## Center for Financial Inclusion Publication 18



# Looking Through the Demographic Window: Implications for Financial Inclusion

Financial Inclusion 2020 Project: Mapping the Invisible Market



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## Looking Through the Demographic Window: Implications for Financial Inclusion

Financial Inclusion 2020 Project: Mapping the Invisible Market

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CENTER for FINANCIAL INCLUSION

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## Preface

As part of the Center for Financial Inclusion's Financial Inclusion 2020 project, this report reviews major demographic changes occurring in the developing world and examines their implications for financial inclusion.

Using demographic window theory, we focus on the opportunities and challenges developing countries will face over the next few decades as birthrates fall and life expectancy rises, resulting in an especially large working-age population in many countries. Decades in which countries have high work-ready populations and low dependent populations create a window of opportunity for actions that can maximize the productivity of their workforces through tailored financial inclusion policies. These demographic changes also point to segments of likely growth in future demand for financial services.

The core finding of this report is that for middle income countries, financial inclusion policy should increasingly take into account the needs of mature families and a growing elderly population. The already well-recognized need to focus on youth financial services remains relevant, particularly in the poorest countries, but in middle income countries the needs of older populations will require increasing attention. This suggests greater emphasis in financial inclusion policy on long-term savings and pensions, among other things. The particular priorities will, of course, vary by country.

This report contains four distinct sections, and while each builds on the last, readers may wish to focus more on some sections. After a brief introduction (Part I), the paper describes the most important demographic trends and explains the demographic window and its related dividends (Part II). We then turn to the implications for financial inclusion, starting with a discussion of financial services needs throughout the individual and family lifecycle (Part III) and summarize the implications for national financial inclusion policy and service providers (Part IV). Lastly, the paper applies the approach developed in previous sections to three countries: two "demographic window" countries (South Africa and Mexico) and one "pre-window" country (Nigeria), revealing significantly different financial inclusion priorities in each (Part V). We urge readers to at least sample the country examples, to see the relatively abstract concepts come to life.

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## Part I. Demographic Change as an Explanatory Lens

Demographic change is one of the most powerful forces shaping the world's future. This report examines the implications of demographic change for financial inclusion, particularly across the next decade. It looks at how demographic change will affect the demand for financial services and in particular at how progress toward financial inclusion can help maximize demographic opportunities in the developing world.

At this moment in history, demographic transition is opening a unique window of opportunity for countries in development. As life expectancy increases and fertility rates fall, the working-age population grows faster than the young dependent population. In the developed world this demographic dividend provided a tailwind to growth for several decades leading up to the present, but rapid aging and an expanding elderly dependent population have now turned demographics into a headwind. Yet, as the window closes in the developed world it is just opening in the developing world.

Demographic transition is an urgent challenge to development policy and action. It calls on policymakers to enable the large generation of workers to maximize their opportunities. Action to support the transition is needed soon. The demographic window in the developing world will only stay open for a few decades.

Financial inclusion is an essential component of enabling the developing world to maximize its demographic dividends. In many countries the majority of households lack access to basic financial services and many more are only partly included or have poor-quality services. Micro, small, and medium enterprises are also often excluded from the financial system. Empirical evidence suggests that not only is financial inclusion pro-growth but it is also pro-poor, helping to reduce income inequality and poverty.<sup>1</sup>

An analysis of the connections between demographic changes and financial services also suggests that a close reading of demographic trends can illuminate market segments where new and growing demands for financial services will arise. Accordingly, this report is aimed at financial services providers who may be seeking to identify promising market segments. At the same time, we observe that if countries are to take advantage of the opportunities for economic growth that the demographic window brings, financial inclusion is needed to ensure that the people who will create that growth have the necessary financial tools. For that reason, this report is also aimed at policymakers seeking to identify policy priorities. Demographic considerations not only suggest that financial inclusion is broadly important, they also point toward specific aspects of financial inclusion that may need to be prioritized.

## The Financial Inclusion 2020 Project and Mapping the Invisible Market

This report is part of the Center for Financial Inclusion's ongoing Mapping the Invisible Market activity within the Financial Inclusion 2020 project. Financial Inclusion 2020 posits the vision that with a concerted effort the world could reach full financial inclusion by the year 2020. This idea is intended to spark creative thought and galvanize action within the industry and among policymakers. Mapping the Invisible Market examines major forces that will strongly influence whether this goal will be achieved such as demographic change, economic growth, technology change, environment, and political economy.

When the Center talks about full financial inclusion, it means much more than "banking the unbanked." The Financial Inclusion 2020 project works with the following comprehensive definition:

<sup>1.</sup> Asli Demirguc-Kunt, Thorsten Beck, and Patrick Honohan, *Finance for all? Policies and Pitfalls in Expanding Access* (Washington, D.C.: World Bank, 2008): 10.

Full financial inclusion is a state in which all people who can use them (including disabled, poor, and rural populations), have access to a suite of quality financial services, provided at affordable prices, in a convenient manner, and with dignity for the clients. Financial services are delivered by a range of providers, most of them private, to a financially literate and capable clientele.

This vision puts clients rather than providers at the forefront. It recognizes that the financial-service needs of the poor have fundamental similarities to those of the better off, such that there is a continuum of needs and demands across the income spectrum. More specifically, this definition of financial inclusion focuses on five core dimensions:

What is provided: A full range of services, which includes a basic product in each of the four main areas: savings, credit, insurance, and payments.

**How it is provided:** With quality—e.g., convenience, affordability, safety, and dignity of treatment—and client protections.

Who receives: Everyone who can use the services, including the poor, rural, those working in the informal sector, and groups that are often discriminated against (women, ethnic minorities, disabled).

**Who provides:** A range of providers in a competitive marketplace, led by mainstream financial institutions, and including organizations from the private, social, and government sectors.

**Financial capability:** The users of financial services have the knowledge, skills, and behaviors needed to make good, informed financial decisions.

The goal of the Financial Inclusion 2020 project is to accelerate progress toward full inclusion around the world by 2020. Mapping the Invisible Market examines the likelihood that this goal will be reached, given current and expected trends. Answering this question requires an understanding of demand- and supply-side trends and knowledge of the current and projected financial inclusion gap. As demographic trends are among the most fundamental as well as the most ineluctable, Mapping the Invisible Market begins with demography.

