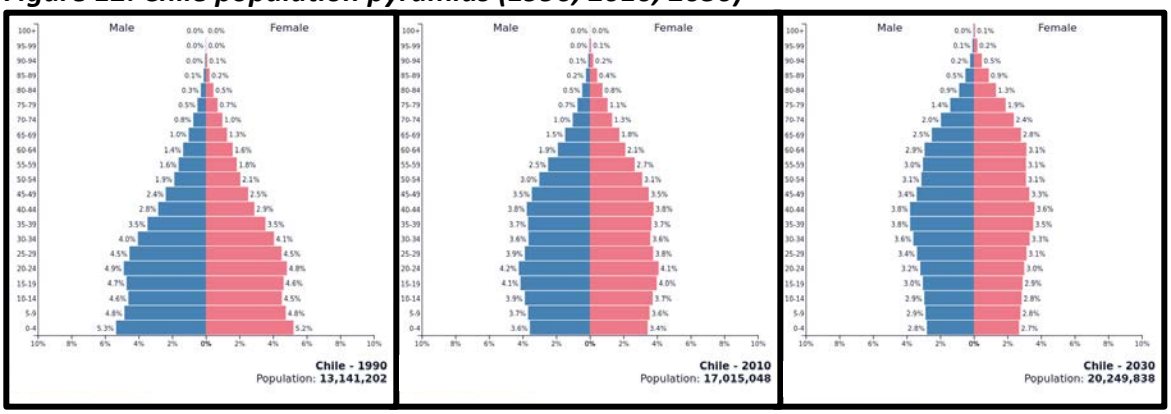
Bangladesh has been particularly successful at implementing policies that support sustained decrease in fertility. Between 1975 and the mid-1990s, strong political commitment supported interventions such as increased contraceptive method mix, introduction of menstrual regulation, integration of maternal and child health services with family planning services at the sub-district level, increased community outreach activities to generate demand, and financial incentives to have fewer children. During this time period, contraceptive prevalence rate increased from 8% to 44% and total fertility rate decreased from over 6 to 3.5 children per woman. In the early 2000s, coordination between maternal and child health and family planning service providers weakened and service provision shifted from home-based delivery to clinic-based. Despite this and high contraceptive discontinuation, low use among young married women, and decreased use of long acting and permanent contraceptive methods (LAPM), contraceptive prevalence rate increased by about 17% in four years, perhaps due to the involvement of non-state providers and the cultural legitimacy that family planning had acquired. However, fertility decrease slowed to 3 children per woman by 2004. Similarly, since 2004 non-state providers have played a greater role than public providers and contraceptive use has exceeded 61% and fertility continues to drop. Despite its initially successful policies, Bangladesh's current family planning program is mainly driven by short-term methods but would benefit from more LAPM and social policies to encourage delayed childbearing and wider birth spacing. Unmet family planning need remains high at 12%.

Chile

Progress

Chile has passed the period of demographic dividend and is in the mature stages of the demographic transition, facing a mostly ageing population. The combination of a declining birth rate from 23.5 per 1,000 of population in 1990 to 13.6 in 2015, and a stable mortality rate of 5.7 per 1,000 of population has resulted in a rapid shift in the population pyramid. The Economic Commission for Latin America and the Caribbean (ECLAC) estimates that Chile experienced a positive demographic bonus between 1966 and 2011. From 1990 to 2015, per capita income increased by 5.3% per year. This effect has slowed in later years with a per capita income increase between 1998 and 2008 of 0.26% per year and 0.06% in the following decade.

Figure 12: Chile population pyramids (1990, 2010, 2030)



From 1960 to 1990, Chile's infant mortality rate fell 87% from 128 per 1,000 births to 16. Since then it has fallen more slowly and stagnated around 7.2 in recent years. Fertility in Chile has declined from 5.1 children per woman in 1960 to 1.8 in 2015 despite the fact that contraceptive prevalence had only reached 64% in 2006 (from 43% in 1978). Life expectancy at birth in Chile has increased by 22 years from 57 in 1960 to 79 in 2015 and the current average age of the population is 35 years. The combination of these reductions in fertility and mortality rates has led to narrowing of the base of Chile's population pyramid, a widening upper tip, and a visible working-age 'bulge.'

