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FUTURE ISSUE: DEMOGRAPHIC SHIFTS

THE HAGUE CENTRE FOR STRATEGIC STUDIES AND TNO

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THE HAGUE CENTRE FOR STRATEGIC STUDIES (HCSS) AND TNO

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The TNO and *The Hague* Centre for Strategic Studies (HCSS) programme Strategy & Change analyzes global trends in a dynamic world affecting the foundations of our security, welfare and well-being.

The programme attempts to answer the critical question: what are the policies and strategies that must be developed to effectively anticipate on these emerging challenges?

Strategy & Change provides both a better understanding and feeds the agenda for a sustainable future of our society.

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EXECUTIVE SUMMARY

Demographic developments impact many social, economic, ecological, and political aspects of life. Their fundamental importance in shaping the key policy challenges of our society is quite often overlooked because of their ubiquity on the one hand and slow-pace-of-change on the other. Yet, demographic developments and their divergence within and across global regions have the potential to profoundly affect the future political, economic, social, and cultural order.

This report broadly sketches the demographic trajectories of seven geographically defined regions and highlights some of the threats and opportunities that may stem from each of these trajectories. Rather than relying solely on the traditional UN demographic projections, this assessment mined other studies for their insights and identified shared views of future demographic developments as well as their implications, while at the same time pointing out the significant number of uncertainties that exist in these future perspectives.

In addition, the research reviewed how potential opportunities originating from demographic shifts could be spurred and negative implications could be countered. Thus, it examined possible policy directions in the field of security, technology & innovation, sustainable development, and economy & society.

The **first part of the report** presents the various regional demographic characteristics. It is clear that different regions face different challenges and opportunities even if experiencing similar demographic conditions.

The population of the **Middle East and North Africa** will undergo a series of demographic shifts that will increase the regional labor force, resource consumption, the number of individuals with limited societal links, and

urban concentration. On one hand, these developments have the potential of affording tremendous economic benefits to MENA; however, without changing certain structural conditions (i.e., low global competitiveness/ease of doing business, perceptions of instability, corruption, etc.), it is likely that demographics will only add to list of problems facing the region over the next twenty years.

Sub-Saharan Africa will likely experience the same demographic shifts as the MENA region but only at a more exaggerated rate. Over the next twenty years, it is highly unlikely that the region will develop the structural conditions necessary for moderating the negative effects of these changes, much less capitalizing on the positive ones. As such, demographics will likely erode the stability and development prospects of Sub-Saharan Africa; however, if the region manages to overcome the vast array of hurdles, demographics could provide a much needed economic boost.

The population in **Latin America and the Caribbean** will likely grow larger and become increasingly concentrated in urban areas. At the same time, declining fertility and mortality rates will cause the region to age substantially. On the one hand, this combination (along with fair to favorable structural conditions) will allow the region to avert many of the negative security implications associated with these particular demographic developments. On the other hand, though, it may prevent Latin America and the Caribbean from taking full advantage of the potential economic benefits associated with an expanded labor force and urban growth.

Over the next twenty years, the **North America, Australia, and New Zealand** region will see its population gray and become more ethnically diverse. Furthermore, due to expectations of high immigration levels, it is highly unlikely that the region will see a decline, much less a substantial one, in its labor force. Although this should spare the region from many of the negative economic implications associated with aging, immigration and its impact on ethnic composition may create problems for societal cohesion.

Demographics shifts in **Asia** will unfold in a varied manner. Although retention of traditional values and male gender imbalances will impact the entire region, this, however, is the extent of the similarities between the highly developed Asian states/territories (i.e., Japan, South Korea,

	POPULATION GROWTH	URBAN GROWTH	AGE STRUCTURE	GENDER IMBALANCES	MIGRATION STATUS
SUB-SAHARAN AFRICA	High	High	Young	Limited	Net Supplier
MIDDLE EAST AND NORTH AFRICA	High	High	Young to Middle-Aged	Moderate	Net Supplier
LATIN AMERICA AND THE CARIBBEAN	Moderate	Limited	Middle-Aged	Limited	Net Supplier
EMERGING ASIA	High	High	Young to Middle-Aged	High	Net Supplier
ADVANCED ASIA	Negative to Limited	Limited	Aged	Moderate	Net Recipient
EASTERN EUROPE AND RUSSIA	Negative to Limited	Limited	Aged	Limited	Net Supplier (Eastern Europe) Net Recipient (Russia)
NORTH AMERICA, AUSTRALIA AND NEW ZEALAND	Limited	Limited	Middle-Aged	Moderate	Net Recipient
WESTERN EUROPE	Negative to Limited	Limited	Aged	Moderate	Net Recipient

FIGURE 1: OVERVIEW OF DEMOGRAPHIC SHIFTS BY REGION

Singapore, and the Chinese Special Autonomous Regions) and the lesser developed ones. The former are expected to age significantly and undergo demographic decline, whereas the latter will experience the same shifts as both Sub-Saharan Africa and the Middle East and North Africa. As such, the outlook for each of these sub-regions is quite disparate. **Advanced Asia**, if it can effectively muster its innovation potential, has the opportunity to develop an agile, skilled, and prosperous population. If it cannot, however, the sub-region will likely experience economic retrenchment and a declining quality of life. **Emerging Asia**, on the other hand, may face considerable economic, security, and well-being challenges on account of its demographic shifts. Yet, if the sub-region effectively addresses a number of structural issues, it could be rewarded with an extremely productive population, as

opposed to, an extremely volatile one. Interestingly, **China and India** do not entirely conform to either group. At the moment, China has a population resembling that of emerging Asia; however, due to the nature of its particular demographic shifts, the Chinese population will increasingly become similar to that of advanced Asia and roughly equivalent by 2050. India, on the other hand, currently has the population dynamics of emerging Asia. Like China, India will see its population gradually move away from the emerging Asia norm over the next twenty years; however, unlike China, it will continue to have more in common with emerging Asia than advanced Asia.

Eastern Europe and Russia will likely experience an increase in its elderly population and a decrease in its labor force over the next twenty years. On its current trajectory, the region will likely see a decline in its level of development due to a loss of productive capacity and mounting age-related costs. Yet, at the same time, opportunities exist for the region, especially if it can leverage its high skill base and / or utilize its growing elderly population in an economically productive manner.

Western Europe will undergo the same demographic shifts as Eastern Europe and Russia in addition to becoming more ethnically diverse. On the one hand, without a number of structural changes, Western Europe faces the prospect of economic retrenchment, internal (social) tensions, and age-related epidemics (e.g., dementia) amongst other less than desirable repercussions. On the other hand, if the region manages to overcome its aging problem and historically restrictive stance to immigration, Western Europe will likely enjoy a boost in its standard of living and quality of life.

The **second part of the report** focuses on the positive and negative implications of demographic shifts and the possible policy responses that these implications require to either facilitate or mitigate them. These should be the main topics of the policy debate in Europe today based on the demographic consequences of tomorrow.

Each of the demographic factors has different consequences for the political, economic, and social conditions in these regions. Issues, such as brain drain, increased productive capacity, resource scarcity, transition to renewable energy, agile workforce, decreased worker productivity, increased role for the elderly, strain on social security systems, radicalization,

FIGURE 2: FOCUS POINTS FOR POLICY FOR WESTERN EUROPE

and increased international collaboration, present the myriad of possible positive and negative implications. As a result, the diverse mixture of demographic factors presented in table 1, will propel quite different dynamics per region and, consequently, will require distinctive policy responses.

Concluding, the report arrives at a final list of 11 critical policy concerns and identifies the role that 4 main policy domains – technology, sustainable development, security, and economics and society – could play in addressing a broad range of demographic consequences.

INTRODUCTION

Demographics are a key driving force of many societal, political and economic developments. Their fundamental importance in shaping the key policy challenges of our society is quite often overlooked because of their ubiquity on the one hand and slow-pace-of-change on the other. Yet, demographic developments and their divergence within and across global regions have the potential to profoundly affect the future political, economic, social, and cultural order.

It may be argued that different regional demographic dynamics warrant a number of observations. Societies with declining populations in the developed world will need more laborers to sustain their labor forces, which will likely lead to an increased 'competition' amongst regions for migrants. Shifts in the composition of labor forces in the developed world (i.e., more women, more elderly people, more immigrants) will likely affect society as a whole as these changes will impact the ways societies operate. It may prompt new forms of career paths and work-life balance. Technology and innovation will need to play an important role in boosting productivity. It is highly likely that the twentieth century welfare state will be adapted to be more closely in line with demographic realities of the twenty first. Greater demands on healthcare by graying populations will produce new ethical, legal, and social issues. Meanwhile, developing economies will have much younger populations, which on the one hand provide them with tremendous potential labor reservoirs but on the other means that they need substantial economic growth in order to ensure sufficient employment opportunities. While this may offer some tremendous economic benefits, others will struggle and may face the negative consequences of so-called youth bulges. Developing countries that are further ahead on their demographic trajectories will face problems similar to the ones of developed countries and will see their informal networks of welfare provision challenged. Urbanization, a process that is expected to continue globally, will

dramatically widen access to healthcare and education enrollment and will mark a leap into modernity for rural populations across the world. Yet, at the same time, unstructured urbanization may lead to slum formation and be a source of civil unrest.

This report broadly sketches the demographic trajectories of seven geographically defined regions (see figure 1) and highlights threats and opportunities that may stem from these trajectories. It provides a regional comparison looking at economic, political, social consequences within each of these regions.

Most forward-looking demographic studies base their claims chiefly on the quantitative population and urbanization data provided by the United Nations Population Division as it provides a centralized source of global demographic data. This report, instead, mines other studies for their insights and identifies shared views of future demographic developments as well as their implications, while at the same time not shying away from pointing out the significant number of uncertainties that exist in these future perspectives.

This report applied the following approach. First, it amassed a sizeable collection demographic foresight studies and mined them for their insights using the Metafore approach.[1] Next, by aggregating the regional insights, HCSS generated a series of overarching conclusions. Finally, on the basis of the literature review as well as a series of expert interviews, HCSS explored the potential implications of the anticipated regional demographic developments, along with the relevance that these developments may have for Western Europe in the areas of security, technology and innovation, sustainability, and economy and society.

1 See Bibliography for a complete list of foresights

FIGURE 3. DEMOGRAPHIC DEVELOPMENTS ACROSS SEVEN GEOGRAPHIC REGIONS

THE METAFORE APPROACH

The Metafore Approach is a four stage process that allows HCSS to distill the bandwidth of the debate on an issue from a body of foresight studies. In the first phase, teams collect large numbers of foresight studies, forward-looking perspectives on a specific issue (e.g., demographics). The goal in this phase is to cast a wide net and gather as many views of the future as possible. The second phase involves extracting three sets of elements from the foresight studies: parameters, drivers, and implications (PDI). Parameters are the key attributes of a particular phenomenon that are likely to change in the future (e.g., population growth). Drivers are those forces likely to cause change in the parameters (e.g., increased longevity), whereas the implications are what evolves from the current or changing trajectories of the parameters (e.g., demographic dividend). Next, in the third phase, analysts code the insights contained in these studies using the PDI scheme. The final phase involves analysis of the coded parameters, drivers and implications.

Before proceeding, it is important to note that Appendix A contains an explanation of selected demographic concepts, whereas Appendices B and C provide an overview of the parameters and drivers selected by HCSS.

PART 1: REGIONAL ANALYSES OF DEMOGRAPHIC SHIFTS

This section provides an assessment of the potential impact of shifting demographics in seven regions across the globe. The individual overviews describe the key parameters, drivers and implications discussed in the foresight discourse, and give an assessment of the threats and opportunities that may spring from these developments. The regional assessments will be discussed in the following order: Middle East and North Africa; Sub-Saharan Africa; Latin America and the Caribbean; North America, Australia, and New Zealand; Asia; Eastern Europe and Russia; and Western Europe.

1.1 MIDDLE EAST AND NORTH AFRICA

META-ANALYSIS

The key themes emerging from the discourse regarding demographic shifts in the Middle East and North Africa include: ***population growth, youthful populations, rapid urbanization,*** and ***high unemployment***. This section details future demographic developments in the Middle East and North Africa.

KEY PARAMETERS	Growing population, young population, rapid urban expansion, high unemployment
KEY DRIVERS	Increased longevity, high (albeit declining) fertility
KEY IMPLICATIONS	Demographic dividend, internal stability, youth bulges, women in the work force, brain drain

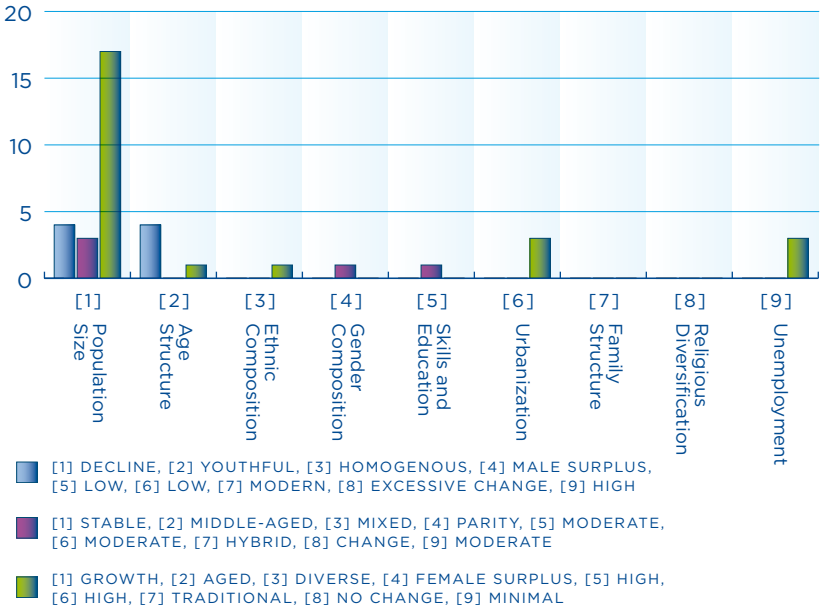


FIGURE 4. META-ANALYSIS – MIDDLE EAST AND NORTH AFRICA PARAMETERS

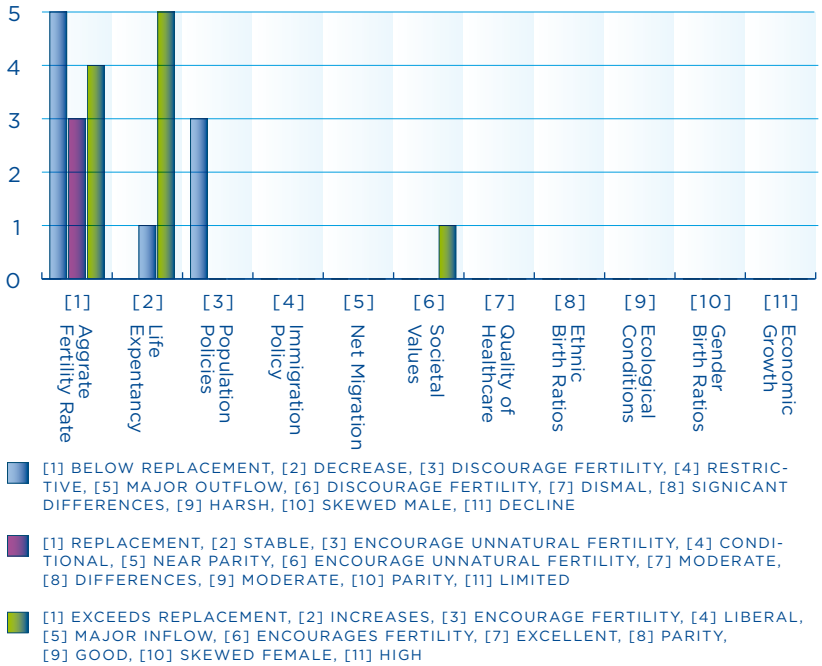


FIGURE 5. META-ANALYSIS – MIDDLE EAST AND NORTH AFRICA DRIVERS

DEMOGRAPHIC DEVELOPMENTS

There is general agreement that the population of the Middle East and North Africa region will continue to grow. UN population estimates indicate that all but five states will exceed the average global growth rate and that two states/ territories, Yemen and Palestine, will experience three-times this growth. At the regional level, this increase is being driven by above-replacement fertility rates (i.e., 2.37 children per woman) and low mortality rates. Due to its high fertility rates, the Middle East and North Africa region will remain fairly youthful. In 2030, most populations will have a median age less than the global average (i.e., 34.2 years). Seven Middle East and North Africa states will have a median age of less than 30, whereas only Cyprus will have a median age in the 40s.[2]

2 Although Cyprus is a member of the European Union, it is demographically most similar to the more developed states in the Middle East (e.g., Iran, UAE).