## Part II. Demographic Opportunities and Challenges<sup>2</sup>

On October 31, 2011 the global population reached 7 billion.<sup>3</sup> Is this a cause for alarm or something to celebrate? In 1798, when Malthus first warned of the limits of growth, the global population was yet to reach 1 billion. Two hundred years of exponential growth have followed. This rapid expansion is shown in Figure 1, with population estimates for the past million years and projections out to 2100. The scale has been adjusted for clarity, but it masks the sheer speed of the population explosion. Constant technological progress has so far averted a Malthusian catastrophe but many observers are still concerned about sustainability and overpopulation. Most of the population growth in the next decade will be in less developed countries (68 percent<sup>4</sup>) and the least developed countries (27 percent; only 5 percent from more developed regions<sup>5</sup>).





Sources: Michael Kremer, "Population Growth and Technological Change: One Million B.C. to 1990," *The Quarterly Journal of Economics* 108, no. 3 (1993): 681-716; UN, *World Population Prospects: The 2010 Revision*; and Amlan Roy, "Why Demographics Matters? And How?" London: Credit Suisse (July 18, 2006).

Population dynamics are primarily driven by two demographic factors: life expectancy and fertility rates. The rapid growth in population since Malthus' warnings has been driven by a leap in life expectancy. Global

<sup>2.</sup> The demographic data used in this report come from the 2010 revision of the *World Population Prospects* from the Population Division at the United Nations Department of Economic and Social Affairs. There are three sets of forecasts in that dataset: a low-fertility variant, a medium-fertility variant, and a high-fertility variant. Only the medium-fertility variant is presented in this report. The analysis refers to four regional blocks: the whole world, the most developed regions, the less developed regions (excluding the least developed countries), and the least developed countries, as defined by the United Nations. Unless otherwise noted, the source for all figures is the 2010 revision of *World Population Prospects*.

<sup>3.</sup> United Nations Department of Economic and Social Affairs, *World Population Prospects: The 2010 Revision* (New York: United Nations, 2010).

<sup>4.</sup> UN, World Population Prospects: The 2010 Revision.

<sup>5.</sup> UN, World Population Prospects: The 2010 Revision.

life expectancy has increased from 48 in 1950 to about 68 today, which is a great achievement. The less developed regions and the least developed countries are catching up with the more developed regions, as more people share in medical advances, particularly infants and children. In the past 60 years life expectancy at birth grew by 12 years in more developed regions, by 26 years in the less developed countries, and by nearly 22 years in the least developed countries. Figure 2 shows the increase in life expectancy since 1950 and projects current trends into the future.





Malthus argued that human populations tend to grow too rapidly and exhaust the environment's resources until they are checked by famine, war, or disease. However, his underlying premise now appears to be incorrect. Global population growth has been slowing since the 1970s and population numbers are stabilizing. They are projected to peak at around 10 billion by the end of this century (see Figure 1). The slowdown in population growth is caused by a decline in fertility rates (after increasing life expectancy, the second primary driver of population dynamics). Fertility rates are falling rapidly due to a mix of economic growth and development, social, and cultural factors, and improving opportunities for women. The decline in total fertility is shown in Figure 3 with projections into the future. Fertility is highest in the less and least developed countries but rates are falling and converging. In some advanced economies the fertility rate has fallen below the replacement rate (around 2.1 for developed countries) but there is some evidence that fertility may start to climb again at very high levels of development.

#### **Figure 3. Declining Fertility**



#### **Demographic Transition**

The demographic transition model is a useful framework for analyzing these changes in population dynamics (attributed to Warren Thompson).<sup>6</sup> The model describes the demographics of a country as it industrializes and transitions from high birth and high death rates to low birth and low death rates. The model is summarized in Figure 4, which plots the changing birth rate, death rate, and total population over time.

#### **Figure 4. Demographic Transition Model**



Source: Diagram adapted from Caldwell, Demographic Transition Theory.

The model outlines four stylized stages. In the first pre-industrial stage, birth and death rates are high and balanced, leading to stationary population numbers. In the second stage, the country industrializes and the death rate falls due to improvements in health. The birth rate is still high so there is rapid population growth and an increase in the number of young people. In the third stage, industrialization is mature

6. John C. Caldwell, *Demographic Transition Theory* (Dordrecht: Springer, 2006).

and societal changes lower the fertility rate (changes such as urbanization, increased status of women, and better education). The population continues to grow, but at a lower rate, as momentum is carried over from stage two. In the fourth stage, with low birth and death rates, population numbers stabilize and there is an increase in the proportion of elderly. Fifth and sixth stage extensions to the original model are also possible. In the fifth stage, the fertility rate would drop below the replacement rate and population levels would begin to decline (as is happening now in many developed countries); in a sixth stage there would be a rebound in fertility rates at very high levels of development.

#### **Two Demographic Dividends**

Demographic transition creates two potential dividends for countries as they move from stage two and into stage three.<sup>7</sup> The first opportunity, or dividend, occurs when fertility rates fall and the labor force grows more rapidly than the dependent population. Figure 5 shows the changes in several regions in working-age population (between ages 15 and 64). These regions are in different stages of the demographic transition. The working-age population is expanding rapidly in the less developed regions (which includes countries often referred to as middle income) and least developed countries, but starting to contract in the most developed regions.

#### **Figure 5. Working-Age Population**



7. David Bloom, David Canning, and Jaypee Sevilla, "Economic Growth and the Demographic Transition," The National Bureau of Economic Research, working paper no. 8685 (2001).

The size of the working-age population is a determinant of aggregate economic output. Aggregate economic growth can be broken down into the sum of three demographic factors: growth in the working age population, growth in labor force utilization, and growth in labor productivity.<sup>8</sup> This is illustrated in Figure 6.

#### Figure 6. Demographics and Economic Growth



*Source:* Amlan Roy and Shivani Aggarwal, "A Demographic Perspective of Economic Growth," London: Credit Suisse (April 3, 2009).

This analysis highlights the potential for developing countries as their working population expands, but also warns that growth is dependent on policies that support participation in productive employment. Labor utilization and labor productivity must be maintained to support the rapid growth in the working-age population.

Developing countries should have significantly higher rates of economic growth than developed economies because they are undergoing a demographic transition, otherwise many people of working age will get left behind. Advanced economies, with shrinking working-age populations, need to focus on improving labor utilization and labor productivity. Yet labor force participation rates vary significantly between countries. Many countries have a large male-female participation gap and would benefit from encouraging women into the workforce. Encouraging the participation of older workers is important with the increases in life expectancy and longer retirements. These observations also point to the urgency of making financial services available in countries undergoing demographic transition to encourage the productivity and participation of the potential workforce.

<sup>8.</sup> Angela Maddalon, Alberto Musso, Philipp Rother, Melanie Ward-Warmedinger, and Thomas Westermann, "Macroeconomic Implications of Demographic Developments in the Euro Area," European Central Bank, Occasional Paper no. 55 (2006).