Chile has achieved near universal primary education with net enrolment at 94% in 2015, though it has decreased by 3% since 2007. Similarly, secondary net enrolment is 88% in 2015, down 4% since 2007. Gender parity in gross primary and secondary enrollment has consistently hovered around 1 since 1970.

Policy Environment

Policymaking in Chile has not been motivated by achievement of the demographic dividend, largely because the bulk of the population transition happened many years ago. However, despite working without the demographic dividend framework, Chile has implemented policies that are well-aligned with it.

With regards to health care, Chile credits its progress in maternal and child health as well as overall life expectancy to expansion of birth control access in the 1960s when the fertility rate was 4.6 children per woman; robust sanitation policies introduced in the late 1960's; and a criticized, but ultimately effective health system. Chile credits its high life expectancy to the robust sanitation policies introduced in the late 1960's and an effective, though often criticized, health system.

Chile views education as a key instrument to improving income distribution and supporting economic growth. Education quality has been an ongoing challenge for Chile in the last decade. The government has increased state spending on education through a large tax reform process. The spending has been put towards increased teacher payments, implementing teacher evaluations, providing free tertiary education, and increasing access to preschool education.

Chile has undertaken some key economic policymaking to stimulate its growth and capitalize on its demographic dividend in the last three decades. Firstly, in 1975 it implemented an outward-oriented growth strategy that involved lowering tariffs significantly and signing numerous free trade agreements. Despite the fact that this strategy was briefly interrupted between 1983 and 1985, in the last 15 years Chile has signed more free trade agreements than any other country. Secondly, Chile's macroeconomic management has been quite successful. It has one of the lowest public debt rates among emerging markets. In the 1990's inflation was gradually reduced to approximately 3% and has remained relatively stable since then. A floating exchange rate regime has served as a buffer and strict financial regulations have maintained a healthy banking system since a large crisis in 1982. Thirdly, Chile's financial system is more similar to a developed country's than an emerging market with a fully funded individual account pension system that began in the early 1980's and now manages more than 90% of GDP in assets plus a banking system with assets exceeding 80% of GDP. Important institutional developments have underpinned high savings and investment. Chile has a very independent central bank that has built strong credibility and special courts carefully guard competition. Public-private partnerships have been expanded in several areas. Finally, Chile ranks high in terms of democracy and rule-of-law when compared with other countries. This has fostered a very active private sector.

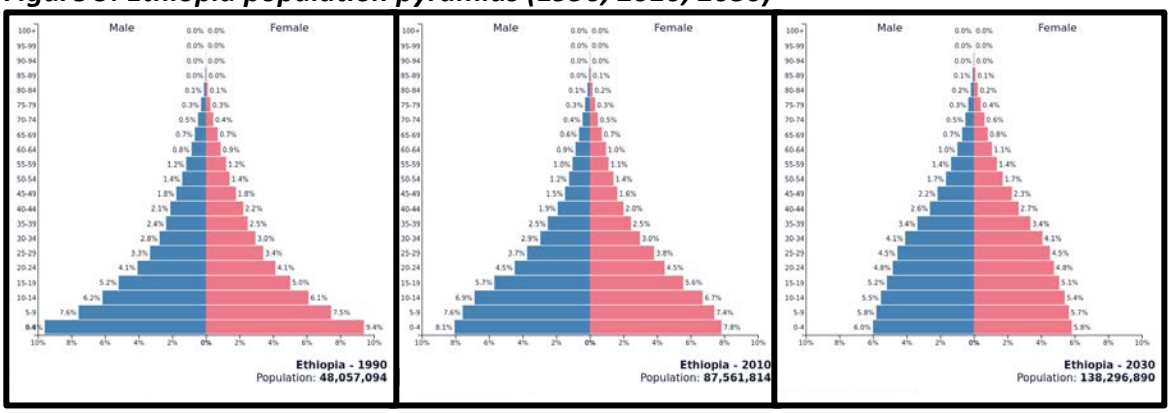
Due to its economic growth, Chile was able to reduce poverty rates from 45% in 1987 to 12% in 2015. However, inequality remains an overarching theme and the Gini coefficient still stands at 47 (down from 57 since 1987). Furthermore, as the bulk of Chile's population ages, pension is becoming an increasing concern. A quasi-universal minimum pension funded out of general taxes has helped to reduce poverty in people over 65 years of age but the middle class is facing a sudden drop in income at retirement.