The Middle East and North Africa region will have high levels of unemployment over the next twenty years. This stems from the fact that the working age population will increase by 121 million (i.e., 37%) and many regard the regional economy incapable of growing enough to absorb this additional labor capacity. The foresights suggest that this partly stems from the education and training received in the region, namely religious and humanities education as opposed to engineering and technical training. Consequently, this is expected leave the region without a competitive technical knowledge base, which will inhibit its ability to attract foreign investment, and thus, further dampen regional employment prospects.

The region is expected to become increasingly concentrated in urban areas over the next twenty years. By 2030, the United Nations anticipates that the Middle East and North Africa will gain 148 million new urban inhabitants, approximately 50% growth. The less developed states/territories, such as Yemen, Sudan, and the Occupied Palestinian Territory, will undergo the most substantial relative growth, in excess of 66%. Furthermore, eight states will accrue over ten million urban inhabitants over the next twenty years: Iran, Iraq, Saudi Arabia, Yemen, Egypt, Sudan, Turkey, and Algeria of 10 million.

IMPLICATIONS

These demographic developments in conjunction with a number of environmental factors may result in a variety of implications that harness both threats and opportunities. The predominant focus in the analysis is on five key implications: demographic dividend, youth bulge, internal stability, women in the workforce, and brain drain.

Over the next twenty years, the Middle East and North Africa will progress with its demographic transition and develop the requisite conditions for transforming its youth bulge into a worker bulge (i.e., a fertility rate decline that increases the number of laborers and simultaneously lowers the childhood dependency ratio). Typically, this could contribute to substantial economic benefits to those states that have the employment opportunities to effectively utilize the labor surge. Expectations, however, suggest that the regional economy will not achieve the necessary annual growth levels necessary to incorporate the additional labor capacity. As such, the region will be left with higher unemployment levels and deprived of a merited

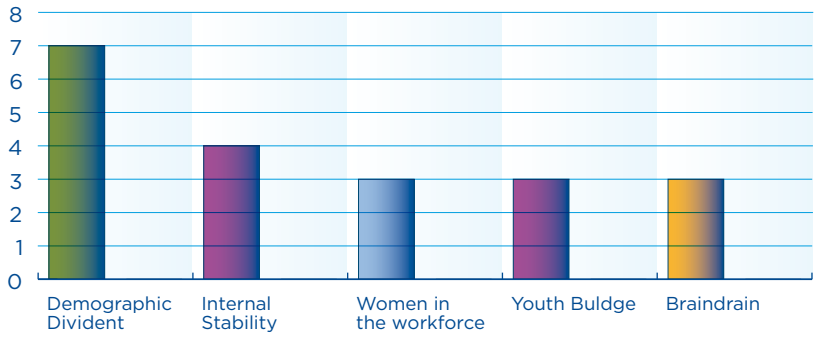


FIGURE 6. META-ANALYSIS – MIDDLE EAST AND NORTH AFRICA IMPLICATIONS

economic boost capable of alleviating many problems within the region (e.g., security threats of youth bulges, increased susceptibility to radical ideologies, etc.).

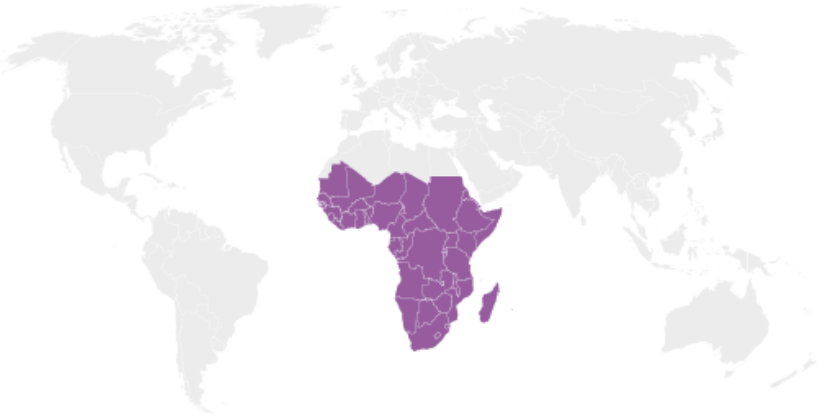
At the same time, certain, less developed, states are expected to retain their youth bulges for the foreseeable future on account of their extremely high fertility rates (i.e., Iraq, Palestinian Occupied Territory, and Yemen). The youth bulges in conjunction with rapid urbanization and high unemployment will leave these states with a higher risk of experiencing internal instability.

Demographically-induced instability will not be confined to the less developed states. Specifically, they suggest that high unemployment levels and corrupt social systems will lead to the disenfranchisement of the well-educated young adult demographic and increase their receptiveness to radical ideologies. Alternatively, high fertility rates and massive population growth will increase scarcity, especially water, across the region, which has the potential to promote both interstate conflict and intrastate conflict between the 'haves' and 'have nots.'

Over the next twenty years, women are expected to play a larger role in the Middle East and North African labor force. Many studies project that the female labor force will actually grow faster than the male labor force. Increased female labor force participation, although beneficial from an equality perspective, will only compound the expected unemployment problem.

Finally, prospects of internal instability and rampant unemployment in the Middle East and North Africa region in conjunction with substantial opportunities in Western Europe will likely drive talented young individuals to leave the region.

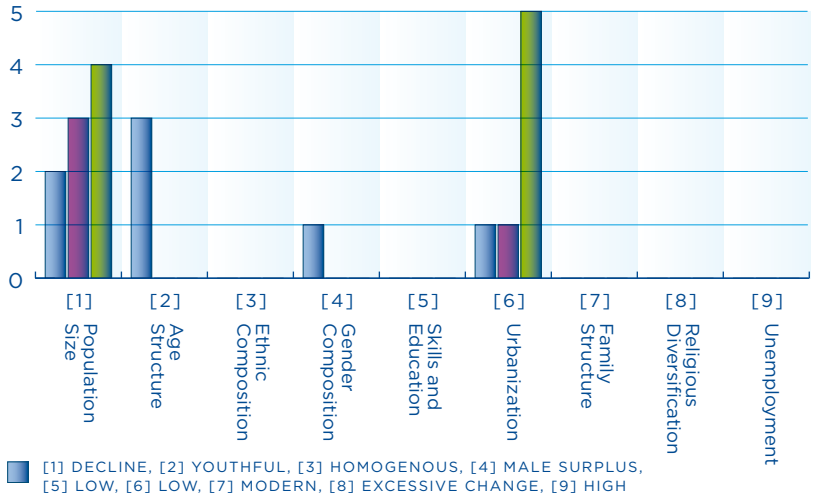
1.2 SUB-SAHARA AFRICA



META-ANALYSIS

Overall, the foresight community has paid scant attention to shifting Sub-Saharan demographics. Moreover, when the topic is examined, the discussion rarely strays from those aspects covered in the United Nations' population projections. Given this bias, the debate about future Sub-Saharan demographics is focused on the following dynamics: ***the population will continue to grow, remain youthful,*** and ***become increasingly concentrated in urban areas.*** This section provides an overview of future demographic developments in Sub-Saharan Africa.

KEY PARAMETERS	Growing population, young population, rapid urban expansion
KEY DRIVERS	Low mortality, high fertility
KEY IMPLICATIONS	Youth bulges

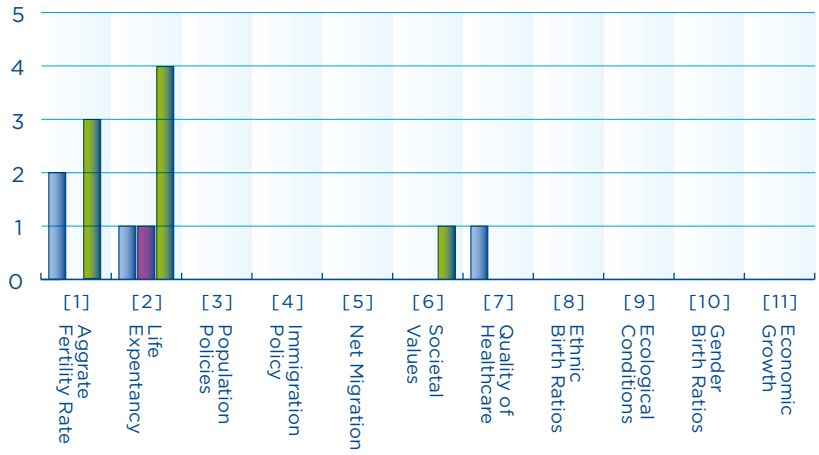


[1] DECLINE, [2] YOUTHFUL, [3] HOMOGENOUS, [4] MALE SURPLUS, [5] LOW, [6] LOW, [7] MODERN, [8] EXCESSIVE CHANGE, [9] HIGH

[1] STABLE, [2] MIDDLE-AGED, [3] MIXED, [4] PARITY, [5] MODERATE, [6] MODERATE, [7] HYBRID, [8] CHANGE, [9] MODERATE

[1] GROWTH, [2] AGED, [3] DIVERSE, [4] FEMALE SURPLUS, [5] HIGH, [6] HIGH, [7] TRADITIONAL, [8] NO CHANGE, [9] MINIMAL

FIGURE 7. META-ANALYSIS – SUB-SAHARAN AFRICA PARAMETERS



[1] BELOW REPLACEMENT, [2] DECREASE, [3] DISCOURAGE FERTILITY, [4] RESTRICTIVE, [5] MAJOR OUTFLOW, [6] DISCOURAGE FERTILITY, [7] DISMAL, [8] SIGNICANT DIFFERENCES, [9] HARSH, [10] SKEWED MALE, [11] DECLINE

[1] REPLACEMENT, [2] STABLE, [3] ENCOURAGE UNNATURAL FERTILITY, [4] CONDITIONAL, [5] NEAR PARITY, [6] ENCOURAGE UNNATURAL FERTILITY, [7] MODERATE, [8] DIFFERENCES, [9] MODERATE, [10] PARITY, [11] LIMITED

[1] EXCEEDS REPLACEMENT, [2] INCREASES, [3] ENCOURAGE FERTILITY, [4] LIBERAL, [5] MAJOR INFLOW, [6] ENCOURAGES FERTILITY, [7] EXCELLENT, [8] PARITY, [9] GOOD, [10] SKEWED FEMALE, [11] HIGH

FIGURE 8 META-ANALYSIS – SUB-SAHARAN AFRICA DRIVERS

DEMOGRAPHIC DEVELOPMENTS

The overall size of the population in Sub-Saharan Africa will likely continue to grow on account of high fertility and improved mortality rates. At the same time, concerns about states with pronounced AIDs problems (e.g., Kenya, South Africa, Zimbabwe, etc.) might seriously affect the extent to which these growth patterns will occur.

Due to its high fertility rates (i.e., approximately 4 children per female), Sub-Saharan Africa will remain a relatively young region. By 2030, the United Nations projects that every state in the region will have a median age of less than 30 with the exception of two island states in the Indian Ocean. Niger, Somalia, Burkina Faso, Chad, Tanzania, Uganda, and Zambia will all have a median age of less than 20. In fact, 56% of the regional population, 732 million people, will be less than 24 years old.

Urbanization will play a major role in shaping Sub-Saharan demographics. The region will see its urban population nearly double by 2030, and eighteen states will experience more than 33% urban growth. Unlike most other regions where urbanization is more evenly spread and more gradually accomplished, this growth will be concentrated in larger cities. According to the United Nations, 55% of the region's new urban residents will settle in cities with at least 750,000 residents.

IMPLICATIONS

These demographic developments will likely result in rising in regional youth bulges, brain drain, income inequality and social services strain.

It seems to be a consensus view that Sub-Saharan Africa will likely remain in a 'development doom-loop' for the next twenty years. The fundamental problem is that the unfolding demographic trajectory will exacerbate two existing regional shortcomings: limited ability to grow domestically as well as internal and regional instability.

Current and expected fertility rates can only lead to positive economic developments if accompanied by infrastructural and educational improvements. Yet, expectations of these improvements are low. Educated persons will continue to leave the region as opportunities for development are limited. High childhood dependency ratios prevent Sub-Saharan Africa

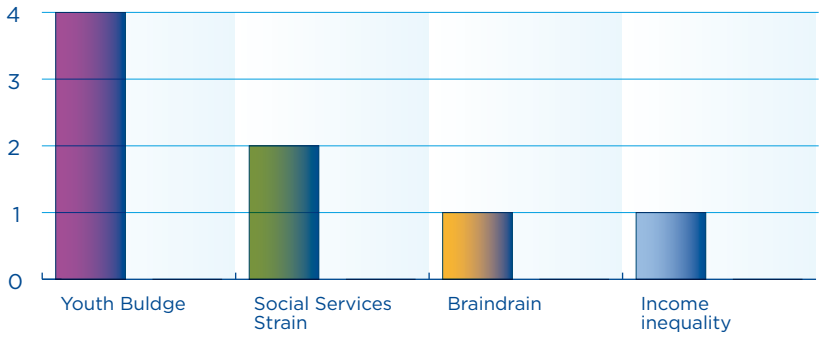


FIGURE 9. META-ANALYSIS – SUB-SAHARAN AFRICA IMPLICATIONS

from forming an economically advantageous workers bulge and restrict investment opportunities for individuals.

Continued population growth may put more pressure on regional resources. This will not only increase issues related to scarcity (i.e., decreasing per capita amounts of potable water) but may also cause ecological damage, particularly agricultural degradation, which has the potential to deprive people of their livelihoods.