Demographic transition is not just important for aggregate economic growth; it also creates opportunities for increasing per capita economic growth. The first opportunity, or dividend, occurs when fertility rates fall and the labor force grows more rapidly than the dependent population. Falling child dependency frees resources that can be invested in human and economic development. Figure 7 plots the changes in child, old-age, and total dependency ratios. In developing countries, child dependency is falling rapidly (as fertility drops) and old-age dependency is still low, creating a decreasing level of dependency for the next few decades. By contrast, in the most developed countries, old-age dependency is above youth dependency and rising rapidly, creating rising overall dependency.

#### Figure 7. Child and Old-Age Dependency Ratios











The second dividend occurs when the expanded workforce ages. Increased longevity means workers may work longer and must save and invest for their extended retirement. These workers accumulate assets, which raises the national income and makes a sustainable contribution to growth. The first and second demographic dividends are together thought to have contributed 30-40 percent of the growth in GDP per capita in South Asia, East Asia, and Latin America from 1970 to 2000.<sup>9</sup>

### **A Demographic Window**

Demographic transition creates a unique window of opportunity with several potential benefits. Demographic transition can drive aggregate economic growth by expanding the working-age population and boost per capita economic growth by freeing resources for investment as child dependency falls (the first dividend) and by encouraging the accumulation of assets to save for retirement (the second dividend). These potential benefits must be

<sup>9.</sup> Ronald Lee and Andrew Mason, "What is the Demographic Dividend?" *Finance and Development* 43, no. 3 (2006).

supported by effective policy. For example, the large numbers of young people entering the workforce must be supported by quality basic education, further education to meet the global demand for higher skill levels, and a flexible labor market.<sup>10</sup> Higher productivity will allow countries to maximize the potential benefits of the first dividend. The second dividend is dependent on how society supports the elderly and on the options available to save and invest. Large unfunded or public transfer programs may discourage workers from accumulating assets and may become unsustainable as the population ages.<sup>11</sup> In developing countries pension reform must balance the goals of reducing poverty among the elderly and extending coverage to the poorest with encouraging higher social security contributions and developing the capital market.<sup>12</sup> The second demographic dividend is explicitly dependent on building financial inclusion.<sup>13</sup>

The first and the second dividend are sequential. The first dividend is temporary, lasting 30 to 40 years as child dependency falls during the demographic transition. This dividend slows as the fertility rate stabilizes and eventually turns negative as the elderly population grows and the old-age dependency rises. The second dividend begins later and is less transitory; it can be sustained indefinitely. The demographic window for the first dividend is defined by the United Nations as open when the proportion of the population ages 0-14 is below 30 percent and the proportion of the population ages 65+ is still below 15 per cent. Figure 8 plots the demographic window for different regions. For the more developed regions the window was open from 1950 to 2000; for the less developed regions it has been open from 2005 and will close in 2035; for the least developed subset of countries it opens from 2050 to 2080.

#### **Figure 8. Demographic Windows**



### **Other Demographic Trends**

Although it has been touched upon already it is worth highlighting the profound demographic shift toward the developing world and toward the elderly. Figure 9 shows population growth in different regions. In 1950, half the world lived in the developing world. By 2020 five times as many people will live in the developing world as in the developed world, and by 2050 it will be six times as many.

#### **Figure 9. Population Growth**



As people live longer they also face longer retirement periods due to healthcare advances for the elderly. The percentage of the population above age 65 is increasing rapidly for all but the least developed countries. In 1950, globally, 1 in 20 was elderly; by 2050, it will be 1 in 5. Figure 10 plots the proportion of the population that is above 65 years of age. This trend is well-recognized among the developed nations, but it is increasingly relevant for middle income nations in the demographic window years.

Emmanuel Y. Jimenez and Mamta Murthi, "Investing in the Youth Bulge," *Finance and Development* 43, no. 3 (2006).
 Lee and Mason, "What is the Demographic Dividend?"
 Amlan Roy, Sonali Punhani, and Liyan Shi, "Longer Lives, Changing Life Cycles: Exploring Consumer and Worker Implications," London: Credit Suisse (July 20, 2011).
 For more detailed examples see Michele Gragnolati, Ole Hagen Jorgensen, Romera Rocha, and Anna Fruttero, *Growing Old in an Older Brazil* (Washington D.C.: The World Bank, 2011); and Daniel Cotlear, *Population Aging: Is Latin America Ready*? (Washington D.C.: The World Bank, 2011).



## Figure 10. Proportion of the Population that is Elderly

Families in many countries continue to select against girls, leading to a skewed population distribution. Figure 13 shows the number of males per 100 females.

Both the increasing numbers of elderly and the skewed distribution of women have direct implications for the ability of countries to manage their demographic dividends.

#### Figure 11. Sex Ratio



## Part III. Lifecycle Approach to Financial Services Needs

With this broad overview of demographic trends, we now move to the implications for financial inclusion. To do so, we shift focus to individuals and their use of financial services in various ways throughout their lives. With a framework that illuminates financial service needs across the individual lifecycle, we will then step back to the national level and use demographic changes to predict the changing needs for financial services.

Financial service needs evolve over individual lifetimes. Without implying that all lives follow the same path, it is possible to sketch a stylized portrait of the life stages and events that many people experience. Shakespeare divided life into seven ages,<sup>14</sup> but we will use five: childhood, youth, young adult, mature adult, and old age (see Figure 12). Note that we distinguish between childhood and youth and between young and mature adults; these distinctions reveal significant differences in both demographic roles and financial needs.

### Figure 12. Lifecycle Approach to Financial Services



Onto these we layer events with a more economic character, including schooling, entering and leaving the workforce, starting and running a business, setting up a household and, (for some) migrating. Each stage carries with it a set of main activities, needs, and responsibilities. The next step is to identify the essential financial services relevant to support individuals in each stage.

<sup>14.</sup> Shakespeare's ages: the mewling infant, the whining schoolboy, the lover, the soldier, the justice, the pantaloon, and second childishness (*As You Like It*, act 2, scene 7, lines 139-166).

## **Dependency Shapes Demand**

As shown in the previous section, demography emphasizes dependency as a key lens of analysis. Our lifecycle portrait focuses on the needs that active adults have for maintaining their own lives and also the roles they play as caretakers for dependents. Young adults are responsible for the health and schooling of their young children. Mature adults may have substantial responsibilities associated with the launch of their children into adulthood (weddings, housing, or business investments), with the care of their elderly parents, and with their own preparation for old age. It is appropriate to place the financial needs associated with dependency with the person who contracts the service, rather than the ultimate beneficiary. Thus, in Figure 12, school fee loans are not shown as a financial need of children and vouth but of the adult parents who actually pay the fees.