Ethiopia

Progress

Ethiopia is well poised to take advantage of the demographic dividend. The narrowing base and widening stem of Ethiopia's population pyramid reflects reductions in death and birth rates. Currently over 70% of Ethiopia's population is under age 30 and almost 50% is under age 15. Ethiopia achieved its MDG goal by reducing under-five mortality from 203 deaths per 1,000 live births in 1990, one of the highest in the world, to 61 in 2015.

Figure 9: Ethiopia population pyramids (1990, 2010, 2030)



Fertility has declined from 5.9 children per woman in 2000 to 4.1 in 2014 and contraceptive use has increased from 4.2% in 1990 to 34.2% in 2014. Despite national progress, significant subnational variation exists. In urban areas, fertility is near replacement at 2.2 children per woman, however 81% of the population still lives in rural areas where each woman has an average of 4.5 children. Similarly, while contraceptive use has increased at the national, these changes are not uniformly reflected at the subnational level where some states (Amhara, SNNPR) experienced a six fold increase in contraceptive use while another (Somali) experienced a decrease to only 2%. Ethiopia must find ways to replicate and sustain its progress in richer, urban areas in poorer, rural areas to maximize the demographic dividend it can achieve as a country.

Ethiopia has made significant strides in net enrolment at both the primary and secondary levels. Net primary enrolment more than quadrupled to 86% from the 1990s to 2016 while secondary enrolment has reached 31%. However, significant subnational variations persist and as well as gender disparities in enrollment and completion at the secondary and tertiary levels. This contributes to the fact that one-half of women in Ethiopia are married before the age of 18, despite it being against the law. Improving gender parity will be critical to increasing women's workforce participation and economic productivity outside the home to ultimately maximize Ethiopia's demographic dividend.

Policy Environment

Ethiopia launched its first ever explicit multi-dimensional population policy in 1993.The main aim of the policy was to maximize the level of welfare of the population by synchronizing the rate of population growth with that of the economy and the capacity of the country for sustained socio-economic development. As part of this effort,

significant progress was made in the areas of reproductive health service delivery, population data collection and research, training, and communication. Fertility, infant mortality, under-five mortality and maternal mortality all declined. As such, the population growth rate declined and life expectancy increased. Female participation in education and access to political power and decision-making improved and a range of legal, policy, and institutional frameworks were developed and implemented on gender equity, equality and empowerment of women. Legislative measures were also taken to remove harmful traditional practices.

More recently, Ethiopia's main development agenda is poverty eradication. To this end, it implemented A Plan for Accelerated and Sustained Development to End Poverty (PASDEP) from 2005 to 2010. The main objectives of the PASDEP were to achieve Ethiopia's MDG targets and to ensure sustained, accelerated, economic development. Under the PASDEP, Ethiopia experienced sustained 11% annual growth in real GDP and a reduction in poverty from 39% to 30%. A key achievement was the implementation of the Health Extension Program (HEP) to train and deploy over 33,000 paid health extension workers to provide basic health services over 15,000 health posts in rural areas. This program has been credited with increasing contraceptive prevalence by 17% and reducing under five and maternal mortality. PASDEP implementation was challenged by financial constraints resulting from inadequate official development assistance, lower than expected domestic revenues, and unpredictable rainfall.

Building on PASDEP, Ethiopia introduced the first Growth and Transformation Plan (GTPI) for 2010-2015. The guiding vision for GTPI was to eradicate poverty and become a middle-income country by 2025. To this end, its key objectives were to: 1) maintain a minimum 11% growth rate and attain relevant MDGs; 2) improve access and quality in health and education services and attain relevant MDGs; 3) achieve stability in development and democracy; and 4) achieve macroeconomic stability to ensure sustainability of growth in all other sectors. During this time period, Ethiopia achieved 10% growth and reduced poverty from 30% to 23% while maintaining similar levels of inequality (0.30 Gini Coefficient). To improve quality and access to education, programs to improve teacher development, curricula, schools, and information and communication technology were implemented while repetition and dropout rates remained a challenge. Building on the success of the HEP, Ethiopia introduced the Health Development Army (HDA), made up of volunteer families who choose to adopt the majority of the government's 16 priority interventions (e.g. mosquito nets, immunizations, contraception use) to become certified as "model families" and act as social mobilizers to encourage similar behavior within their communities. While HEP is credited with continued increase in contraceptive prevalence, lack of research and data is a key ongoing constraint to monitoring and evaluation of Ethiopia's family planning programs.