These developments have the potential to undermine regional stability on account of three factors.

First, increased scarcity and ecological degradation, resulting from population growth, have the potential to promote resource-based conflicts. The prospect becomes ever more likely when existing ethnic tensions and high degrees of inequality are factored into the equation. Second, the nature of Sub-Saharan urbanization also has the potential to spawn unrest.

Typically, rapid, unstructured urbanization has proved problematic for low-income states. Specifically, they lack the economic capacity to field the infrastructure necessary to keep pace with urban growth, which has led to the development of slums as well as increased crime and civil discontent. This issue will be exacerbated in Sub-Saharan Africa because urban growth will be concentrated in mega-cities and large urban agglomerations, which

already lack the appropriate infrastructure and have substantial slums. More managed urban planning could alleviate these current and anticipated problems. This is not yet in place because of lack of resources and knowledge.

Third, the regional age structure also has the potential to promote conflict. Youthful populations tend to exhibit more violent behavior because they lack the societal attachments of older adults (i.e., family, career, etc.). Unfortunately, Sub-Saharan Africa possesses all of the factors that aggravate this problem (i.e., high unemployment, ecological degradation, and rapid, unstructured urbanization) and none that mitigate it (i.e., educated workforce and economic opportunity).

1.3 LATIN AMERICA AND THE CARIBBEAN

META-ANALYSIS

As with the Sub-Saharan Africa, demographic shifts in Latin America and the Caribbean garnered little discussion in the foresight discourse. From this biased debate, the chief expectations of changing population characteristics in Latin America and the Caribbean include: ***population growth, population aging (based on fertility and mortality declines),*** and ***urban expansion.*** This section provides an overview of future demographic developments in Latin America and the Caribbean.

KEY PARAMETERS	Population Growth, Urban Expansion
KEY DRIVERS	Low mortality
KEY IMPLICATIONS	Social services strain

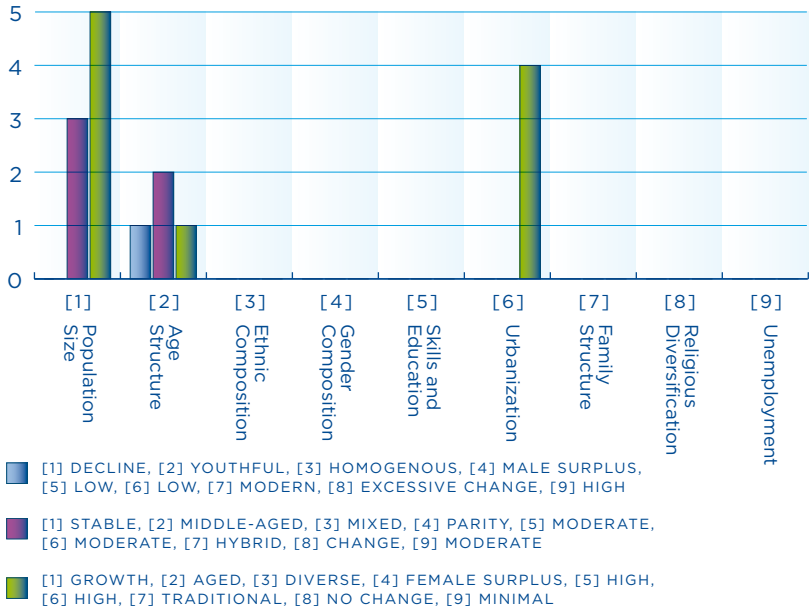


FIGURE 10 META-ANALYSIS – LATIN AMERICA AND THE CARIBBEAN PARAMETERS

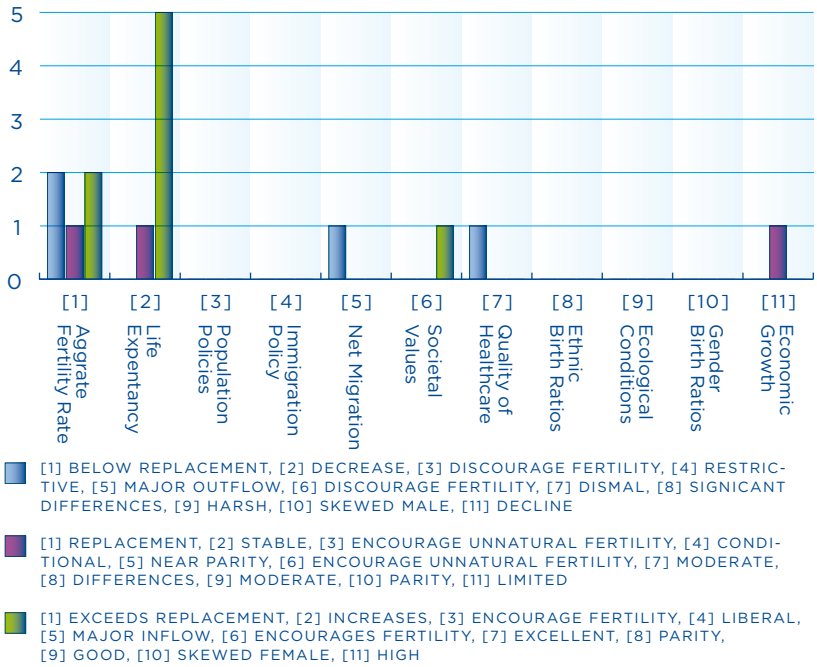


FIGURE 11: META-ANALYSIS – LATIN AMERICA AND THE CARIBBEAN DRIVERS

DEMOGRAPHIC DEVELOPMENTS

The Latin America and Caribbean (LAC) region will experience 17% population growth (i.e., 100 million people) over the next twenty years. Population growth within the region, however, will be extremely varied. On one hand, seven lesser developed states (i.e., Guatemala, French Guiana, Honduras, Belize, Paraguay, Bolivia, and Haiti) will increase by at least 30%. On the other hand, thirteen, mostly Caribbean, states will grow by less than 5%. The majority of the aggregate growth, however, will be concentrated in the three most populous states: Brazil, Mexico, and Colombia.

The foresights provide a wide bandwidth for the expected age structure, which can be explained by considerable intra-regional differences. In 2030, the lower income nations (e.g., Bolivia, Guatemala, Haiti, etc.) are still expected to have extremely youthful populations (i.e., median age less than

30), whereas the more developed regions are expected to have populations with a median age in excess of 35-40 years. Furthermore, Cuba, Barbados, and the Netherland Antilles will develop an 'aged' age structure equivalent to Western Europe (i.e., median age of mid to high 40s). Overall, Latin America and Caribbean will be the world's fastest aging region in terms of median age, elderly population, and extreme elderly population.

Over the next twenty years, Latin America and the Caribbean will continue to experience major shifts from rural areas to urban centers. Urbanization prospects suggest that nearly 85% of the region's population will live in cities by 2030. This will be the equivalent of 116 million new urban residents. In a similar manner to the rest of the world, the lower income LAC countries will experience much more extensive urban growth.

IMPLICATIONS

These demographic developments will result in a number of implications, most important amongst which are the increased dependency ratio and the strain on social services, income inequality, brain drain and youth bulges.

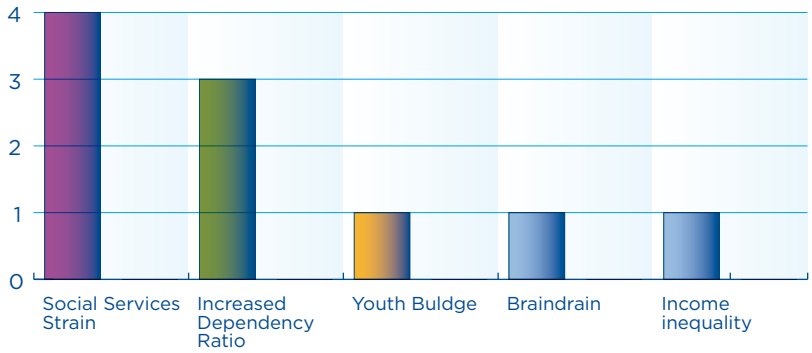


FIGURE 12: META-ANALYSIS – LATIN AMERICA AND THE CARIBBEAN IMPLICATIONS

The anticipated demographic shifts in Latin America and Caribbean have the potential to negatively affect the region's economic development prospects. Specifically, population growth and aging will be two factors that will redirect capital from the active to the inactive labor force, which may prove detrimental to economic growth.

Societal aging will drive up the dependency ratio in the Latin America and Caribbean region. Cuba, the Caribbean 'retirement islands' (e.g., Barbados), and Southern South America will develop dependency ratios close to those of North America, whereas Haiti, Bolivia, and Guatemala will only endure a minimal increase.

Population aging will place a heavy burden on the region's two main social support systems: informal family networks and state-funded social welfare programs, including pension systems. The informal networks will come under increasing stress as the increasing old-age dependency ratio will leave fewer workers to support more pensioners. Consequently, this would put pressure on the ability of the working force to save, require the state to increase the societal burden or adapt eligibility for welfare programs. Thus, state-funded social welfare programs, however, will also have trouble coping with the rapid societal aging in the light of a large, aging informal regional workforce (e.g., subsistence farmers) that did not have the opportunity to contribute to their own retirement plan. Additionally, in those states that subsidize medical treatment, the aging population will increase the per capita treatment cost. Elderly medical care costs more on average than for younger individuals, and in Latin America and the Caribbean, concerns have been raised about the additional costs that might arise from the adult onset of chronic conditions that are the result of poverty, malnutrition, and exposure to childhood disease.

Despite the pressure they place on the social welfare system, demographic developments will likely do little to jeopardize regional stability. Regional population and urban growth are expected to be far less extensive than in the other developing regions. Furthermore, Latin America and the Caribbean lack several of the structural factors that promote instability (e.g., high unemployment). Still, existing unstructured urbanization in Latin America and the Caribbean could imperil urban stability through the further development of slums.

1.4 NORTH AMERICA, AUSTRALIA AND NEW ZEALAND

META-ANALYSIS

Increased ethnic diversity and ***population aging*** are prominent dimensions of demographic shifts in North America, Australia, and New Zealand. This section provides an overview of future demographic developments in North America, Australia, and New Zealand.

KEY PARAMETERS	Ethnic diversity, aging populations
KEY DRIVERS	Low mortality, low fertility, net immigration
KEY IMPLICATIONS	Increased dependency ratio, size of the working population, composition of the labor force

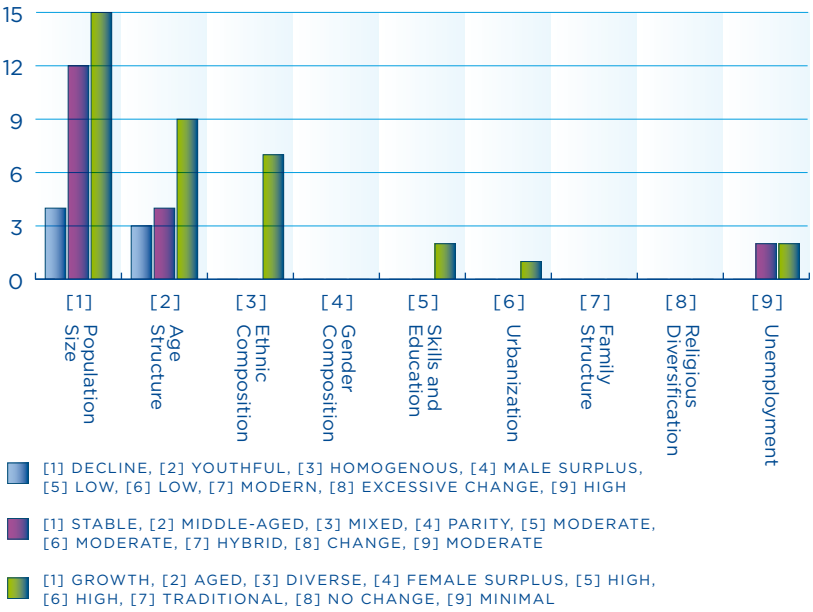


FIGURE 13: META-ANALYSIS - NORTH AMERICA, AUSTRALIA, AND NEW ZEALAND PARAMETERS

DEMOGRAPHIC DEVELOPMENTS

Overall, the region is projected to increase by approximately 17% over the next twenty years. Variation within the region is rather limited according to the United Nations (+/- 2% from the regional average); however, the opinion is rather mixed. There is general agreement that the United States will continue to grow throughout the period. Some disagreement exists over the extent to which Canada, Australia, and New Zealand will grow.

The population in North America, Australia, and New Zealand is expected to continue to age. Similar to the rest of the world, this stems from declining fertility rates and increasing life expectancies. By 2030, the region is expected to have a median age of around 40 years, slightly less than the current median age of Europe.

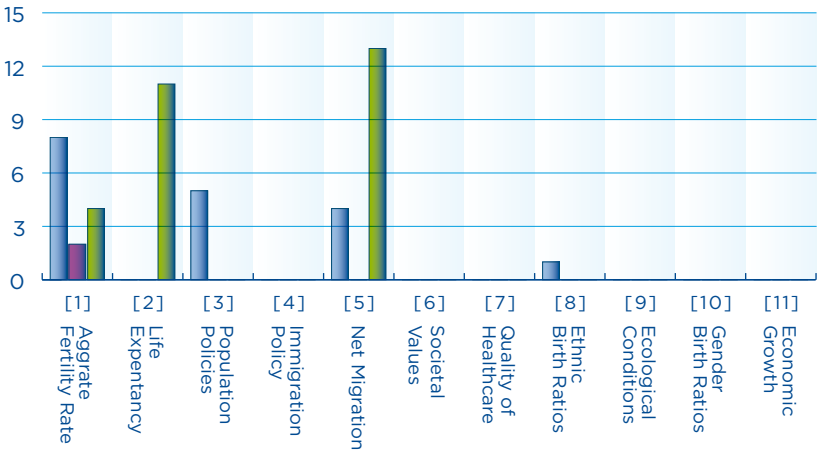


FIGURE 14 META-ANALYSIS - NORTH AMERICA, AUSTRALIA, AND NEW ZEALAND DRIVERS

North America, Australia, and New Zealand will likely become much more ethnically diverse over the next twenty years primarily resulting from two factors. First, the relatively large ethnic minorities in these states tend to have higher fertility rates than the ethnic majority. Second, states in this region rely on immigration to offset the effects of declining fertility rates. Over the next twenty years, it is expected that these countries will take in 28 million migrants.

IMPLICATIONS

The literature on the developed regions puts considerable focus on the economic implications, such as the size of the working population, the composition of the labor force, workforce management, increased dependency ratio and shifts in the economic balance of power.