These dependent care responsibilities should be integrated into a view of how financial service needs vary over a lifetime. For example, the requirements of establishing a new household may make young families significant users of consumer credit and housing finance while the significant dependency requirements of mature adults suggest a need for long-term savings services. These patterns are, of course, well studied for middle-class people in developed countries, but they also apply, with variations, to the low-income populations of developing countries who are partly or completely financially excluded.

## **Financial Services Across the Lifecycle**

We can consider payments, short-term money management, and short-term savings services as essentially lifelong needs, though the intensity of use of these services is likely to be greater during prime adulthood when a person is most economically active. Nevertheless, even children may be in a position to receive support payments in their names or to operate savings accounts for learning purposes, and the need to pay bills and receive support payments continues until the end of life.

Lifecycle concerns are more likely to emerge when considering long-term savings and credit needs. As young people prepare to become economically active and independent, they face "launch" expenses, and the responsibility for those expenses shifts gradually from parents onto the young adult. A large number of lumpy outflows are expected, which can be anticipated through long-term savings or enabled through consumer, education, or business credit. As children are born and grow, additional long-term goals appear (notably school-related). Housing finance begins to be relevant, and this may require a combination of savings and credit services.

As families mature, the need for long-term savings peaks, in anticipation of major life expenses, including children's weddings and marriages, care of elderly parents, and ultimately funeral costs for the older generation. At the same time, the expectation is that these are the most economically productive years, with the possible need for larger business savings and loans. Longterm savings are generally expected to be drawn down during old age, but for many low-income people in developing countries, economic activity, with its attendant financial services activities, must continue, as there is no source of outside support and personal savings are likely to be insufficient.

Health insurance is relevant for people of all ages, though for children it is parents who pay for it. Property and crop insurance are relevant for the economically active. Life and disability insurance are also relevant for adults as they increase their level of familial responsibilities.

As financial needs change throughout the lifecycle, the need for financial education changes, making it clear that financial education is not a one-time event, but ideally an ongoing activity. Youth and young adults will need to learn the basics of using savings and credit, managing the family budget, and since they are likely to be spending to establish themselves, how to avoid becoming over-indebted. Mature adults will need to learn about the financial needs of old age, lessons that are likely to be lost on most of the young. Consideration of the changing needs of mature adults suggests a financial education priority to support mature adults in understanding and accomplishing necessary changes in their financial habits as they age-not an easy task.

## Demographic Change Signals Changing Financial Services Demand

Demographic trends over the next decade and beyond will affect the need for financial services. By examining the most salient demographic trends for a given country it is possible to form hypotheses about the growth of various market segments and needs. These hypotheses can be starting points for more detailed market research.

For example, as countries enter the demographic window, they experience lower fertility and delayed childbirth. This means smaller families and a lower overall child-dependency burden for young adults. Some of those adults who delay starting families may be using the additional time to increase education while others spend more time in the workforce. The effect is likely to be especially strong for women. The delay provides an opportunity for higher earnings and productivity (more working years, more education) while the small family size means that this productivity is spread among fewer people. The end result is more disposable income for young families who may be able to use it in a variety of ways-by starting to save earlier, by purchasing consumer goods or housing, or by making business investments. All these trends have direct implications for the demand for financial services from these families.

Countries in the demographic window are also experiencing increasing longevity, and that has an effect on the financial needs not only of the elderly but also of the mature adults who are caretakers of their elderly parents or who are looking toward their own old age. Demographic window theory suggests an economic boost from longer years in the workforce by those who live longer and may retire later, as well as a boost from additional saving and investment by these mature adults as they prepare for their own later needs. This points to rising demand for long-term savings services by mature adults. However, most countries that are entering the demographic window have not had to cope with large old-age populations, and often lack a supply of financial services to fill this need. If being elderly has been an exception rather than a rule until recently, demand may also be slow to develop due to cultural patterns.

## Part IV. Implications for Policymakers and Providers

The key demographic changes described earlier create opportunities and challenges for the developing world and have implications for the management of financial inclusion. When financial inclusion policymakers heed these trends they can position financial inclusion policy as an important supplement to policies on employment, social security, and education through which countries seek to support their changing populations. When financial service providers pay attention to demographic trends they can tailor their offerings to the changing lifecycle demands of prospective clients. Financial service providers may benefit from paying attention to demographic trends, connecting them with what is known about the behavior of individuals and families across the lifecycle to understand likely demand, and devising offerings that target specific needs of growing demographic niches.

For countries in the demographic window period, broad economic and human development policy should seek to reap the first dividend of the expanding working-age population and falling dependent population and later the sustainable dividend as workers age and invest for retirement. Inclusive policies during the window period aim to enable all people in their productive years to make the most of their economic potential. Of course national development strategies always seek to maximize economic productivity, but we emphasize the extraordinary opportunity presented by the demographic window and the policies to accompany it. National development strategies in line with this opportunity would include a holistic set of reforms to cope with increasing longevity while ensuring fiscal sustainability. Policies would aim to improve labor productivity with better education and skills training and raise labor force participation by encouraging entry of more women and older people into the workforce. They would also seek to prepare for an aging population through reforming healthcare, pensions, and long-term care systems.<sup>15</sup> The private sector would also have a role, as corporations may have liabilities to aging workers and need to offer more flexible employment for women and older workers.

Financial inclusion is one of the national development policies in this broad mix. If financial inclusion policy is attuned to demographic change, it could work in harmony with these other economic policies, making a unique contribution to national development. Seen in this light, financial inclusion informed by demographics would be pursued with the aims of supporting: a) growth of small and micro businesses, particularly important in countries with many adults (especially women) in the informal sector; b) increased ability of families to manage their lifecycle responsibilities (including their responsibilities as caretakers of dependents) and therefore to be available to be economically productive; and c) self-provision of social security in countries where the social safety net is still nascent. Financial inclusion is particularly important as a way to assist people to help themselves before they can be included in social safety nets and/or formal employment.

To take advantage of the demographic window, financial inclusion policy in "window" countries would focus increasingly on the shifting needs of mature families, while maintaining the policies supporting young families that are the top focus for countries in the pre-window era. The focus on mature families would emphasize savings and investment, pensions, and financial services supporting major lifecycle events (see discussions on South Africa and Mexico).