Ethiopia's GTPII was developed to take forward the overarching objectives of GTPI through 2020. Key targets related to achieving the demographic dividend include halving under-five mortality rate to 30 deaths per 1,000 live births; halving maternal mortality rate to 199 deaths per 100,000 live births; increasing contraceptive prevalence rate to

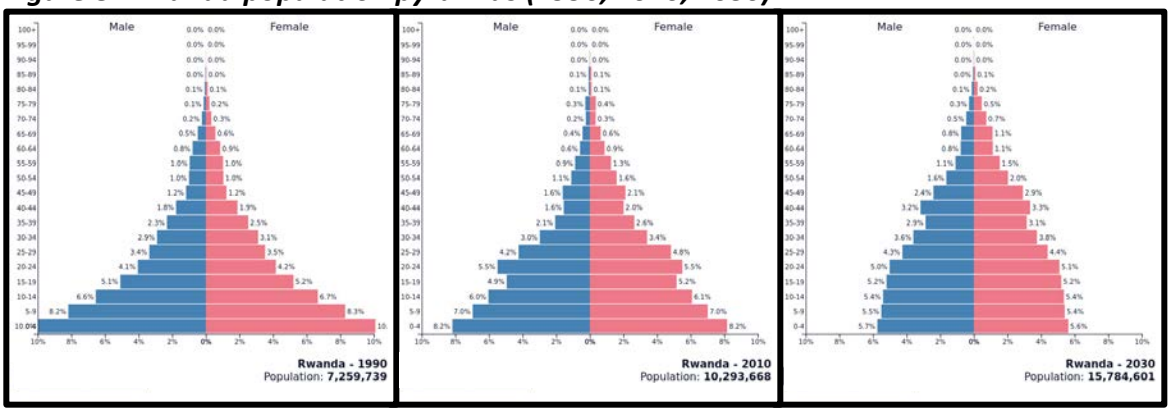
55%; universal primary school net enrollment; 79% lower secondary school (9-10) gross enrollment; 45% female students in undergraduate studies; and tripling number of Technical Vocational Education and Training (TVET) trainees to over 600,000. Key implementation strategies in education include expanding teachers from emerging regions; aligning curricula to match development goals and technological skills; increase number of secondary schools; encourage private investment to improve quality of education. Additionally, TVET is a key part of Ethiopia's capacity building program whose aim is to motivate entrepreneurship, create job opportunities, and train mid-level industry workers. Key implementation strategies in health include primary care provision at all health facility levels; continued investment in HEP and HDA programs; reduction in open defecation areas and increase in households with latrines; transparent promotion ladder to reduce health worker turnover; incentives to encourage private investment in health infrastructure; implementation of health insurance system. GTPII highlights women and youth empowerment as a cross cutting issue that is required to achieve the objectives of GTPII. It aims to promote gender equity in education, employment, asset ownership, access to capital, etc.; supportive environment and financial aid for female students; increased number of female teachers; eradication of harmful traditional practices; access to capital for youth; and more. Women and youth development armies will be mobilized to implement cross-sectoral approaches to the challenges these populations face.

Rwanda

Progress

Rwanda has been steadily moving through the demographic transition but it is still not yet poised to capture the demographic dividend. Rwanda has made progress decreasing death rates as indicated by the wider working age cohorts on its population pyramid (compared to previous years). It surpassed its MDG target by decreasing its under-five mortality from 151 deaths per 1,000 live births in 1990 to 41 in 2015. However, the pyramid's wide base suggests that birth rates remain too high for population growth rates to slow.

Figure 8: Rwanda population pyramids (1990, 2010, 2030)



Fertility has declined from 6.5 children per woman in 2000 to 4.2 in 2015 and contraceptive access has increased from 10% in 2005 to 48% in 2015 but still falls well short of the national target of 70%. This progress needs to be accelerated to decrease the dependency ratio and motivate increased health and education investments in children.