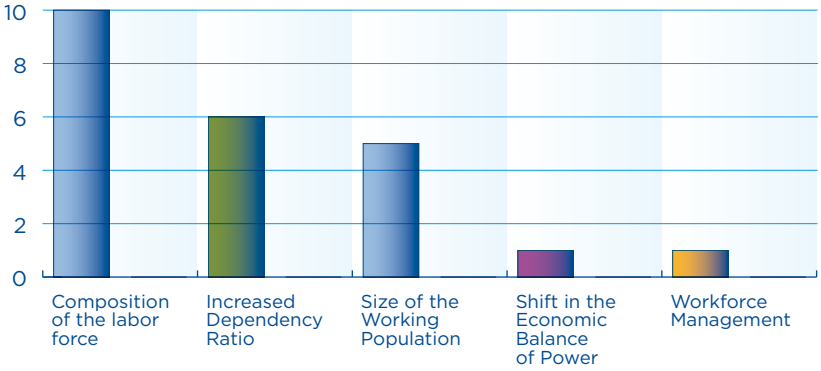


FIGURE 15: META-ANALYSIS - NORTH AMERICA, AUSTRALIA, AND NEW ZEALAND IMPLICATIONS

Due to regional aging, the aggregate population growth will not directly into labor force growth. On average, the working age population is only expected to increase by approximately 5% over the next 20 years. To compensate for this slowed growth, it is suggested that the regional labor force should restructure itself. Specifically, the female participation will increase; increased labor migration will promote an increase in labor force diversity; and increased longevity along with excellent regional healthcare will allow elderly individuals to remain a part of the labor pool.

The old-age dependency ratio is projected to increase across the region due to population aging. Despite the baby boomer retirement wave, North America, Australia, and New Zealand, however, will have far lower ratios than the other developed regions. This is largely due to relatively high fertility levels (for a developed region) and substantial immigration. Projections suggest that the region will only have a dependency ratio of 33 retirees to 100 laborers as opposed to 43 in Western Europe. As such, North America, Australia, and New Zealand will likely experience a far less substantial increase in their social welfare costs as compared to the other developed regions.

Over the next twenty years, demographic developments in the North America, Australia, and New Zealand region will likely have a neutral impact and hardly affect regional prosperity or stability in the region. It lacks many of the hazardous shifts and aggravating structural factors. Yet, at the same time, it does not have the ideal demographic trajectory. Prior to 2025-2030, the worst outcomes expected for the region entail a xenophobic backlash

and a shift in the economic balance of power away from the region. The extremely long-term demographic projections, however, suggest that this assessment might need to be revaluated for developments beyond 2025-2030.

1.5 ASIA

META-ANALYSIS

Within the Asia region, two predominant demographic trajectories will likely unfold. The states with advanced economies (i.e., Singapore, Japan, South Korea, and the Chinese Special Administrative Regions) are expected to experience ***limited or even negative population growth***, ***age significantly***, ***develop significant reproductive-age male gender imbalances***, and ***retain traditional values***. Conversely, the states with emerging economies are anticipated ***to grow***, ***age but remain somewhat youthful***, and ***undergo extensive urban growth***. Like the advanced states, they will also develop ***substantial gender imbalances*** and ***are likely hold on to traditional values***.

KEY PARAMETERS	Population growth (emerging Asia), limited or negative growth (advanced Asia), aging population, urban growth (emerging Asia), traditional family structure, male gender imbalance
KEY DRIVERS	Low mortality, declining fertility, societal values
KEY IMPLICATIONS	Social services strain, increased dependency ratio, size of the working population, composition of the labor force

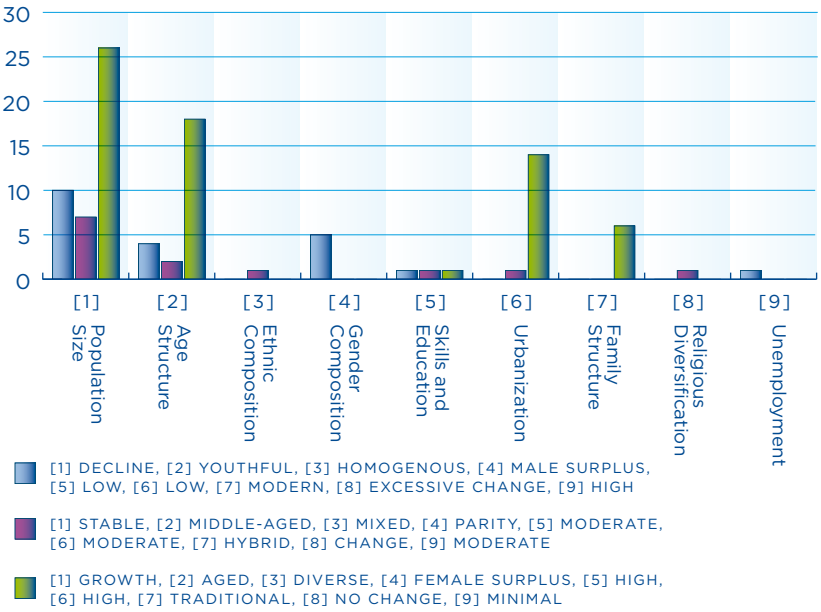


FIGURE 16 META-ANALYSIS – ASIA PARAMETERS

DEMOGRAPHIC DEVELOPMENTS

Over the next twenty years, the total population of Asia will grow by 655 million people (i.e., 17%). The advanced Asian states will do little to contribute to this on account of extremely low fertility rates. The projections suggest that Japan will lose nearly 8% of its population (i.e., 9.5 million), whereas the remainder of the advanced states will achieve an average of 10% growth over the next twenty years. The situation in emerging Asia is quite different. Only four states rank below the 10% threshold, whereas eight will exceed 33% growth by 2030. The majority of the aggregate growth will come from China, India, and Pakistan; however, six other emerging Asian states will add between 10 and 40 million people each.

Asia will become a much older region. This stems from the combination of lower fertility and mortality rates. The aging process will be far more pronounced in advanced Asia, where the median age will climb from 41 to nearly 50. Emerging Asia will age, but to a much lesser extent. Projections

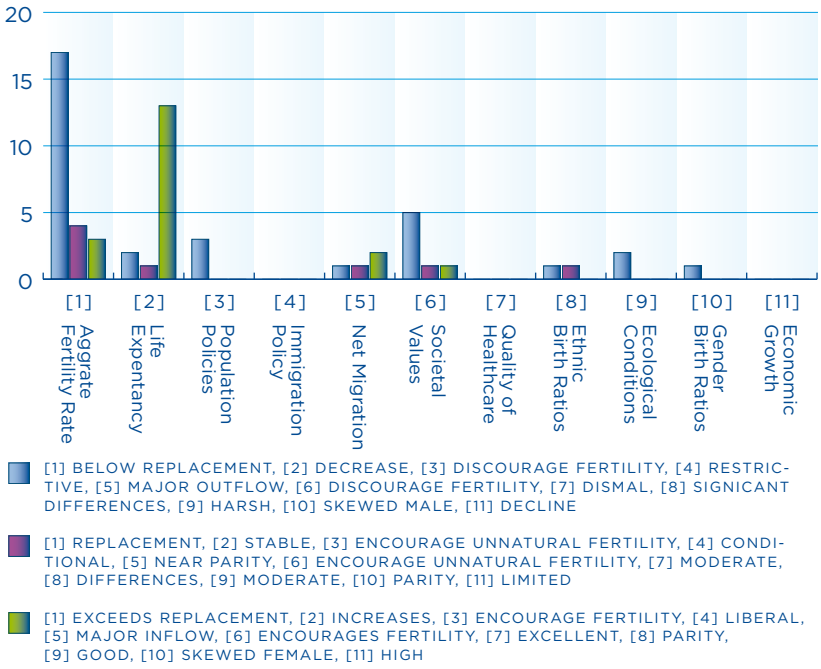


FIGURE 17: META-ANALYSIS – ASIA DRIVERS

suggest that its median age will only increase from 26 to 32. Certain states in emerging Asia will retain a sizeable youth bulge: Afghanistan, Timor-Leste, Pakistan, Laos, Tajikistan, Nepal, Philippines, and Cambodia. Interestingly, by the end of the period, China will have an age structure similar to that of advanced Asia.

Due to a combination of cultural preferences, government population policies, and pre-natal screening technology, gender birth ratios across Asia have become skewed heavily in favor of males. As such, Asia might develop a large surplus of reproductive age males in the next twenty years. China and India will have a huge surplus of unpaired 15-34 year-old men in 2030 (i.e., 33 million vs. India's 20 million under the UN's medium variant scenario). Although this issue is typically associated with China and India, the United Nations projections suggest that the problem runs much deeper.

Overall, surplus males of reproductive age will account for 1.4% of the Asian population or roughly 1 in 73 people.

The Asian population will undergo a major shift from rural areas to urban centers. Driven by economically-induced rural-urban migration, this process will be much more pronounced in the emerging Asian states. It is projected that the urban population of advanced Asia will increase by only 4%, whereas urban growth in emerging Asia will be in excess of 50%. Although Asia is projected to gain five new mega-cities, the majority of the new urban inhabitants are expected to settle in urban areas of less than 750,000.

The traditional family structure will remain the norm, so it is expected; however, it will be tempered by modernity. Childbearing, childrearing, and partner cohabitation will continue to occur primarily inside the confines of marriage. Most couples, particularly in the advanced countries, will delay marriage because women will want to make the most their heightened skills and education. Consequently, this also will serve to reinforce the declining fertility trend in these countries.

IMPLICATIONS

The anticipated demographic developments in Asia will have profound economic implications that are spurred by shrinking working populations whose composition will shift dramatically, increased dependency ratios, and strains on the social services, in addition to negative security implications resulting from gender imbalances and youth bulges in some parts of the region that could undermine regional stability.

As Asian societies begin to age, particularly in advanced Asia, their old age dependency ratios will begin to increase. The ratio will double in South Korea and increase by 50% in Japan to the point that 100 workers are supporting 52 retirees. China will also experience a substantial increase in its old-age dependency ratio after 2020. Emerging Asia will not be immune from this problem. Its ratio will increase from 7 to 13, a 71% increase.

Variations in population growth and aging between emerging and advanced Asia will spawn different implications for the size of the workforce. Due to high fertility, the former will experience substantial growth, 18% or 467

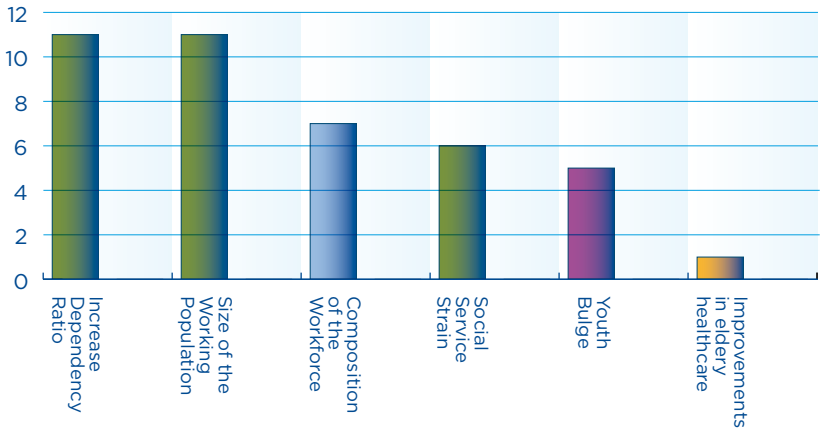


FIGURE 18 META ANALYSIS ASIA IMPLICATIONS

million workers. Notably, India and Malaysia are expected to obtain their demographic dividend. In contrast, extremely low fertility and rapid aging in advanced Asia, will cause the sub-region to lose over 17 million laborers (i.e., 13% of its supply).

Over the next thirty years, the composition of the Asian workforce will undergo substantial changes. Due to increased female education, a greater portion of Asian women will not only choose to participate in the labor force but do so at higher levels. Furthermore, 'aged' employees will become more prevalent in the workforce. This will especially hold true for Japan, South Korea, and China.

Demographics shifts will affect the sustainability of social services across the region. Traditionally, Asia has used informal family networks to support the elderly. Due to life expectancy increases, this means that the second generation will need to provide for the third generation for a longer period of time. The United Nations projections suggest that the average length of elderly support will extend from five to eight years. In the long-term, this deprives the second generation from several prime savings years, which will serve to increase the dependency burden placed on their children. Gender imbalances compound this effect by increasing the number of people that need to be supported by the second generation (i.e., parents

and uncles instead of just parents), whereas declining fertility rates ensure that this increased burden will be borne by fewer people. Asian governments could expand the amount of social services that they provide in order to ease the tension on the informal family networks. This, however, will increase existing social expenditures and create economic sustainability issues, especially in those countries with significant aging, fertility declines, and gender imbalances. Alternatively, Asian governments could maintain their present levels of social expenditure and provide smaller services to more people which would adversely impact elderly quality of life.

Southeastern and south-central Asia will retain their youth bulges over the next twenty years. In 2030, more than 60% of the Afghan and East Timorese will be under the age of 24, and six other states are projected to have a youth population in excess of 40%. To put this in perspective, only 37% of global population will be under the age of 24 in 2030.

Demographic shifts in advanced Asia could stifle economic growth. These states will enter a state of demographic decline (i.e., rapid aging and workforce contraction) during the next twenty years. Therefore, simply to maintain their current level of development, per capita productivity will need to increase proportionally to the labor force loss (i.e., 1% labor loss requires 1% productivity gain). Given the extensive current technological base in these states, this does not have to be problematic in the short-term; however, continuous improvements over the long-term might be a more daunting task.

Population growth in emerging Asia will increase consumption and raise the issue of scarcity, particularly with regards to water and energy. Rapid urban growth in emerging Asia will also invite internal unrest. The rate of urbanization in these countries could outpace the state's ability to supply the appropriate infrastructure (i.e., housing, sanitation, transportation, and policing). This will stir discontent in the urban populace and hasten the development of slums. High unemployment, gender disparities, and youth bulges in many of these countries only exacerbate the situation because this introduces large numbers of dissatisfied fighting age men who have nothing to do (i.e., no family or work). Without the appropriate policing capabilities, the lesser developed nations will be hard-pressed to contain the situation. Additionally, since urban growth will be largely fueled by rural-urban migration, this will bring an increasing number of destitute

agricultural workers into close contact with the Asian urban middle-class, which has the potential to promote inequality related violence (e.g., increased crime, wide-spread urban unrest).

Gender imbalances will also be a potential source of conflict in Asia. Sociological research has shown that unpaired males tend to exhibit more violent behavior than their paired counterparts because the costs of deviancy are much lower (i.e., no family to risk). Telling of this problem, the Chinese refer to surplus males as 'bare branches,' implying that these men will bear not fruit but might be useful as clubs. This demographic problem could promote increased crime, female trafficking, or widespread internal unrest as has it done before in China.

1.6 RUSSIA AND EASTERN EUROPE

META ANALYSIS

The population in Eastern Europe and Russia will be ***highly skilled*** and experience ***negative population growth*** as well as ***population aging***. This section provides an overview of future demographic developments in Eastern Europe and Russia.