The increased need for savings that accompanies demographic change presents a major policy challenge. Global Findex data show a major gap between current savings behavior and the need for savings to support post-employment years. Worldwide, only about one-fourth of all adults reported saving in a credit union, bank, or microfinance institution within the past year.<sup>16</sup> There also remains a 28 percent savings rate difference between

<sup>15.</sup> Amlan Roy and Sonali Punhani, "European Demographics at the 'Core' — Consumers and Workers" Credit Suisse (February 22, 2010). 16. Asli Demirguc-Kunt and Leora Klapper, "Measuring Financial Inclusion: The Global Findex" *World Bank Policy Research WP 6025* (Washington, D.C.: World Bank, 2012).

developing and high-income economies, and this difference is consistent across all income levels. In the past, it was assumed that people figuratively worked until they dropped, and few people had long lives beyond the "normal" retirement age. Those few people could be cared for by the extended family and local community. As people live longer, families are more likely to care for both their parents and their children, and as families become smaller and more nuclear, extended family members become less financially interdependent and must plan on their own.<sup>17</sup> With longer life spans, something has to change. Working lives will have to extend, or pensions will need to be provided by the state (or for the better off, by employers), or children will have to care for their elderly parents, or people will need to save for their own futures. In reality, all of these strategies will be needed to create a patchwork safety net. Financial inclusion policy needs to address savings and pension services.

It is also clear that financial inclusion policies must be developed in a dialogue with the private sector that takes into account the realistic capabilities and appropriate goals of each sector. Pensions, healthcare, and economic development are major public sector challenges, and policy decisions regarding the level of provision by the public sector will have a major impact on financial inclusion, given that financially inclusive services, largely privately provided, often take up where public services leave off. For example, private savings and pensions depend on the level and fiscal sustainability of the state pension, as well as eligibility criteria.<sup>18</sup> Public intervention in pension and healthcare insurance markets could be an important driver of financial inclusion.<sup>19</sup>

For countries in the pre-window period, when childhood dependency is high and life spans remain short (see discussion on Nigeria) financial inclusion policy is best focused on the needs of younger

families and first-time users of financial services. In general, such countries have very low financial inclusion rates, and thus one high priority, already well recognized, is increased physical access. Priority needs for younger families include finance for education, new business establishment, consumer purchases, and first-time housing. While the importance of savings at every age cannot be denied, young families are traditionally assumed to be net borrowers. Young middle class families borrow to acquire a standard of living they cannot afford with their current income but expect to afford over their lifetimes. The low-income residents of pre-window countries may not have the luxury of expecting higher future earnings, but they still evidence similar needs for establishing their households. Thus, it is sensible for pre-window countries to support the growth of consumer credit, but given the potential for vulnerable families to over-borrow, this growth must be carefully monitored or regulated to ensure that providers maintain high standards of client protection.

A word is needed about the unique and important role of women in the demographic transition, as women are the focal points for much of the change taking place. Concomitant with falling fertility rates are evolving social norms and improving opportunities for women. Families are increasingly smaller with fewer children, freeing women to increase their engagement in economic pursuits, although caretaking responsibilities for both children and the elderly continue to fall disproportionally on women. Gender disparities in labor force participation remain across the world, and are quite large in many less developed countries, particularly in the Middle East and South Asia. For example, in South Africa, Russia, China, the United States, and Nigeria, men are 12 to 18 percent more likely to be working than women (depending on the country), while in Egypt, Turkey, and India men are 40 to 50 percent more likely to be working. There are parallel disparities in financial inclusion. In developing economies, only 37 percent of women hold a formal account compared to 46 percent of men. This difference remains significant even when controlling for education, age, income, and countrylevel characteristics. Women also consistently report that they use someone else's account significantly more than men, indicating that women have difficulties

<sup>17.</sup> Amlan Roy, Sonali Punhani, Liyan Shi, Arjan van Veen, and Frances Feng, "China Insurance: Demographics Underpin Positive Outlook," *Credit Suisse Connections Series* (September 2, 2011).
18. Roy and Punhani, "European Demographics at the Core."
19. In a private conversation with one of the authors, a U.S.-focused financial inclusion expert stated that lower income families should not attempt to save for their own retirement but should rely on Social Security. This, however, is a rich-country luxury unavailable for most of the poor in developing countries.

opening or maintaining accounts as sole owners.<sup>20</sup> Countries seeking to take advantage of demographic transition while not availing themselves of the full participation of women are fighting with one hand behind their backs. Financial inclusion policy should examine ways to increase financial participation by women, allowing for the realities of culture, while providers can benefit from targeting those women who are seeking to become more economically active and assisting them with their caretaking responsibilities.

In order to meet these challenges and opportunities, microfinance organizations and other providers to low-income people need to continue innovating. New savings products are needed to help the poor invest in education and for longer lives; health and life insurance products would help to manage longevity risks; credit is needed to grow microenterprises; technology can lower costs for payments and remove barriers to the formal financial system. Financial education is important to help people plan and deal with demographic change.

The analysis outlined in this report provides a new axis for evaluating financial inclusion: How well are financial inclusion trends and the policies that shape them equipping the poor and excluded to meet the opportunities and challenges of demographic change? The magnitude of the demographic changes occurring during this unique period in history is great. The developing world needs to maximize its use of the demographic window.

<sup>20.</sup> Demirguc-Kunt and Klapper, "Measuring Financial Inclusion: The Global Findex."

## **Part V. Exploration of Specific Countries**

## **South Africa**

South Africa is one of the countries whose demographic window is opening, and whose financial inclusion strategy needs to respond.

**Demographics.** During the present decade, South Africa's population is projected to grow relatively modestly, from 51.6 million in 2010 to 54 million in 2020. The window is projected to close by 2060, when the population will no longer be growing and old age dependency will be rising.

Even though the population is currently young (median age of 27) there will be fewer children and youth in South Africa in 2020 than there are today (Figure 14). All the net population growth will occur among adults and a small but rapidly growing number of elderly, especially older women (Figure 14). After the devastation of AIDS, which reduced life expectancy from 62 in the late 1980s to 52 by the late 2000s, the introduction of life-prolonging drugs is allowing life expectancy to rise again, and this change is felt strongest among existing adults. Despite continued high infant and child mortality (40-45 per 1,000), life expectancy at birth is expected to rise to 57 by 2020.



## Figure 13. South Africa Population, 2010 and 2020

The population groups that will see the greatest net increase in their numbers over the decade are adults in their 30s and adults in their 60s (Figure 14).



## Figure 14. Change in South Africa's Population by Age, 2010-2020

These trends bode well for the South African economy, as there will be more workers in the labor force, especially mature workers, and those workers will be caring for fewer dependents.

A particularly salient characteristic of South Africa is its high degree of economic inequality due to racial stratification. This fact belies South Africa's middle income status (GNI per capita: \$6,090 in 2010), and means that black South Africans remain, on average, very poor. A related observation is that more than half the workforce is informal, and expected to remain so, even though two-thirds of the population lives in urban areas.