Rwanda has achieved near universal primary education with net enrolment at 95% in 2015, up from 73% in 2000, with near equal gender parity. Secondary net enrolment is 27% and 52% of enrollees are female. Despite traditional gender roles that women and girls continue to struggle to overcome at more local levels, Rwanda is a global leader in gender parity with 54% female workforce participation, the smallest salary gap between men and women in the world, and nearly two-thirds of Parliamentary seats filed by women. In the World Economic Forum's 2016 Global Gender Gap Index, Rwanda was ranked fifth in gender parity.

Policy environment

Rwanda has implemented a number of policies to achieve its rapid progress in health and education over the past two decades. In 2002, it introduced the Poverty Reduction Strategy Paper (PRSP), the national government's first ever "systematic assessment and establishment of the actions needed to reduce poverty and generate pro-poor economic growth." The PRSP was a four-year strategic plan focused on six priority areas: rural development and agricultural transformation, human development, economic infrastructure, private sector development, and institutional capacity building. The PRSP

made good progress in social sectors such as health and education, achieving reductions in maternal and child mortality (20-30% decrease) and poverty (58.9% to 56.7%), but faced challenges in agriculture, infrastructure, and industry. Additionally, income inequality increased (0.51 to 0.52 Gini coefficient).

Building on this experience, the government introduced the Economic Development and Poverty Reduction Strategy (EDPRS 1) in 2008, a four-year strategy to target growth acceleration, job creation, and export generation through social programs such as Grinka (one cow per poor family), health insurance, and local development and rural growth programs. EDPRS 1 is credited with increasing economic growth (8.2% average), reducing poverty (56.7% to 44.9%), and reducing economic inequality (0.52 to 0.49 Gini coefficient).

As of 2013, the government is implementing EDPRS 2 with four key objectives: 1) economic transformation (average GDP growth of 11.5%); 2) rural development (less than 30% poverty); 3) productivity and youth employment (200,000 off farm jobs per year, increased output per worker); and 4) accountable governance (more than 80% service delivery, increased citizen participation). Additionally, EDPRS 2 aims to continue to sustainably develop eight foundational elements from PRSP and EDPRS 1. Critical among these to achieving the demographic dividend are family planning (i.e. increasing access to contraceptives and reproductive health education and sensitization), education (i.e. increasing free education from nine years to twelve years and improving education quality through private sector partnership), primary health care (i.e. quality, access, and affordability of health care).

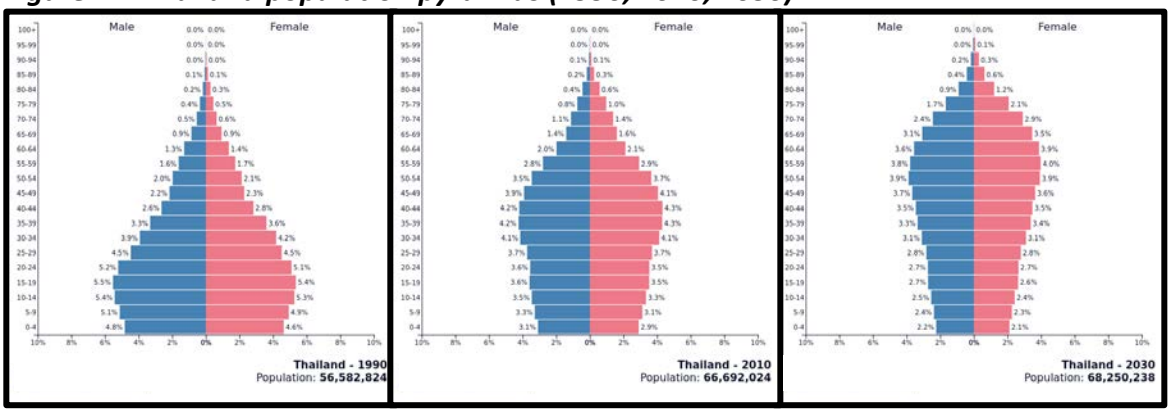
Additionally, EDPRS 2 directly addresses horizontal, systemic issues such as capacity building and gender equity that need to be addressed across all programs. For example, Rwanda has invested in developing its community health workforce and now has over 45,000 community health workers (CHWs) countrywide, with one male and one female CHW providing care in each village. These CHWs are credited with implementing national prevention programs such as mosquito net provision, immunization campaigns, medical follow-ups, and family planning at the community and village levels.