KEY PARAMETERS	Waning population, aged population, high skill level
KEY DRIVERS	Low mortality, low fertility, net immigration
KEY IMPLICATIONS	Social services strain, increased dependency ratio, size of the working population, composition of the labor force

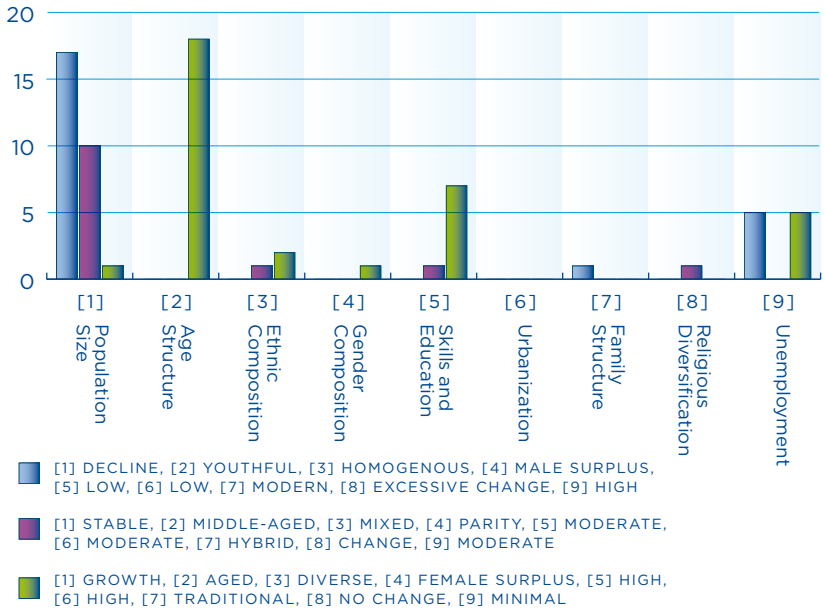


FIGURE 19 META-ANALYSIS – EASTERN EUROPE AND RUSSIA PARAMETERS

DEMOGRAPHIC DEVELOPMENTS

The population of Eastern Europe and Russia is projected to decline over the next twenty years. According to the United Nations, the states with the greatest decline will be Russia (11 million), Ukraine (5 million), and Belarus (1.4 million). This primarily stems from below replacement fertility rates (i.e., regional average of 1.59 children per female) and migrant outflows in Eastern Europe. Only six of the twenty-three states in the region are expected to have positive population growth.

By 2030, sub-replacement fertility and decreased mortality will cause the population of the Eastern Europe and Russia to age. Estimates suggest that the median age will increase to 44 years (16% increase). Azerbaijan, Armenia, and Albania will be the only states with a median age below 40.

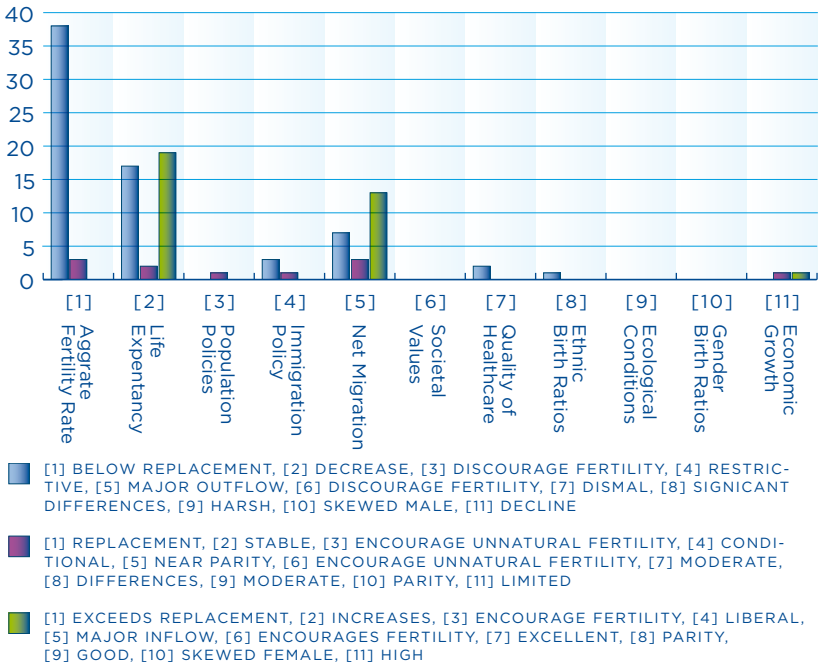


FIGURE 20 META-ANALYSIS – EASTERN EUROPE AND RUSSIA DRIVERS

The extent of regional aging will primarily depend on increases in longevity as fertility rates will not likely undergo further decline.

The skill/education levels in Eastern Europe and Russia are expected to remain relatively high on account of the educational attainment levels of its labor force. Eastern Europe and Russia will continue to become more ethnically diverse. Faced with population decline and an outflow of skilled/educated labor, particularly from Eastern Europe, these states will increasingly need to import labor, which might come from Central Asia. Additionally, the minorities within the region are expected to maintain higher fertility rates that the ethnic majority groups. Specifically, it is anticipated that the Slavic population will grow at a slower rate than the Muslim population. Interestingly, there was no mention of ethnic diversification in Russia's Far East.

IMPLICATIONS

Demographic shifts could well negatively affect the wellbeing of populations across the entire region. The key focus of the foresight literature was the size of the working population and the composition of the labor force in addition to the increased dependency ratios and a strain on social services.

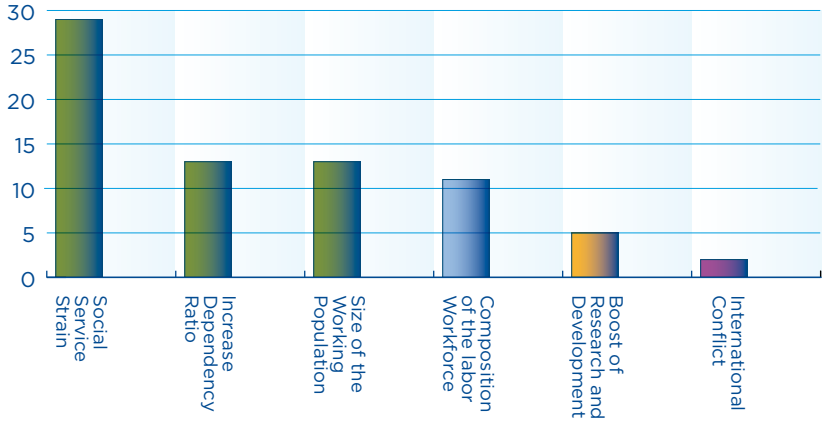


FIGURE 21 META-ANALYSIS – EASTERN EUROPE AND RUSSIA IMPLICATIONS

Population aging will cause the old-age dependency ratio to rise in the Eastern European states and Russia. Projections suggest that it will increase by over 50% in the next twenty years. Croatia and Slovenia will have old-age dependency ratios equivalent to Western Europe and Asia (i.e., 40 pensioners to 100 workers). Aging and increasing dependency ratios in Eastern Europe and Russia will cause shortfalls in social welfare systems across the region. . As this worsens over time, states will have to choose between curtailing services and increase spending.

Due to its demographic decline, Eastern Europe and Russia will also experience a reduction in the size of their labor force. The United Nations estimates that the working age population will contract by 14.5% over the next twenty years with Russia alone losing 17 million laborers. Only Azerbaijan and Albania are anticipated to experience growth in the 15-64 age group. The decline will not be solely quantitative, as high quality

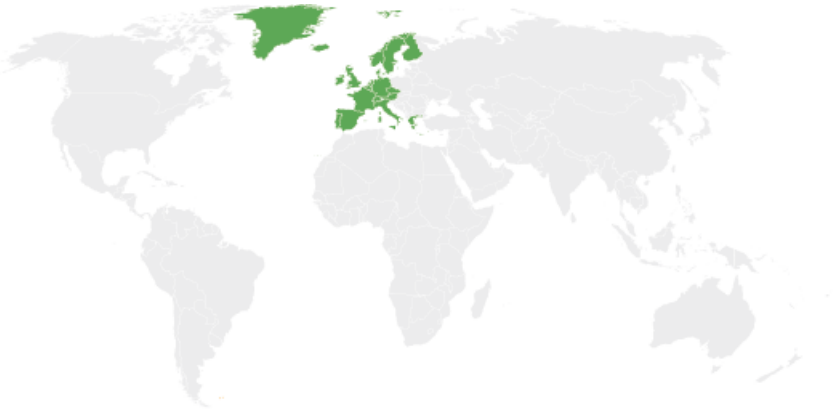
workers are also expected to leave the region for better financial prospects, particularly in Western Europe and North America. Consequently, Russia and Eastern Europe face the possibility of both a quantitative and qualitative labor deficit.

The anticipated decline in the regional working age population will likely cause the work force in Eastern Europe and Russia to become more diverse. Women and immigrants, particularly those from Central Asia, will attain higher labor participation levels. Various forms of more sustainable work practices might have to be implemented in the region so that more elderly individuals can continue to work.

These demographic developments will take their toll on these economies. Even with a net migrant gain, the United Nations' projections suggest that Russia will still suffer a population loss equivalent to Japan. It is doubtful whether Russia could leverage its high skill base to make the necessary productivity gains in order to offset the consequences of its demographic decline in the absence of appropriate economic infrastructure and lack of a high-technology base.

The expected demographic developments may also affect Russian internal cohesion. Demographic decline may fuel xenophobic tensions as Russia will need to import a substantial amount of labor, primarily low skilled Central Asian workers. Additionally, if Russia will not have the manpower or resources to support its ability to exert control, it may provide the North Caucasus region with an opportunity to obtain greater autonomy or outright independence.

1.7 WESTERN EUROPE



META-ANALYSIS

Over the next twenty years, Western Europe will likely undergo ***limited or negative population growth***, ***age substantially***, retain its ***high skill base***, and experience ***low unemployment.*** This section provides an overview of future demographic developments in Western Europe.

KEY PARAMETERS	Limited or negative population growth, aged population, high skills, and low unemployment
KEY DRIVERS	Low mortality, low fertility, net immigration
KEY IMPLICATIONS	Social service strain, composition of the labor force, labor productivity, social integration of immigrants, increased dependency ratio

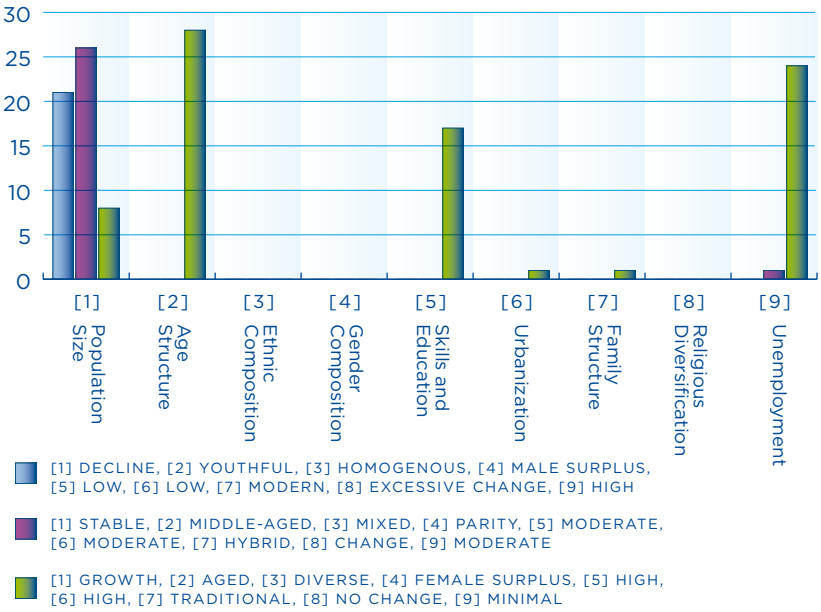


FIGURE 22 META-ANALYSIS – WESTERN EUROPE PARAMETERS

DEMOGRAPHIC DEVELOPMENTS

Due to fertility rates substantially below replacement (i.e., 1.7 children per female), Western Europe will likely experience limited or even negative population growth. Overall, the region is expected to grow by 3.6% over the next twenty years. However, Germany, Italy, and Portugal are all projected to experience demographic decline. Conversely, Ireland and Luxembourg are the only states in the region anticipated to exceed the global population growth average (i.e., 20% by 2030).

Additionally, low fertility and mortality rates will cause the region to age substantially over the next twenty years. Projections suggest that no Western European state will have a median age under 40 by 2030. In fact, the Western European region will contain five of the world's ten oldest states: Italy, Germany, Portugal, Greece, and Spain.

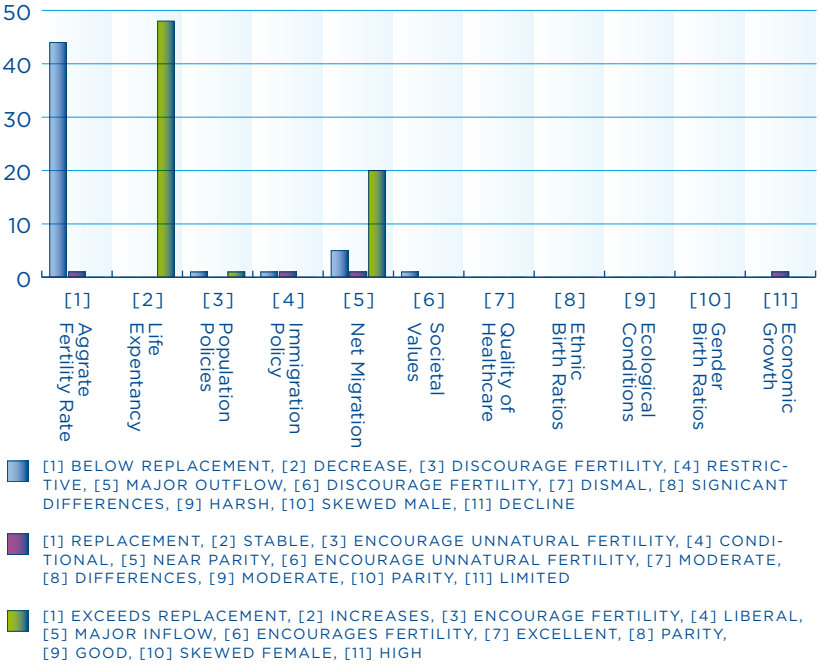


FIGURE 23 META-ANALYSIS – WESTERN EUROPE DRIVERS

In order to compensate, the region might have to rely on immigration. This will not only increase ethnic diversity from the onset but also for at least another generation. First and second generation immigrants tend to have higher fertility rates than historically native Europeans.

In a similar manner to other developed regions, Western Europe will retain an extensive knowledge base. In the future, Western Europe will likely have low levels of unemployment due to the expected loss of 12.5 million working age individuals on account of aging. Finding labor will pose much more of a challenge than creating economic opportunity.