Current Status of Financial Inclusion.<sup>21</sup> South Africa has a sophisticated financial sector, and although that sector was developed in past decades mainly to serve well-off whites, banks and other financial institutions have reached out to the lower income population, giving South Africa a far higher level of formal financial inclusion than other countries in its region. According to the Global Findex, 54 percent of adults over 15 have an account at a financial institution, compared to only 24 percent in Sub-Saharan Africa as a whole. These higher figures are true even for the more disadvantaged segments, such as those with no education beyond primary school (43 percent have accounts) and those in the bottom two quintiles by income (41 percent). Moreover, these numbers are growing fast. The Center for Global Development asserts that the rate of account holding went up from 40 percent in 2004 to 60 percent in 2009.22 Even allowing for discrepancies by data source, this information suggests very rapid change.

The pace of change has undoubtedly been influenced by electronic banking. Fully 45 percent of the adult population has a debit card, and 89 percent of account holders use ATMs to make most of their withdrawals (though not deposits). Mobile phone banking is still small, but has made inroads. Many people in South Africa use their accounts primarily to receive salary/wage deposits, pension payouts, or government benefits. There are 11 million people who receive monthly pension payments (mainly through their employers) and 14 million who receive other government benefits,<sup>23</sup> and this may explain the high penetration of bank accounts, as well as their low utilization. Over 82 percent of the people who have accounts receive no more than two deposits per months, and over 70 percent make no more than two withdrawals. In short, many bank accounts are functioning primarily as means to get paid rather than as savings vehicles or money management tools.

Compared to Africans in other countries, South Africans appear to save less and borrow more. Nearly 33 percent of those polled by the Findex reported saving in monetary form compared to 40 percent in all of Sub-Saharan Africa. The rate of borrowing from a financial institution was 8.9 percent, compared to 4.7 percent in Sub-Saharan Africa as a whole. The higher borrowing rates may be due in part to the proliferation of consumer lenders, as well as higher availability of housing finance.

A Financial Inclusion Plan for South Africa. With the demographic window open over the next decade, what will be the likely financial inclusion pressure points emerging in South Africa and what are the priorities for action? The good news is that the demographic "dividend" will create strong economic growth and a growing market for financial services in coming decade.

Given their already high penetration and rapid growth, electronic payments will not remain at the frontier of financial inclusion in South Africa for long, and certainly will be a given in 2020. It is quite likely that by 2020 nearly everyone in the country, even rural populations, will have some form of account and will use electronic means of sending and receiving money, including phone, by the end of the decade.

The challenges that remain will be more closely related to demographic trends. Finance for big needs

<sup>21.</sup> All data cited in this section are from The World Bank, *The Little Data Book on Financial Inclusion* (Washington, D.C.: The World Bank, 2012), except where noted.

<sup>22.</sup> Michel Hanouch and Richard Ketley, "Policy Innovations to Improve Access to Financial Services in Developing Countries: Learning from Case Studies in South Africa" (Johannesburg, South Africa: Genesis Analytics, forthcoming).

<sup>23.</sup> Hanouch and Ketley, "Policy Innovations to Improve Access to Financial Services in Developing Countries: Learning from Case Studies in South Africa."

(home, old age, health care, business investment) will become the focus—and the ability to pay for such services will rise.

High on the list of financial inclusion priorities would be the need and opportunity for turning the increased income of maturing South Africans (due to factors including increased salaries as they mature and lower child dependency) into longer term assets that can assist them in caring for their parents, launching their children into adulthood, and preparing for their increasingly long old age. Given that only 18 percent of South Africans in the Findex data set stated that they saved for the future in the past year, this will require a shift in savings behavior, an increase in state- and employer-funded pensions or both. Pension-holders remain in the minority, and among those employed in informal activities, pensions are virtually non-existent.

Similarly, the expected increased income from the demographic dividend can be turned into economic productivity if invested in business growth. This will be especially important for the many families who will remain in the informal sector. Unfortunately, the Findex contains no information about savings or credit for business purpose, so data are not available to determine where the gaps are in this area. Microenterprise credit in South Africa remains relatively undeveloped compared to other financial services. Small and medium enterprise credit has been a policy priority for some years, but has not taken off.

Maturing families may also be attracted to savings and credit services that offer assistance with some of their rising medium-term needs, including weddings, funerals, education, and business investment, and a larger share of the population should have sufficient income to afford such services.

Housing finance is another area that will remain at the frontier of financial inclusion for many years, and with the demographic dividend the prospects are good for rising demand by people with some ability to pay. South Africa has experimented with home improvement loans drawn against pension funds.<sup>24</sup> As long as such loans are designed with client protections in mind, they could play an important role in improving quality of life for many families.

Continued high child mortality, the high incidence HIV in the population, and the increasing number of elderly will mean that access to health insurance will be a very high priority throughout the decade.

With the generally good news on increased demand for financial services by people who can afford to use them, it is important to point out that those in rural areas and those with informal sources of income, including small farmers, will be the last to be included. Special attention will be needed to ensure that as services expand for the rest of the population, their particular needs are addressed.

Finally, there is a very real question as to whether demographic imperatives will translate into effective demand, given past behavior patterns and the cultural norms that make such patterns persist. The gap in South Africa between having a bank account and using an account for money management and savings was noted above, as was the gap between expecting a longer life and preparing financially for a longer life. South Africa has also had recent experience with over-indebtedness among people offered easy access to consumer loans. With the relatively high rate of borrowing compared to savings, debt stress may be a continuing concern. The question of when to intervene if individuals do not act in line with their long-run best interests will undoubtedly be an ongoing subject of debate among South African financial sector participants and policymakers.

## **Mexico**

Mexico is already well into its demographic window period. The Mexican population exploded during the past four decades, to 126 million, but fertility has already dropped below replacement levels pulling the growth rate well down. Over the next decade it is projected that there will be a net increase of 12-13 million people. The distribution of that growth reveals the demographic window at work: There will be 10-11 million additional adults, about 4 million additional elderly, and 1.5 million *fewer* children.

<sup>24.</sup> Hanouch and Ketley, "Policy Innovations to Improve Access to Financial Services in Developing Countries: Learning from Case Studies in South Africa."



The population segment that will increase the most are mature adults, particularly those between the ages 40-70 (see Figure 16).

Figure 16. Change in Mexico's Population by Age, 2010-2020



This mature labor force can add greatly to Mexico's economic growth, if workers find productive employment. However, there are challenges to full realization of the potential demographic dividend.