Thailand

Progress

Over the past few decades since 1970, Thailand has seen rapid demographic change. It went from a country with a high birth rate and the majority of its population below 15 years of age in the 1950s to a country that has been rapidly ageing since the late 1990 and now has a life expectancy at birth of 75 years. Thailand experienced a demographic dividend between 1975 and 2005 when the percentage of population in active labor rose from 56% in 1980 and peaked at 66% in 2005 leading to an average growth rate of approximately 0.8% per year. This bulging cohort can be seen ageing through its working years in the population pyramids below.

Figure 11: Thailand population pyramids (1990, 2010, 2030)



Thailand has seen significant progress in fertility and mortality over the last half century. Infant mortality in Thailand dropped 80% since 1960 from 102 deaths per 1,000 live births to 20 in 2000. Since then, it has continued to drop steadily and almost halved to 11 in 2016. Similarly, Thailand's fertility rate declined from 6.2 children per woman in 1960 to below replacement level at 1.7 in 2000. The rate has continued to fall but less drastically to 1.5 by 2015 and is expected to continue to decline in the near future despite periodic policy advocates from pro-natalists.

Thailand had achieved near universal primary education with net enrolment at 96% in 2009, but enrolment dropped to 87% in 2015.

Policy Environment

While Thailand reaped a dividend from changes in its demographic structure, lack of focus on effective policy implementation (i.e. education enrollment increases vs. quality improvements) meant that the dividend was not maximized as much as it could have been.

Prior to the 1970's, health had not been an integral part of Thailand's National Economic Development Plan (NEDP) but population reduction policies were introduced in the 3rd NEDP in 1971 as a strategy to attain sustainable economic growth. Intensive population growth-reduction policies were continuously implemented between 1977 and 1996 resulting in over 70% reduction in fertility rate to below replacement level. In addition to

family planning, maternal and child health received priority focus in the overall health policy and strategies. The concomitant development of integrated health service infrastructure based on primary health care helped to improve access and health outcomes in general. From 1975 onwards, the government began many efforts to improve equity in health starting with the indigent card policy to provide free health services to the poor. In an effort to support health systems strengthening in rural areas, village health volunteers (VHWs) were introduced in 1979 and the program has since exceeded 1 million VHWs across the country. Between 1982 and 1986 it reallocated capital investments from urban hospitals to rural areas, particularly with regards to training and employing health workers of various cadres. In 2001, it established the Health Promotion Fund using tobacco and alcohol tax to fund health promotion activities in 2001. One of Thailand's most significant health reforms is the establishment of the Universal Coverage Scheme (UCS) in 2002. UCS uses tax revenue to purchase health services from both public and private sectors to ensure financial risk protection for the 70% of the population uncovered by any other health insurance scheme. Since its launch, UCS has been credited with increasing access to health care for infants and women of reproductive age, especially among the poor. UCS was also found to have reduced the likelihood of workers being prevented from going to work due to illness thereby improving labor productivity. Finally, UCS was found to reduce financial risk with an 81% reduction in catastrophic health spending between 2000 and 2009.

Thailand began systematic education investments in 1950 with the establishment of the National Education Plan. Unlike health, education investments were later integrated into the first NEDP in 1961 with a focus on increasing infrastructure to expand coverage of schools and production of teachers. Subsequent NEDPs supported education investment aimed at improving economic productivity, equity, rural expansion of schools, rural teacher recruitment, and vocational education. While rural school coverage did expand significantly, quality was not prioritized. In 1992, Thailand extended mandatory education to early secondary level (from 6 years to 9 years of school) and increased government spending in education to 20% of annual government budget. While this increased budgetary allocation towards education has been maintained (aside from during the Asian economic crisis), quality of education continues to be a concern, particularly with regards to Thailand's ability to compete globally in a knowledge-based economy. To this end, enrollment rates and quality in higher education and dropout rates in primary and secondary school remain an ongoing challenge.