IMPLICATIONS

Demographic shifts in Western Europe have the potential to stifle economic growth. Across the region, population aging and demographic decline will

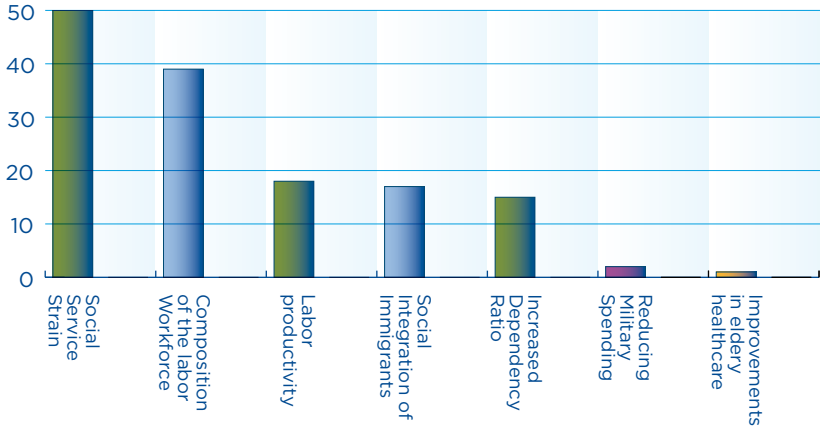


FIGURE 24 META-ANALYSIS – WESTERN EUROPE IMPLICATIONS

either cause labor force decline or labor force growth to be outstripped by pensioner growth. In a similar manner to the other developed regions, Western European workforce will undergo substantial change in the coming years. The proportion of older workers (i.e., 55-65) will increase while the share of young adults (i.e., 15-24) simultaneously decreases. Additionally, they also expect that women will play a more active role due to increased educational attainment.

Old-age dependency ratios are expected to surge in Western Europe due to pronounced aging. The working population in ten Western European states will have to carry the economic costs of at least ten extra pensioners by 2030. Sweden and the United Kingdom are the only states in the region which will experience an increase below the global average. Simultaneously, population aging will cause pension costs to increase due to more individuals becoming eligible to receive their retirement benefits.

Western Europe will have to import a significant amount of migrant labor in the coming years; however, this could result in ethnic tensions as these individuals will struggle to integrate into European societies.

The capacity of Western European states to provide social services will become increasingly strained over the next thirty years. In addition to the

increased pension costs, the 'aged' age structure is expected to drive up per capita health care costs on account of the additional expense associated with elderly care. Furthermore, increased immigration may also drive up social costs on account of the fact that many immigrants will lack health insurance (current regulation do not allow emergency medical care to be refused) and a substantial portion may also need general welfare on account of their low standard of living.

Increased reliance on technology will allow labor productivity to increase in the Western European region. Demographic developments may spur manpower reductions which would be buttressed by - as well as reinforce high technology sectors. On the basis of its high skill base, well-developed infrastructure, experience with high-technology production, Western Europe has the potential to leverage its technical capabilities to generate the necessary productivity gains, at least over the short to medium term.

CROSS REGIONAL OBSERVATIONS: THE BIG PICTURE

The regional demographic characteristics present an overall diverse global picture. The subsequent table summarizes the key issues that have been consistently addressed for the seven different regions.

	POPULATION GROWTH	URBAN GROWTH	AGE STRUCTURE	GENDER IMBALANCES	MIGRATION STATUS
SUB-SAHARAN AFRICA	High	High	Young	Limited	Net Supplier
MIDDLE EAST AND NORTH AFRICA	High	High	Young to Middle-Aged	Moderate	Net Supplier
LATEN AMERICA AND THE CARIBBEAN	Moderate	Limited	Middle-Aged	Limited	Net Supplier
EMERGING ASIA	High	High	Young to Middle-Aged	High	Net Supplier
ADVANCED ASIA	Negative to Limited	Limited	Aged	Moderate	Net Recipient
EASTERN EUROPE AND RUSSIA	Negative to Limited	Limited	Aged	Limited	Net Supplier (Eastern Europe) Net Recipient (Russia)
NORTH AMERICA, AUSTRALIA AND NEW ZEALAND	Limited	Limited	Middle-Aged	Moderate	Net Recipient
WESTERN EUROPE	Negative to Limited	Limited	Aged	Moderate	Net Recipient

TABLE 1: OVERVIEW OF KEY DEMOGRAPHIC DEVELOPMENTS ACROSS FIVE FIELDS FOR SEVEN REGIONS

It should be noted that demographic shifts do not transpire in a vacuum, but unfold within a broader political, economic, and socio-cultural framework. For instance, Sub-Saharan Africa and the Middle East/North Africa have roughly the same demographic expectations. Yet, due to various differences in economic development and exogenous risk factors, both regions feature a different set of threats and opportunities, which policymakers should also take into consideration.

Furthermore, there is a significant degree of interconnectedness and interaction between demographic developments across regions. For example, changing age structures in one region will *qualitate qua* lead to a higher demand for immigrants, which in turn affects the size and composition of the population from which these immigrants originate. While this paper seeks to map and analyze some of these interactions, this subject requires further research.[3]

A bird's eye view on these demographic developments across the regions illuminates the many challenges that demographic developments may pose in the developing and the developed world. How they eventually play out is very much determined by the type of policies that are implemented in meeting these challenges.

3 In collaboration with the Faculty of Technology, Policy and Management of the University of Delft, Strategy and Change is currently working on a System Dynamics Model that simulates the interactions between demographic developments across regions.

PART 2: ECONOMIC, POLITICAL AND SOCIAL IMPLICATIONS OF DEMOGRAPHIC SHIFTS

The preceding chapters provided an assessment of the potential impact of shifting demographics in seven regions. This part groups the various demographic consequences across regions and describes how positive and negative economic, social, and political developments can result from these. In addition, potential policy responses are presented in the field of security, economy and society, sustainability, and technology and innovation.

Thus, this section aims to build a bridge between the future assessment and the policy discussion. It identifies the main topics that should feature in the policy debate today resulting from the analysis of the demographic developments tomorrow. These main policy topics were identified in the following manner.

First, we examined the first order demographic consequences (e.g., labor force expansion) of the demographic developments (e.g., population growth). These developments, earlier presented by region, are grouped together to facilitate the discussion (see Figure 25).

Second, we assessed what potential benefits or detriments (e.g., labor force expansion can lead to increased productive capacity or unemployment) could follow from the demographic consequences, covering economic, political, and social aspects. In addition, we considered what conditions or mechanisms could obstruct or facilitate the coming about of these benefits or detriments. These conditions or mechanisms are the focus of possible policy activity. This assessment is presented in the following pages.

PARAMETER	PARAMETER INSTANTIATION	DEMOGRAPHIC CONSEQUENCE
Population size	Population growth	Laber force expansion
Population size	Population growth	Increased consumption
Population size Age Structure	Aged and/or Population decline	Laber force decline
Population size Age Structure	Aged and/or Population decline	Large scale of aged individuals
Age Structure	Youth Bulge	Population with limited societal links/attachments
Ethnic composition	Increased ethnic diversity	Decreased societal homogeneity
Gender composition	Male gender imbalance	Significant number of unpaired males
Level of urbanization	Urban growth	Population concentration

FIGURE 25: DEMOGRAPHIC CONSEQUENCES FOLLOWING FROM DEMOGRAPHIC DEVELOPMENTS

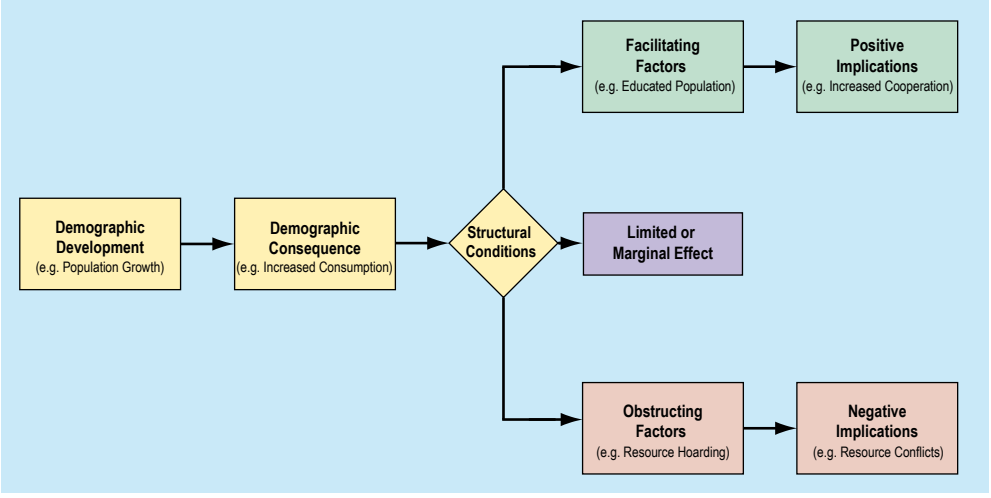


FIGURE 26: RELATIONSHIP BETWEEN DEMOGRAPHIC DEVELOPMENTS, CONSEQUENCES, AND IMPLICATIONS

Having analyzed these various steps and the potential for policy to play a role, we returned to the results that were presented for the various regions, i.e., whether the positive and negative implications would be more likely given the factors at play within the region.

Finally, HCSS arrived at a final list of 11 critical policy concerns by selecting those policy activities that addressed a broad range of demographic consequences.

2.1 LABOR FORCE EXPANSION

Population growth, if driven by above replacement fertility, will cause an expansion of the labor force. Circumstances permitting, this demographic development has the potential to stimulate a substantial economic boost because it increases the overall productive capacity of the population. In order to accrue the benefit, however, the economy must have the ability to absorb the additional labor (i.e., economic growth must be commensurate with population growth). If it cannot, the outcomes are quite negative. Namely, unemployment rates will only increase, and high skill laborers will have incentives to emigrate. Common conditions to incur these implications include steep population growth, instability, poor economic climate, unfriendly business environment, rigid labor markets, a mismatch between skills and market demands, low societal education levels, or a marked increase in social welfare spending.

The literature suggests that four regions, Middle East and North Africa, Sub-Saharan Africa, emerging Asia, and Latin America and the Caribbean, will see their labor force expand over the next twenty years. MENA and SSA are very likely to experience the negative implications because they exhibit most if not all of the risk factors. Emerging Asia and LAC have significantly better prospects of avoiding the pitfalls of labor force expansion. The demographic projections suggest that these regions will have much lower fertility, population growth, and labor force expansion than MENA or SSA. Yet, these regions are not guaranteed to achieve demographically-induced economic gains. Emerging Asia has several demographic impediments to economic growth, namely a limited skill base and substantial potential for instability. LAC, on the other hand, has an unfriendly business environment and will likely experience negative economic repercussions on account of rapid regional aging.[4]

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CONSEQUENCE
Labor Force Expansion
POSITIVE IMPLICATIONS
Economic boost Increased productive capacity Increased capacity for savings, especially as work force matures Brain gain
FACILITATION MECHANISMS
Capacity for economy to absorb the extra labor *(i.e., economic growth that facilitates the necessary job growth)* Fertility driven population growth
NEGATIVE IMPLICATIONS
High unemployment Brain drain
POSSIBLE OBSTRUCTIONS
Excessive population growth instability Poor economic climate Rigid labor markets Unfriendly business environment Skill-opportunity mismatch Low societal education levels Increases in public pension benefits
WESTERN EUROPE POLICY INTERVENTIONS
Foster equitable economic development Disincentivize brain drain Unemployment reduction Incentivize sustainable fertility rates Security sector development Increases ease of doing business Increase (applicable) societal education

FIGURE 27: IMPLICATIONS, FACILITATING MECHANISMS, POSSIBLE OBSTRUCTIONS, AND POLICY OPPORTUNITIES FOR LABOR FORCE EXPANSION

Despite a somewhat pessimistic outlook, opportunities exist to improve the situation. From a European perspective, using constructive development programs, aid packages, and diplomatic engagement could both facilitate economic growth and dismantle the potential obstacles preventing the region from reaping the rewards of an expanded labor force. Achieving the

desired results would require that the European efforts, at least in some form, promote equitable development, discourage brain drain, reduce unemployment, incentivize more sustainable fertility rates, encourage security sector development, and foster increased societal education.

Figure 28 sums up the various policy options that can be considered to foster the positive and mitigate the negative implications of labor force expansion.

FIGURE 28: POLICY INTERVENTIONS BY STRATEGY AND CHANGE AREA - LABOR FORCE EXPANSION

CONSEQUENCE
Increased consumption
POSITIVE IMPLICATIONS
More efficient resource usage Transition to renewable energy Increased international cooperation
FACILITATION MECHANISMS
Acceptance of the problem Efficient infrastructure Capacity for innovation Educated population
NEGATIVE IMPLICATIONS
Resource scarcity Limited access to suitable resources (e.g. clean water) Accelerated ecological decline Resource-based conflicts Decline in global trade
POSSIBLE OBSTRUCTIONS
Excessive growth Inefficient extraction/usage methods Low societal education levels Resource hoarding Absolutist society
WESTERN EUROPE POLICY INTERVENTIONS
Discuss the problem Infrastructure development Foster research and development opportunities, especially in recycling, resource substitution, and efficiency-enhancing technologies Increase (applicable) societal education Incentivize sustainable fertility rates Encourage sustainable resource extraction and usage Discourage resource hoarding / encourage cooperation

FIGURE 29: IMPLICATIONS, FACILITATING MECHANISMS, POSSIBLE OBSTRUCTIONS, AND POLICY OPPORTUNITIES FOR INCREASED CONSUMPTION

2.2 INCREASED CONSUMPTION

Another consequence of population growth is increased consumption. In other words, a larger population translates into an increased demand for food, water, and energy amongst other things. On the one hand, increased consumption could stimulate more efficient resource usage, a transition

away from fossil fuels, and increased international cooperation. Securing these benefits, however, requires that a state/region posses an efficient infrastructure, a capacity for innovation, an educated populace, and above all, acknowledgement of the problem. Increased consumption, on the other hand, could also have an array of negative implications. It could lead to resource scarcity, a decline in global trade, and conflict. Alternatively, increased consumption could also leave people without access to suitable resources (e.g., clean water) or accelerate ecological decline. Factors that lead states/regions down the less desirable path include excessive population growth, inefficient resource extraction and usage, low societal education levels, resource hoarding, and absolutist societies.

Increased consumption (based simply on demographic factors as the driver) will be a pertinent consideration in four regions: the Middle East and North Africa, Sub-Saharan Africa, emerging Asia, and Latin America and the Caribbean. Again, MENA and SSA face poor prospects of maneuvering around the negative implications because of their extensive demographic growth and numerous structural obstructions (e.g., absolutist society, low education levels, etc.). Emerging Asia is also at risk of incurring the negative implications. To a certain extent, this stems from the region's inefficient infrastructure, less than open societies, and limited skill base. More importantly, though, India and China are expected to add approximately 400 million people and emerge as major powers by 2030. This not only increases the resource demands in a rather confined region but also encourages viewing resource acquisition as a zero-sum game. Finally, LAC has the best chance to avoid the problem associated with increased consumption. Demographic growth in the region is less than the global average; a strong tradition of cooperation exists in the region; and LAC (mainly Brazil) has already begun to transition away from non-renewable energy resources.

Again, Western Europe has the opportunity to help steer these regions away from the undesirable implications through the use of constructive development programs, aid packages, and diplomatic inducements. In this case, the objectives would differ slightly from those associated with labor force expansion. Namely, Western Europe would need to facilitate discussion of the problem, foster research and development, incentivize sustainable fertility, encourage sustainable resource usage, promote

infrastructure development, support increased societal education, and discourage resource hoarding.