First, much of the labor force is informal, and this is changing very slowly. Our estimates are that the percentage of households with incomes mainly from the informal sector will only decrease from about 62 percent in recent years to 60 percent by 2020.



## Figure 17. Formalization of Mexican Workforce, 2000-2020 (percent of total households)



*Source:* Center for Financial Inclusion, "Mexico's Prospects for Full Financial Inclusion" (Washington, D.C.: Center for Financial Inclusion at Accion, 2009).

Women show particularly low participation in formal employment: By 2020 it is estimated that about 33 percent more men will be employed than women.

The lack of formal employment opportunities and proximity to the United States results in high net emigration out of Mexico, some years reaching as many as five people per thousand (which is much higher than Mexico's peer countries like Brazil and Indonesia). It is difficult to predict how this might change, as emigration indicators fluctuate greatly from year to year.

Mexico also faces a challenge in the growing number of elderly. Over the next decade, the share of the population over age 65 will increase from 7 to 10 percent, and while this may not seem like a drastic change, it is only the start of a steep upward climb over the following decades (reaching a quarter of the

## Figure 15. Mexico Population, 2010 and 2020

population by 2050) which will put great pressure on social welfare and health care systems.

If financial inclusion is to contribute to Mexico's ability to reap a demographic dividend, the spread of financial services will need to grow and change dramatically. Mexico is lagging in financial inclusion, with only 27 percent of adults in the Global Findex survey reporting having a bank account in a formal financial institution, well below the average for other Latin American countries as well as other countries in its income bracket (classified as upper middle income countries by the Global Findex).<sup>25</sup>

### Figure 18. Percent of Adults Over 15 with a Bank Account, 2012



Source: The World Bank, The Little Data Book on Financial Inclusion.

Inequalities are especially striking: Only 12 percent of adults in the bottom 40 percent of the income distribution have accounts (the comparable figure in South Africa is 41 percent of adults), and only 11 percent of those living in rural areas.

Moreover, the banking models in use remain traditional, with over 80 percent of people making their deposits at a bank branch. Agent and mobile banking, though the subject of a great deal of policy attention, have not yet achieved significant scale.

Mexican financial inclusion efforts have been focused on increasing access to financial services through geographic penetration. One target has been to ensure that all municipalities have at least one banking outlet in order to reach rural populations, and this policy priority has led to regulatory change in support of agent and mobile banking. While this focus is certainly one important priority, demographic trends suggest that there are additional priorities that may soon emerge.

One of these is the availability of services for people in the informal sector and lower income segments. The vast majority of the excluded work in the informal sector, are low income, and live in urban as well as rural areas. Moreover, the growth of usage among those in the informal sector and low-income people has been well below growth in the employed middle class. Among the middle class, consumer credit has expanded rapidly during the past decade, making it the only area of significant growth in coverage, as epitomized by the appliance-sales-based credit pioneered by Grupo Elektra, now Banco Azteca. This expansion in consumer credit has been riding on the growth of young families in the past decade.

In considering how to reach low-income segments, it is important to note that while informality is not changing, incomes are. Not only will there be fewer households in poverty by 2020, among the poor, the number of desperately poor is expected to decrease significantly over the next few years, with many families moving up into what Mexican authorities call asset poor from the lowest level, nutrition poor. The significance of this is that people in the asset poor category are likely to have a small amount of discretionary income, sufficient to enable them to afford financial services, thus creating a new marketready segment, if appropriate services are offered.

<sup>25.</sup> This number is lower than household surveys conducted by the Mexican government which show savings account penetration at 37 percent of households (cited in Center for Financial Inclusion, "Mexico's Prospects"). One possible reason for the discrepancy could involve the Findex survey's emphasis on individual rather than household account ownership.





An important focus of financial inclusion efforts over the next few years should be to meet the financial needs of mature adults of modest means who are working in the informal sector. People in this group will need specialized services, as they are not easily reached through employer-based products, and in particular, as mature adults, they will need services associated with aging and preparing for retirement.

#### Nigeria

As a low income country, Nigeria still has the demographic features commonly associated with underdevelopment—high fertility and low life expectancy. Its population pyramids still show the traditional smooth conical curves of a pre-window country (see Figure 20).



#### Figure 20. Nigeria Population, 2010 and 2020

By far the majority of the population growth in Nigeria over the next decade will occur among children and youth (see Figure 21). The population of young adults will also increase, but not enough to offset the deluge of children they will be caring for. Youth dependency will grow, constituting a drag on economic growth for several more decades.

## Figure 21. Change in Nigeria's Population by Age, 2010-2020



At the same time, Nigeria has a long way to go before it could be considered financially inclusive. On most measures of account-holding, it is at or slightly above average for African countries, with 30 percent of adults having accounts. Low-income populations are significantly less likely to have accounts: Only 14 percent of the lowest two quintiles of the population have accounts. And there is a gender gap in accounts between men and women of about 7 percent.

26. Center for Financial Inclusion, "Mexico's Prospects."

It is clear that the priorities for financial inclusion in Nigeria will be far different from those in either Mexico or South Africa. Nigeria has been struggling for the past several years with the challenge of creating sound and solvent banks overseen by strong prudential regulation. It has also sought to extend banking services to low-income people through microfinance banks. However, it has confronted challenges related to the institutional capability of these banks for the poor, many of which have been forced to close due to insolvency. These challenges may be part of the explanation for the very low penetration of credit services in Nigeria, with only 2 percent of adults accessing credit from a formal financial institution and only 2 percent from an informal lender, both well below the average for Africa. Until the institutional stability challenges are met, they will necessarily absorb much of the attention of financial sector policymakers.

Nigeria may be in a good position to work on extending physical access to basic account and payment services through technology. Mobile phone banking has already made some inroads (10-11 percent of adults use phones to send or receive money), and many people in Nigeria use banking services to receive remittances. In fact, according to the Global Findex, receiving remittances is the most frequent response to the question of how people with bank accounts use them. One of the bright spots in the picture of financial inclusion in Nigeria is the very strong propensity to save. Nearly two-thirds of Nigerians said that they saved in the past year, compared to 40 percent of Africans and only 28 percent of lower middle income countries (Nigeria's global reference group in the Findex). And this savings behavior shows up in both formal savings (24 percent of savers, well above average for comparable countries) and informal savings (45 percent of savers, also above comparable averages). This strong savings emphasis may be the result of cultural factors. It could also reflect the lack of availability of credit as a financial tool.

To draw conclusions from these observations, a financial inclusion policy for Nigeria over the next decade that is fully informed by demographic factors, current financial inclusion indicators and recent financial sector issues might emphasize the following: 1) institutional solvency and stability; 2) expansion of access to basic account and payment services through technology; and 3) entry of youth into the financial system. Expansion of credit to meet the needs of young families could be a fourth priority, but only if institutional stability has been significantly achieved.