In addition to its investments in health and education, Thailand's economic growth has been supported by two unexpected bonuses. The first was the sharp drop in petroleum prices in 1986. The second was the reversal of the trend in exchange rates with the dollar beginning to depreciate. At this point, the government changed the basket of currencies that determined the value of the baht and increased the share of the dollar in that basket to about 90% resulting in the baht moving down in value with the dollar. These two bonuses along with the shift from an agriculture to more industry-based economy led to an unprecedented economic boom with double-digit growth rates for three consecutive years starting in 1987. During this time, concurrent booms in manufactured export goods

drove industrial production, in inflows of portfolio investment drove the stock market, and in real estate interest drove construction and increased land prices. While the speculative bubble burst in 1991, economic growth in production continued at a rate of 7 to 8% fueled by the industrial sector.

Sources

Admassie A, Nuru S, Megquier S. “Harnessing the Demographic Dividend in Ethiopia.” 2017. Population Reference Bureau.

Alam S. “Development Planning in Bangladesh: 7th Five Year Plan and SDG Implementation.” 2016. Government of the People’s Republic of Bangladesh.

Bloom DE, Canning D, Sevilla J. “The Demographic Dividend: A New Perspective on the Economic Consequences of Population Change.” 2003. RAND Corporation.

Bloom DE, Kuhn M, Prettner K. “Invest in Women and Prosper.” Finance & Development. 2017; 54.

“Briefing Note: The Health Extension Program” 2014. UNICEF.

Chunharas S. “Thai health system, past, present and the future.” Presentation at the MOPH executive training programme. 24 January 2018.

“Economic Development and Poverty Reduction Strategy II: 2013-2018.” 2013. Republic of Rwanda.

“Ethiopia Mini Demographic and Health Survey 2014.” 2014. Ethiopia Central Statistical Agency.

“Ethiopia’s Key: Young People and the Demographic Dividend.” 2014. Population Reference Bureau.

Graff M, Bremner J. “A Practical Guide to Population and Development.” 2014. Population Reference Bureau.

“Growth and Transformation Plan II (GTP II) (2015/16 – 2019/20).” 2016. Federal Democratic Republic of Ethiopia.

“Growth and Transformation Plan (2010/11 – 2014/15).” 2010. Federal Democratic Republic of Ethiopia.

Gruber J, Hendren N, Townsend RM. “The Great Equalizer: Health Care Access and Infant Mortality in Thailand.” American Economic Journal: Applied Economics. 2014; 6: 91-107.

“Harnessing the Demographic Dividend in Bangladesh.” 2014. World Bank Group.

Lee R, Mason A. “What is demographic dividend?” Finance and Development. 2006.

Mason A. “Overview of Demographic dividend.” Demographic Dividend Working Group. Presentation made at Barcelona, Spain. June 5-8, 2013.

Nam V, Jones F. “Inclusive Social Protection and Demographic Change: The Implications of Population Ageing for Social Expenditure in the Caribbean.” 2018. Economic Commission for Latin America and the Caribbean (ECLAC).

Pattamasiriwat D. “Labour and economic dimension.” Thailand Health Profile. Ministry of Public Health. 2012.

“Prospects for Reaping a Demographic Dividend in Rwanda.” 2014. World Economic Forum.

Roy M, Kayesh MS. “Reaping Demographic Dividend in Bangladesh: Challenges and Prospects.” Global Journal of Human-Social Science; 2016: 16.

Sagarik D. “The analysis of determinants of education expenditure in Thailand.” Dissertation in partial fulfillment of degree in Doctor of Philosophy, National Institute of Public Administration. Thailand, 2012.

“Seventh Five Year Plan FY2016 – FY2020: Accelerating Growth, Empowering Citizens.” 2015. Government of the People’s Republic of Bangladesh.

Siamwalla S. The Thai Economy: Fifty Years of Expansion. 1996

“Thailand’s Universal Coverage Scheme.” Center for Global Development. http://millionssaved.cgdev.org/case-studies/thailands-universal-coverage-scheme

United Nations Population Division, World Population Prospects: The 2010 Revision, low variant (New York: UNFPA, 2011).

Wagstaff A, Manachotphong W. “The Health Effects of Universal Health Care: Evidence from Thailand.” Policy Research Working Paper 6119. Washington, DC. World Bank. 2012.

Wongboonsin K. “Demographic dividend from demographic changes in Thailand.” Chulalongkorn Population Institute. 2003. (Thai language).