Figure 30 sums up the various policy options that can be considered to foster the positive and mitigate the negative implications of increased consumption as a result of demographic developments.

FIGURE 30: POLICY INTERVENTIONS BY STRATEGY AND CHANGE AREA - INCREASED CONSUMPTION

2.3 LABOR FORCE DECLINE

Population aging, especially when concurrent with population decline, causes the labor force to wane. This development can spawn positive implications. Specifically, it creates a greater range of employment opportunities for the elderly, minorities, and women. Additionally, it encourages technological and social innovation (i.e., increase per worker productivity) as well as increases the value of the individual worker (i.e., greater focus on sustainable work practices and career-long training/education). In order to achieve these benefits, though, a population needs to have an educated populace, a high degree of urbanization, and a capacity for innovation. On the other hand, labor force decline can have a range of negative implications. For instance, it can lead to economic decline, a lower standard of living, and a loss of productive capacity. Populations incurring these pitfalls typically exhibit one or more of the following risk factors: low societal education levels, mismatches between skills and market demands, absolutist societies, early retirement options, robust and unsustainable welfare programs, and physical degradation.

Advanced Asia, Eastern Europe and Russia, Western Europe all face the prospect of labor force decline. Each region possesses the full range of facilitating mechanisms. Yet, advanced Asia appears the best positioned to weather labor decline because they lack all of the possible obstructions. The outlook for Western Europe is slightly dampened by the region's robust social welfare programs and the prevalence of early retirement options. More pronounced population decline and less-than-open societies in Eastern Europe and Russia will heighten regional susceptibility to the negative implications of labor force decline.

Despite the less than optimistic prognosis, Europe does have the opportunity to mitigate, negate, or even avoid the negative by-products of labor force decline. Specifically, the domestic efforts should focus on the following objectives: increasing societal education and workforce training, fostering research and development, disincentivizing early exit from the labor force, and restructuring social welfare in manner such that it becomes sustainable.

CONSEQUENCE
Labor Force Decline
POSITIVE IMPLICATIONS
Smaller, More Agile Workforce Increasingly diverse workforce More flexible working conditions Increased focus on retraining and skill acquistion throughout the career Increased rentention of elderly laborers Brain gain Technological and social innovation
FACILITATION MECHANISMS
Educated populace High degree of urbanization Capacity for innovation
NEGATIVE IMPLICATIONS
Loss of Productive Capacity Economic Decline Decreased worker productivity Lower standard of living
POSSIBLE OBSTRUCTIONS
Low societal education levels Skill-opportunity mismatch Absolutist society Early retirement options, especially in terms of public pension plans Unsustainable social welfare programs Physical Degradation of Labor Force (i.e. aged individuals no longer physically able to participate in a productive manner)
WESTERN EUROPE POLICY INTERVENTIONS
Increase labor force education Foster research and development opportunities Disincetivize early exit from the labor force Restructure social welfare programs / national resource allocation Encourage sustainable work practices

FIGURE 31: IMPLICATIONS, FACILITATING MECHANISMS, POSSIBLE OBSTRUCTIONS, AND POLICY OPPORTUNITIES FOR LABOR FORCE DECLINE

FIGURE 32: POLICY INTERVENTIONS BY STRATEGY AND CHANGE AREA - LABOR FORCE DECLINE

Figure 32 sums up the various policy options that can be considered to foster the positive and mitigate the negative implications of labor force decline as a result of demographic developments.

2.4 LARGER SHARE OF AGED INDIVIDUALS

A larger share of aged individuals is another consequence of population aging, and in certain cases demographic decline. This development facilitates an increase in intergenerational families, empowers the elderly (e.g., more attention given to age-onset medical concerns), reduces societal

CONSEQUENCE
Larger Share of Aged Individuals
POSITIVE IMPLICATIONS
Increase in intergenerational families Increased focus on elderly medical care, chronic diseases and age-onset diseases (e.g. dementia) Increased role for the elderly in the productive economy Peace-prone society Technological and Social Innovation
FACILITATION MECHANISMS
Elderly friendly environments Appropriate medical infrastructure Appropriate economic and social welfare policies Capacity for innovation
NEGATIVE IMPLICATIONS
Increased dependency ratio Strain on social security systems (i.e. formal and informal) Increased prevalence of age-onset diseases Elderly outlive their savings Increased demand for medical services Strain on national budgets
POSSIBLE OBSTRUCTIONS
Speed of aging process Insufficient health care staffing Low levels of economic development Unsustainable social welfare programs
WESTERN EUROPE POLICY INTERVENTIONS
Incentivize sustainable fertility rates Encourage development of appropriate healthcare infrastructure Foster economic development Restructure social welfare programs Foster research and development

FIGURE 33: IMPLICATIONS, FACILITATING MECHANISMS, POSSIBLE OBSTRUCTIONS, AND POLICY OPPORTUNITIES FOR LARGER SHARE OF AGED INDIVIDUALS

belligerence (i.e., peace prone society), and encourages innovation. Achieving this, however, requires a society to have the appropriate infrastructure, both physical and medical, suitable economic and social policies (e.g., sustainable welfare system), and a capacity for innovation.

Population graying, however, can also spawn a wide-range of negative implications. Specifically, it also has the potential to increase the dependency ratio, strain national budgets as well as formal and informal social security systems, adversely impact national health, heighten the demand for medical services, and allow the elderly to outlive their savings. Factors that amplify the risk of incurring the negative implications include: rapid aging, insufficient medical infrastructure, low levels of economic development, and unsustainable social welfare programs.

Latin America and the Caribbean, advanced Asia, North America, Australia, and New Zealand, Eastern Europe and Russia, and Western Europe will all experience significant population aging over the next twenty years. At the moment, the North America, Australia, and New Zealand region appears the most likely candidate to avoid the negative implications on account of its high development levels, less-than-robust welfare systems, and slow rate of societal aging. Latin America and the Caribbean, on the other hand, appear mostly likely to suffer the consequences of societal graying. It has the world's fastest aging population, only moderate levels of development, fairly robust social welfare systems, and an increased susceptibility to age-onset illnesses (due to historically poor healthcare). The remaining regions fall somewhere in between these two extremes. Western Europe, for instance, would have a moderate chance of avoiding the negative implications. While the region has high levels of economic development, it also has moderate societal aging, insufficient medical staffing, and social welfare programs that are unsustainable under the expected demographic balance.

Western Europe, however, does have the ability to address both its own concerns as well as those of the other regions. Domestically, the region could initiate a series of programs geared towards mitigating the effects of societal graying. Namely, it could incentivize sustainable fertility, encourage infrastructure development, foster equitable economic growth, restructure its social welfare system, and promote research and development activities.

Figure 34 sums up the various policy options that can be considered to foster the positive and mitigate the negative implications of aging.

FIGURE 34: POLICY INTERVENTIONS BY STRATEGY AND CHANGE AREA - LARGER SHARE OF AGED INDIVIDUALS

2.5 POPULATION WITH LIMITED SOCIETAL LINKS/ ATTACHMENTS

The primary consequence of having a youthful age structure is that a significant portion of the population will have limited attachments/links to society (i.e., no meaningful career, family, etc.). This can, under the appropriate circumstances (i.e., educated society with ample employment opportunities), provide a society with a very flexible and productive population subset, which can be used to fuel economic growth. Without these conditions, however, this demographic consequence has the potential

CONSEQUENCE
Population with limted societal links/attachments
POSITIVE IMPLICATIONS
Economic growth Increased labor capacity
FACILITATION MECHANISMS
Educated youth (i.e. marketable skills) Employment opportunities
NEGATIVE IMPLICATIONS
Radicalization of youth Conflict-prone society Political instability
POSSIBLE OBSTRUCTIONS
High unemployment Resource scarcity Rapid unstructured urbanization Corrupt social systems Skills opportunities mismatch Instability
WESTERN EUROPE POLICY INTERVENTIONS
Increase (applicable) societal education Unemployment reduction Encourage efficient resource usage Discourage resource hoarding Infrastructure planning and development Security sector development

FIGURE 35: IMPLICATIONS, FACILITATING MECHANISMS, POSSIBLE OBSTRUCTIONS, AND POLICY OPPORTUNITIES FOR POPULATION WITH LIMITED SOCIETAL LINKS/ATTACHMENTS

to spawn a number of devastating implications. For instance, a population with limited societal links/attachments is prone to radicalization, political instability, and conflict. Other considerations that may bring about these negative implications entail: high unemployment, resource scarcity, rapid unstructured urbanization, corrupt social systems, a mismatch between skills and market demands, and instability.

Over the next twenty years, three regions will experience this demographic consequence: the Middle East and Northern Africa, Sub-Saharan Africa,

FIGURE 36: POLICY INTERVENTIONS BY STRATEGY AND CHANGE AREA - POPULATION WITH LIMITED SOCIETAL LINKS

and emerging Asia. The most susceptible regions will be SSA and MENA. Both regions will have a pronounced youth bulge and exhibit the majority, if not all of the risk factors. Emerging Asia, however, has the potential to not only avoid the negative implications but also possibly merit the positive. Although emerging Asia has many possible obstructions, they are much less pronounced than in the other regions. Additionally, it provides a much better investment climate than either SSA or MENA,[5] which would help it

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attract foreign investment (i.e., employment opportunities) if the trend in outsourcing and offshoring continues.

Western Europe can play a role in improving the prospects for these regions with regards to their detached populace. Again, it can tailor aid packages, development programs, and diplomatic inducements in a manner that would both reduce the potential obstructions and increase the potential of realizing the positive implications. More specifically, Western Europe could promote employment programs, encourage efficient resource usage, discourage hoarding, facilitate infrastructure planning and development, incentivize increased societal education, and provide assistance with security sector development.

Figure 36 sums up the various policy options that can be considered to foster the positive and mitigate the negative implications of societal alienation as a result of demographic developments.

2.6 SIGNIFICANT NUMBER OF MALES REMAIN UNPAIRED

The primary consequence of male gender imbalance is that a significant number of males will remain unpaired. The implications, facilitating mechanisms, and possible obstructions are quite similar to those associated with youth bulges. On the one hand, the significant number of unpaired males provides an extremely flexible and productive group, which could be used to drive economic growth. On the other hand, though, this demographic has an array of potential security and economic concerns, such as increased crime and strains on the social welfare system. Generally, if unemployment can be kept to a minimum, the risk of incurring the negative implications will remain at an acceptable level. If it cannot, then the potential for reaping the negative implications increases dramatically, especially if it occurs in a culturally detached society or one with substantial income inequality.

Only emerging Asia faces the prospect of having a significant number of unpaired males. At the moment, the region is at a cross-road in terms of which set of implications will transpire. Western Europe, however, can pursue a number of initiatives to positively influence the outcome. More specifically, it can help reduce the pressure (i.e., decrease the number of

CONSEQUENCE
Significant Number of Males Remain Unpaired
POSITIVE IMPLICATIONS
Economic growth Increased labor capacity
FACILITATION MECHANISMS
Employment opportunities, especially in the rural areas
NEGATIVE IMPLICATIONS
Substantial income inequality Culturally detached society High unemployment Instability
POSSIBLE OBSTRUCTIONS
Reduce the pressure Unemployment reduction Foster equitable economic development Security sector development
WESTERN EUROPE POLICY INTERVENTIONS
Increase (applicable) societal education Unemployment reduction Encourage efficient resource usage Discourage resource hoarding Infrastructure planning and development Security sector development

FIGURE 37: IMPLICATIONS, FACILITATING MECHANISMS, POSSIBLE OBSTRUCTIONS, AND POLICY OPPORTUNITIES FOR SIGNIFICANT NUMBER OF UNPAIRED MALES

unpaired males in the region), facilitate employment opportunities, foster equitable economic growth, and promote security sector development.

Figure 38 sums up the various policy options that can be considered to foster the positive and mitigate the negative implications of unpaired males as a result of demographic developments.

FIGURE 38: POLICY INTERVENTIONS BY STRATEGY AND CHANGE AREA - SIGNIFICANT NUMBER OF UNPAIRED MALES

CONSEQUENCE
Decreased Societal Homogeneity
POSITIVE IMPLICATIONS
Open, multicultural society Increased understanding of different cultures Global ethnic networks
FACILITATION MECHANISMS
Involvement of ethnic minorities into political and social processes Mechanisms for fair dispute resolution
NEGATIVE IMPLICATIONS
Conflict-prone society Internal instability Political instability
POSSIBLE OBSTRUCTIONS
Political exclusion Social marginalization Discrimination Intolerant society
WESTERN EUROPE POLICY INTERVENTIONS
Ensure the protection of the basic rights and fundamental freedoms of all citizens and residents Encourage societal integration for all ethnic groups Discourage xenophobic and discriminatory activities

FIGURE 39: IMPLICATIONS, FACILITATING MECHANISMS, POSSIBLE OBSTRUCTIONS, AND POLICY OPPORTUNITIES FOR DECREASED SOCIETAL HOMOGENEITY

2.7 DECREASED SOCIETAL HOMOGENEITY

The main demographic consequence of increased ethnic diversity is decreased societal homogeneity. Under the appropriate circumstances, this development has the potential to foster an open multi-cultural society, increase inter-cultural understanding, and spawn global ethnic networks. Accruing these benefits, however, requires the political and social integration of minorities as well as a mechanism for fairly resolving disputes between the ethnic majority and the various minorities. Alternatively, decreased societal homogeneity has the potential to breed negative implications: political and internal instability and increased likelihood of

conflict. Typically, political exclusion, social marginalization, discrimination, and an intolerant ethnic majority have heightened the risk of incurring the negative implications.

Societies in the North America, Australia, and New Zealand, Eastern Europe and Russia, and Western Europe regions are expected to experience decreased societal homogeneity over the next twenty years. Sidestepping the negative implications of this demographic consequence will likely prove challenging for each of the regions. They all have a demonstrated history of violent outbreaks directed at ethnic minorities, and each lacks a coherent policy for seamlessly integrating minorities into the social fabric. With that said, Western Europe and North America, Australia, and New Zealand have undertaken efforts in including minorities into the political process and safeguarding their rights and freedoms and might be able to build on these experiences.

Despite this less than favorable outlook, Western Europe is not condemned to suffer the negative implications of decreased societal homogeneity. It can pursue any of the following initiatives to increase its probability of meriting the positive implications: ensure the protection of the basic rights and fundamental freedoms of all citizens and residents, encourage societal integration for all ethnic groups, and discourage xenophobic and discriminatory activities.

The various policy responses that might be required to counter the negative implications of decreased societal homogeneity are highlighted in figure 40.

