WDA Forum

University of St.Gallen

# Project Papers 2012

*on Demographic Challenges*

# Megatrend „Global Demographic Change“ Tackling Business and Society Challenges in 2030 and beyond

*Masterclass Seminar by Dr. med. Hans Groth, MBA*
*at the University of St. Gallen, Switzerland*
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## Introduction and Rationale

In 2012, I had the privilege to teach a master class at the University of St. Gallen (HSG) entitled „Megatrend Global Demographic Change: Tackling Business and Society Challenges in 2030 and beyond“ for the fourth year in a row.

The concept of this class is not about giving another „old-fashioned" lecture characterized by „attaching“ students to monologues and unlimited numbers of power-point slides.
Given the growing amount of easily accessible information about the impact of demographic change at the national, societal and industrial levels, this class is about interactive problem solving and outside-the-box thinking focusing around potential future population trends and scenarios.

But what is my motivation to conduct this class in a way that provides a sustainable value for the career plans of the participating students?

The coming decades we will be confronted with demographic changes that history has not equipped us to manage. This forces us to focus on the future, a period of time which we are not generally accustomed to reflect upon. This is why this matter is so intimidating and makes it all the more crucial to be permanently prepared for change and open to innovation and creativity. However, this will only be achievable if appropriate education/training and thus knowledge/skills can be developed in the time remaining.

My response to this challenge is to provide a unique platform for moderated exchange of academic work for HSG students who want to broaden their scope of inevitable change in business, governance and society both as managers and responsible members in the communities they are living in today and in future.

Although demographic change and future planning are factors which are rarely perceived as part of our everyday life, they have in fact already shaped any given nation's history to a much greater extent than is generally imagined. For example, Switzerland's unique demographic history already started to evolve in the 13th century when the country's population growth and wealth was significantly influenced by the "Söldnertum" - strategy. Many further unique examples were to follow in the subsequent centuries. The latest example is the currently ongoing migration wave of skilled, educated and young (mainly) Europeans workers.

Again, 22 students from 8 different nations (Brasil, Bulgaria, China, India, Italy, Lebanon, Russia and Switzerland) and from 5 different HSG Master Programs (SIM, MBF, MIA, MSC, IMT) successfully bid for this class and represented an inspiring spectrum of diversity.

The benefit for the participants was to acquire a first understanding about the social and business environment they are most likely to encounter within the 2020 - 2050 time period. As such, these students will become already today sensitized to demographic challenges and encouraged to develop and hopefully execute new business and living models - models, which address the demands of individuals and societies existing in 2020-2050.

These students aligned in 9 project groups and engaged in building deeper knowledge on one of the following demographic challenge topics:

1. „Demography meets Intergenerational Communication“ – Impact of accelerating demographic ageing in western societies on social sustainability and wealth distribution
2. „Demography meets The Power of Nations“ – An outlook on the demographic changes and the global power of nations
3. „Demography meets Retirement Age“ – Options for UBS to reinvent work schemes to meet the new demographic realities in business and society
4. „Demography meets Africa“ – An outlook on the demographic challenges of Sub-Saharan Africa until 2050
5. „Demography meets Latin America“
6. „Demography meets China, Japan and South Korea“ – Tackling the low fertility and the increasing longevity phenomenon

7. „Demography meets Indonesia“ – How to capture its hidden potential
8. „Demography meets Switzerland’s Migration Policy and its Implications“
9. „Demography meets Healthcare Investment Opportunities in China“ – Making the leap for further growth and business development: A strategic analysis for Fresenius Medical Care

In the following chapters you will find the corresponding papers, which were submitted by these working groups. Prior to submission all papers have been presented and vividly discussed in front of the entire group, providing in-depth exposure to the various topics and opportunities to challenge one another’s research.

I am quite convinced that the papers prepared by the students will inspired you and that you will acquired new views on how our Planet Earth might develop. You will also agree with me that these students have developed a very solid understanding about the business and civil society environments in which we are most likely to live in between 2030 and 2050.

Finally – and this is as well a key objective of my teaching engagement – these students are already today sensitized to the wide spectrum of demographic themes across the global, national, business and societal levels, a prerequisite to developing proactive and comprehensive future business models.

On behalf of all who contributed to the content of this book I am more than happy to engage in any discussions with any potential reader.

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St. Gallen, December 2012

**Project Paper 1**


Demography meets Intergenerational Communication

# Impact of accelerating demographic ageing in Western societies on social sustainability and wealth distribution

submitted by

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Course Lecturer

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# 1 Introduction

Europe is facing significant demographic changes. While a growing life expectancy and a corresponding increase in the older population can be seen as social achievements they also pose challenges for governments and private entities. Demographic shifts that are already noticeable will affect government spending, company strategies, social policies, the labor market and peoples' lives (Lagiewka & Antunes, 2011). The changes are complex and are tied to other issues, such as economic conditions, cultural changes, political climate and local policies (Concialdi, 2011). Over the next 20 years governments and private firms will need to deal with challenging issues, including providing retirees with pensions and health care, changing labor market conditions and adapting products and services to the needs of the elderly who will become an increasingly important group of customers (Andreason, 2011). Some governments and firms have already started to take measures to adjust to the emerging demographic trends. Since these can be predicted addressing them is both possible and rational.