## Annex: Demographic Windows by Country and Region<sup>27</sup>

Demographic transition creates a unique window of opportunity with several potential benefits. It expands the working-age population, reduces child dependency, and encourages saving for retirement. The window can be defined as open when the proportion of the population ages 0-14 has fallen below 30 percent and the proportion of the population ages 65+ is still below 15 per cent (United Nations definition).

The following diagram plots the demographic window by region and country. Orange shading signifies that the window has closed, blue shading that the window is currently open, and grey shading that the window is projected to open in the future.

*01212 and	*012f1as @10, @23, @23, @23, @23, @10, @25, @29, @69, @10, @69, @26,
	Brazil (2000-2025)
Albania (2000-2020)	Caribbean (2000-2025)
Austria (1950-1985)	Central America (2015-2035)
Belarus (1950-1995)	Chile (1990-2020)
Belaium (1950-1985)	Colombia (2010-2030)
Bosnia & Herzeg <mark>ovina (1980-200</mark> 5)	Costa Rica (2005-2025)
Bulgaria (1950-1990)	Cuba (1985-2010)
Croatia (1950-1990)	Dominican Republic (2015-2035)
Czech Republic (1950-1990)	Ecuador (2010-2035)
Cyprus (1975-2010)	El Salvador (2015-2040)
Denmark (1950-1980)	French Guiana (2020-2050)
Estonia (1950-1990)	Guatemala (2045-2065)
Finland (1950-1985)	Guyana (2015-2035)
France (1950-1985)	Haiti (2030-2055)
Germany (1950-1985)	Honduras (2025-2050)
Greece (1950-1985)	Jamaica (2010-2025)
Hungary (1950-1985)	Mexico (2010-2030)
Iceland (1980-20 <mark>10)</mark>	Nicaragua (2020-2040)
Ireland (1950-2010)	Panama (2010-2030)
Italy (1950-1985)	Paraguay (2020-2050)
Latvia (1950-1990)	Peru (2010-2035)
Lithuania (1950-1995)	Suriname (2005-2030)
Luxembourg (1950-1985)	South America (2005-2030)
Macedonia (198 <mark>0-2010)</mark>	Trinidad & Tobago (2000-20 <mark>25)</mark>
Malta (197 <mark>0-2000)</mark>	Uruguay (1950-1995)
Moldova (1950-2015)	Venezuela (2010-2035)
Montenegro (19 <mark>80-2010)</mark>	MIDDLE EAST and NORTH AFRICA
Netherlands (1950-1985)	Algeria (2005-2035)
Norway (1950-1980)	Bahrain (1995-2035)
Poland (1950-2000)	Egypt (2020-2045)
Portugal (1950-1985)	Iran (2005-2035)
Romania (1950-2000)	Iraq (2055-2080)
Russia (1950-2000)	Israel (1995-2015)
Serbia (1950-1995)	Jordan (2025-2050)
Slovakia (1950-2010)	Kuwait (1995-2045)
Slovenia (1950-1995)	Lebanon (2005-2030)
Spain (1950-1985)	Libyd (2020-2040)
Sweden (1950-1970)	Morocco (2010-2035)
Switzerland (1950-1985)	Oman (2010-2035)
Ukitalile (1950-1990)	Quildi (1985-2040)
US and Canada (1950-1980)	Sudan (2015-2043)
	Surian Arah Popublic (2020-2045)
Belize (2025-2045)	Turkey (2005-2030)
Bolivia (2030-2055)	United Arab Emirates (1975-2035)

27. UN, World Population Prospects: The 2010 Revision.

495 496 496 496 499 200 20 <sup>6</sup>	· · · · · · · · · · · · · · · · · · ·
Western Sahara (2010-2040)	Congo (2055-2085)
Yemen (2050-2075)	Côte d'Ivoire (2045-2075)
CENTRAL ASIA and the CAUCUSES	Democratic Republic of the Congo (2055-2085)
Central Asia (2010-2045)	Djibouti (2035-2070)
Armenia (1995-2015)	Equatorial Guinea (2050-2080)
Azerbaijan (2005-2030)	Eritrea (2045-2075)
Georgia (1950-2000)	Ethiopia (2035-2060)
Kazakhstan (1995-2040)	Gabon (1950-2065)
Kyrgyzstan (1950-2050)	Gambia (2050-2085)
Tajikistan (2035-2055)	Ghana (2040-2070)
Turkmenistan (2010-2045)	Guinea (2055-2085)
Uzbekistan (2010-2040)	Guinea-Bissau (2060-2095)
ASIA (2005-2030)	Kenya (2060-2085)
EASTASIA	Lesotho (2035-2075)
Brunei (2005-2035)	Liberia (2060-2095)
Cambodia (2015-2050)	Madagascar (2055-2080)
China (1990-2020)	Malawi (2085-2100)
Indonesia (2005-2035)	Mali (2070-2100)
Japan ( <mark>1965-1990)</mark>	Mauritania (2050-2080)
Korea (North) (1985-2030)	Mauritius (1990-2025)
Korea (South) (1990-2010)	Mozambique (2060-2085)
Laos (2020-2050)	Namibia (2030-2060)
Malaysia (2015-2040)	Niger (2085-2100)
Mongolia (2005-2045)	Nigeria (2070-2095)
Myanmar (2005-2035)	Rwanda (2060-2085)
Philippines (2025-2055)	Sao Tome & Principe (2035-2065)
Singapore (1980-2015)	Senegal (2055-2085)
Thailand (1990-2020)	Sierra Leone (2050-2085)
Timor-Leste (2055-2080)	Somalia (2090-2100)
Viet Nam (2005-2030)	South Africa (2010-2060)
SOUTH ASIA	Swaziland (2035-2070)
Afghanistan (2055-2085)	Uganda (2065-2095)
Bangladesh (2015-2040)	Tanzania (2080-2100)
Bhutan (2010-2040)	Togo (2040-2070)
India (2015-2045)	Zambia (2100-2100)
Maldives (2010-2035)	Zimbabwe (2035-2060)
Nepal (2020-2050)	
Pakistan (2025-2055)	
Sri Lanka (1995-2020)	
AFRICA	
Angola (2050-2080)	
Benin (2060-2090)	
Botswana (2025-2060)	
Burkina Faso (2070-2100)	
Burundi (2035-2065)	
Cameroon (2050-2080)	
Cape Verde (2015-2040)	
Central African Republic (2045-2080)	
Chad (2060-2090)	
Comoros (2060-2090)	

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