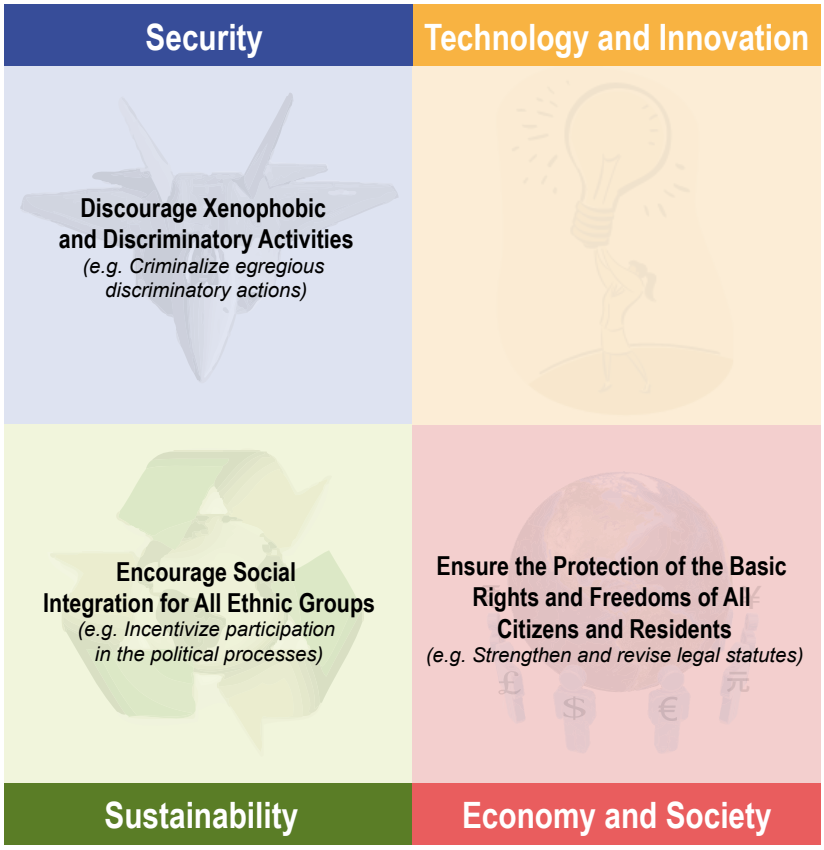

FIGURE 40: POLICY INTERVENTIONS BY STRATEGY AND CHANGE AREA - DECREASED SOCIETAL HOMOGENEITY

2.8 CONCENTRATED POPULATIONS

Urban growth ensures that a population becomes increasingly concentrated. This development has the potential to award an array of benefits such as economic growth, better access to services, and increased innovation potential. Specifically, urban growth needs to occur in a controlled manner such that urban infrastructure development can keep pace. Furthermore, the urban area must have sufficient access to external markets, an extensive skill base, a multi-dimensional economy, and adhere to the values of an

CONSEQUENCE
Concentrated Population
POSITIVE IMPLICATIONS
More societal agility increased access to healthcare Increased access to education Ease of business Rapid knowledge dissemination Innovation Economic growth Increased productivity Agglomeration/ economies of scale advantages
FACILITATION MECHANISMS
High skill level in the urban population Capacity to absorb urban growth Capacity for infrastructure development Slow, structured urban growth Multi-dimensional urban economy Robust logistics base/ access to international markets Open society
NEGATIVE IMPLICATIONS
Development of slums Increased crime Increased civil discontent Inability to absorb low skill labor Marginalization of the individual Impediment to economic growth Increased energy usage Ecological degradation
POSSIBLE OBSTRUCTIONS
High unemployment Limited infrastructure growth Lack of education in rural populace Lack of unskilled employment opportunities Absolutist society Income inequality Inefficient energy distribution network
WESTERN EUROPE POLICY INTERVENTIONS
Increase (applicable) societal education Infrastructure development Encourage economic diversification Unemployment reduction Foster equitable economic development Encourage efficient resource distribution and usage

FIGURE 41: IMPLICATIONS, FACILITATING MECHANISMS, POSSIBLE OBSTRUCTIONS, AND POLICY OPPORTUNITIES FOR CONCENTRATED POPULATIONS

FIGURE 42: POLICY INTERVENTIONS BY STRATEGY AND CHANGE AREA - CONCENTRATED POPULATION

open society. At the same time, population concentration can lead to undesirable implications (e.g., the development of slums, increased crime, etc.). Factors that facilitate the negative outcomes include: high unemployment, limited infrastructure development, low education levels, and absolutist societies.

Over the next twenty years, all regions will undergo population concentration. The more developed regions (i.e., Western Europe, Eastern Europe and Russia, advanced Asia, and North America, Australia, and New

Zealand) will likely merit the rewards of urbanization on account of the fact that they possess many, if not all, of the facilitating mechanisms and few obstructions. The implications of population concentration in the developing world, however, will be much more varied. Latin America and the Caribbean, for instance, exhibit several obstructing factors; however, due to the rather slow pace of population concentration, the negative implications are likely to be curtailed. MENA and SSA, on the other hand, possess all of the possible obstructions and will urbanize at a much more rapid rate, which suggests that these regions are likely to incur the negative implications. Finally, emerging Asia should somewhere in between these two extremes.
Again, through the use of policy interventions, Western Europe can play a role in shaping the implications of population concentration in both Europe and across the developing world. Domestically, Western Europe could maintain its own urban infrastructure to ensure that the exchange of ideas, goods, and services continues to flow seamlessly. With regards to the developing world, Western could tailor its aid packages, development programs, and diplomatic engagements such that the following objectives are incentivized: increased societal education, infrastructure development, economic diversification, unemployment reduction, equitable economic development, and efficient resource distribution.

These policy options are again summarized per policy domain in figure 42.

2.9 AGGREGATION OF THE POLICY INTERVENTIONS

In the previous sections, we have analyzed policy responses per demographic consequence and have examined what the European position could be in the policy debate. The final step in our analysis has, again, taken an aggregate approach looking across these individual policy options. Those options that stimulate each other or are potentially effective in dealing with various demographic consequences at the same time seem to be particularly relevant in this debate.

Figure 43 provides an aggregated depiction of all the policy interventions highlighted in the previous sections. The text size is proportional to the relevance of a policy intervention across the eight demographic consequences.

FIGURE 43: AGGREGATION OF THE POLICY INTERVENTIONS

CONCLUSIONS

The purpose of this future issue was to present a broad overview of demographic developments at a global level and to highlight the differences across various regions in the world. This overview has shown that demographic developments are very different in these regions. This difference is not just between the West and other parts of the world. In some parts of the world similar developments are going on as in Europe, for example the aging process in parts of Asia. It has also become clear that similar demographic developments may have very different implications within the differentiated regions, as can be seen with respect to brain drain in the Middle East and Sub Saharan Africa.

The various demographic consequences, such as gender imbalance, labor force decline, and population concentration, obviously do not just have negative implications, but provide many opportunities as well in the various policy domains that are considered in the Strategy and Change program. The analysis has provided a number of focus points for policy. For each of these points, further elaboration should be considered within the policy domains itself.

APPENDIX A: DEMOGRAPHIC CONCEPTS

DEMOGRAPHIC DECLINE

Demographic decline is a condition, wherein a labor force or a particular population contracts.

DEMOGRAPHIC DIVIDEND

Demographic dividend refers the economic boost that results from surge of productive capacity that results from transforming a youth bulge into a worker bulge. This condition is facilitated by falling fertility rates. Also, it should be noted that the demographic dividend is an economic condition not a demographic one. If societal economy lacks the ability to absorb the additional labor capacity, the society will not accrue the economic benefits.

DEMOGRAPHIC TRANSITION

Demographic transition refers to an academic theory that explains the demographic development from pre-industrial societies to modern ones.

DEPENDENCY RATIO

The dependency ratio is the ratio of laborers to non-laborers. The childhood dependency ratio is the ratio of laborers to youth (i.e., 0-14), whereas the old age dependency ratio is the ratio of laborers to the elderly (i.e., 65+).

FERTILITY

Fertility refers to the average number of children born per female in a given population. Replacement level fertility (i.e., 2.1 children per female) is considered the minimum level of fertility needed to maintain long-term population growth.

REPRODUCTIVE AGE GENDER IMBALANCE

Reproductive age gender imbalance refers to a disparity of males and females between the ages of 15 and 34 in a given population. Typically, a

male gender imbalance will exist during early childhood; however, due to the fact that males have higher childhood mortality rates, the ratio should even out around age 5. In the golden years, a female gender imbalance is likely to occur because they have higher life expectancies.

MORTALITY

Mortality refers to societal death rates. Typically, these are operationalized in terms of average life expectancy.

POPULATION AGE STRUCTURE

Population age structure refers to the age distribution of the population. Societies with a youth bulge have a concentration of people between the ages of 0 and 24, whereas a 'aged' or graying population typically has a median age in the mid to upper 40s and a substantial portion of elderly (i.e., 65+) and extreme elderly (i.e., 80+).

URBANIZATION

Urbanization refers to the concentration of people in urban areas. It is typically operationalized as urban population divided by total population.

APPENDIX B: PARAMETERS

[1] POPULATION SIZE

Population size refers to the size of a national, regional, or global population. Specifically, HCSS is interested in changes to this size. Accordingly, population size can take on three values: 1) decline (i.e., contracting population), 2) stable (i.e., negligible growth or decline in a population), or 3) growth (i.e., increase in population size).

[2] AGE STRUCTURE

Age structure refers to the age distribution of the population. In other words, age structure examines the balance of young, middle-aged, and elderly persons within a population. Age structure can take on three values: 1) Christmas-tree (i.e., youthful population), 2) rectangle (i.e., balance between the various age groups), or 3) coffin (i.e., elderly population).

[3] GENDER COMPOSITION

Gender composition refers to the distribution of males and females within a population. HCSS is concerned if great gender disparities exist within national, regional, or global populations. Accordingly, gender composition can take on three values: 1) too many males, 2) parity or near parity, or 3) too many females.

[4] DOMINANT FAMILY STRUCTURE

Dominant family structure refers to the primary domestic family unit within a national, regional, or global society. This can take on three values: traditional (i.e., married heterosexual couple with children), modern (i.e., not traditional – (e.g., married couple no children, homosexual couple, etc.), or balanced (i.e., no clear dominant family structure).

[5] ETHNIC COMPOSITION

Ethnic composition refers the distributions of ethnicities within a population. In other words, the interest is in determining the extent to which populations are becoming more diverse. Ethnic composition can take on three values: 1) highly homogenous (i.e., overwhelming majority of population belongs to one ethnic group), 2) somewhat diversified (i.e., dominant ethnic group but a large group of ethnic minorities), or 3) diversity (i.e., no dominant ethnic group).

[6] LEVEL OF EDUCATION/SKILLS

This parameter refers to the aggregate amount of education and skills within a national, regional, or global population. Specifically, it includes considerations of higher education enrollment as well as the number and fluctuation of educated and skilled laborers within a society. Level of education and skills can take on three values: 1) low, 2) medium, or 3)high

[7] LEVEL OF UNEMPLOYMENT

This parameter refers to the aggregate level of unemployment within a national, regional, or global population. It can take on three values: 1) excessive (i.e., greater than 10%), 2) moderate (i.e., between five and ten percent), or 3) limited (i.e., less than five percent).

[8] RELIGIOUS COMPOSITION

Religious composition refers to the distribution of religions within a particular population. HCSS is particularly concerned about changes in this composition. This parameter can take on three values: no change, minor change, and major change.

[9] LEVEL OF URBANIZATION

Level of urbanization refers to the distribution of rural versus urban residents within a national, regional, or global population. This parameter can take on three values: 1) predominantly rural (i.e., overwhelming majority of people live in a rural environment), 2) rural (i.e., majority of people live in a rural setting), or 3) urban (i.e., majority of people live in cities).

APPENDIX C: DESCRIPTION OF DRIVERS

[1] AGGREGATE FERTILITY RATE

Aggregate fertility rate refers to the average number of children born per woman in national, regional, or global context. The aggregate fertility rate can take on three values: 1) below replacement rate (i.e., less than 2.1 children born per woman), 2) replacement rate (i.e., 2.1 children born per woman), or 3) exceeds replacement rate (i.e., more than 2.1 children born per woman).

[2] LIFE EXPECTANCY

Life expectancy refers to average expected life span of a person at their time of birth. This can be calculated in either national, regional, or global terms. Life expectancy can do one of three things: 1) decrease (i.e., people live shorter lives), 2) remain the same, or 3) increase (i.e., people live longer lives).

[3] GENDER BIRTH RATIO

Gender birth ratio refers the average number of males born per 100 females in a national, regional, or global setting. The natural rate is approximately 105 males to 100 females. By age five, this ratio reaches parity because male children are more susceptible to childhood diseases. Accordingly, the gender birth ratio can take on three values: 1) skewed male (i.e., more than 107 males are born per 100 females), 2) natural birth rate (i.e., between 106 and 104 males per 100 females), or 3) skewed female (i.e., fewer than 103 males per 100 females)

[4] ETHNIC BIRTH RATIOS

Ethnic birth ratios refer to the comparative number of births between ethnic groups. This can take on three values: 1) a significant disparity between ethnic groups, 2) a minor/moderate disparity between ethnic groups, or 3) parity among all ethnic groups.

[5] NET MIGRATION

Net migration refers the difference between the number of immigrants and the number of emigrants on a national or regional level. It can take on three values: 1) net loss (i.e., migrant outflow exceeds migrant inflow), 2) even or near even, or 3) net gain (i.e., migrant inflow exceed migrant outflow).

[6] IMMIGRATION POLICY OPENNESS

Immigration policy openness refers to the extent to which a state is willing to accept immigrants. States with highly restrictive immigration policies are not willing to accept substantial inflows of people regardless of their skills or ethnicity. Alternatively, conditional immigration policies indicate that a state is willing to accept people with certain skill sets or ethnic backgrounds. Finally, states with liberal immigration policies are willing to accept substantial inflows of people without conditions.

[7] POPULATION POLICIES

Population policies are those policies implemented by a government to have an impact on fertility rates (which may include child care policies, natal policies, educational policies etc.). These policies can have three effects: 1) discourage fertility 2) encourage unnatural fertility (i.e., distort gender birth ratios, or 3) encourage natural fertility (i.e., incentivize having additional children).

[8] SOCIETAL VALUES

This refers to the values, customs, or beliefs held by a society that can have an impact on their fertility rates. As such, it is operationalized in the same manner as population policies. Societal values, however, should be considered distinct from population policies. For instance, the values in Italy discourage fertility, but the government has instituted programs that encourage fertility.

[9] ECONOMIC GROWTH

Economic growth refers to the rate of growth of a national, regional, or global economy. It can take on three values: 1) decline (i.e., economy is contracting), 2) limited (i.e., economy is growing but only at a limited rate – less than three percent), or 3) excessive (i.e., rapid economic growth – in excess of three percent).

[10] ECOLOGICAL CONDITIONS

Ecological Conditions refers to the environment surrounding a particular population in terms of an array of social, physical, political, and environmental factors. This driver can take on the following values: harsh, moderate, or good.

[11] QUALITY OF HEALTHCARE

Quality of healthcare refers to the extent to which healthcare is medically proficient, accessible, and focuses on the preventative aspect of medicine. It is applicable at the national, regional, and global level. Quality of health care can take on three values: 1) dismal (i.e., major deficiencies), 2) adequate (i.e., covers the basic health needs), or 3) excellent (i.e., addresses more than the basic healthcare needs).

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