This paper deals with the problems of intergenerational conflicts and resource transfers. An aging population will have a high proportion of retired people in relation

to the active labor force. This may cause increasing pressure on workers, decreasing incomes for certain population groups and growing social tensions. Also aging may require unpopular measures such as raising the retirement age or changes in financing old age pensions or health care. (Concialdi, 2011). The purpose of this paper is to describe the current situation in the EU as well as Norway and Switzerland with special focus on France, Germany, Italy and Switzerland.

The first part of the paper contains an analysis of the statistical data in order to identify major trends and highlight countries where demographic changes may have significant consequences. The second part deals with the expected changes in the retiree/worker income ratio and its repercussions. The perspectives of both retirees and active workers will be analyzed. As a possible source of social tension and intergenerational conflict, the incomes of pensioners will be compared to those of the working population. The last part is devoted to a discussion of possible ways to deal with the emerging problems and to evaluate the need for new intergenerational transfer mechanisms.

The first part is focused on analysis of statistics in order to define major trends and point out countries where the changes can lead to the most significant consequences. The second part will show the changes in retiree/worker income ratio and its consequences. Both perspectives the one of the retirees and workers will be highlighted and analyzed. As a possible source of

social tension the relative income of pensioners in relation to the average income the working population will be shown. The last part is devoted to the discussion of possible ways to overcome emerging problems and evaluate the necessity of new intergenerational transfer system in the selected country.

# 2 Demographic Trends In Europe

In this part on the demographic situation, labor market, incomes, education and government spending will be analyzed in order to gain an understanding of general trends. Unfortunately, not all data is available for every European country for the period 1960-2030, especially in the case of projections. To ensure comparability of parameters and to avoid making too many assumptions, it was decided to focus on the members of the European Union. Since data on Norway and Switzerland is also available from the same data source, an analysis of these countries was also included. The countries selected for this study are ( in alphabetical order): Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Norway, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, the United Kingdom and Liechtenstein. Since the analysis reflects only the situation in these countries the results cannot be applied to all European countries. In addition, the results depend on the reliability of the data, which is why European Commission and OECD services information was used wherever possible. These sources cover a large amount of data using a common methodology ("Comparing apples with apples", 2012). All projections were made on the assumption that current policies regarding retirement will remain unchanged (European Commission & Economic Policy Committee, 2012). If additional assumptions were made or other sources were used it will be indicated in the text.

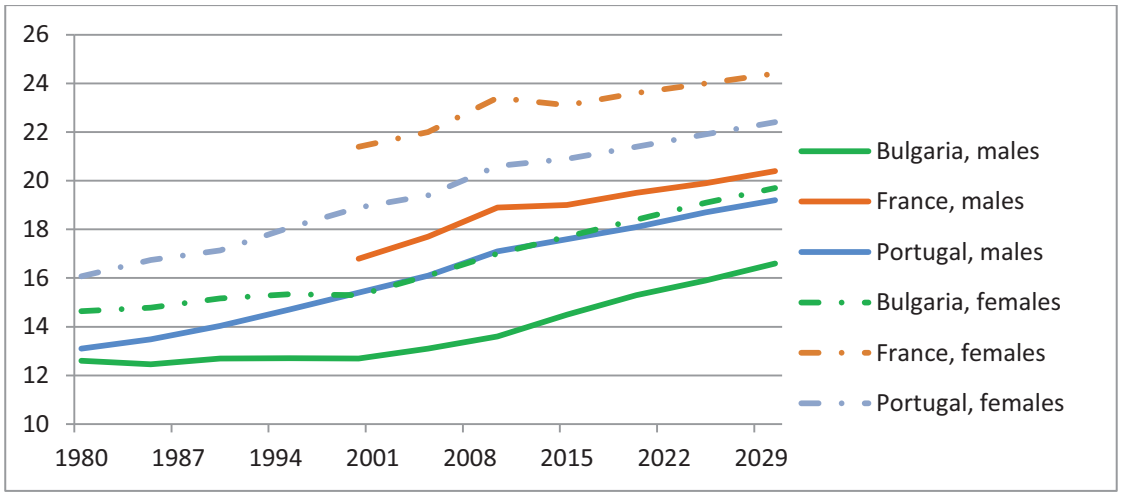
## 2.1 Main Change Drivers

The demographic situation is to a large extent predetermined by the aging of the baby-boom generation. A large number of people born in 1945-65 is now leaving the labor force and retiring. The period of high fertility ended in the early 1960's and the number of people in the ensuing generations was much smaller (Zaidi, 2011). This is a given that was determined before the 1960-2030 period covered by this study.

Current demographic changes in Europe are driven by three factors: life expectancy, fertility rates and migration (European Commission & Economic Policy Committee, 2012, pp. 45-54). While the specific dynamics vary between countries, the overall trends are quite clear and similar. Both life expectancy at birth and at age 65 is expected to rise in all countries. Women's life expectancy continues to be higher than men's everywhere. Also these parameters tend to converge between countries over time. Figure 1 illustrates these trends: Bulgaria has the lowest projected life expectancy at 65, France the highest (projections for Switzerland are not available from the same source, although in 2010 it had the highest life expectancy). Portugal had values that were close to the median. It should be noted, that over the next twenty years the spread

between life expectancy in France and Bulgaria is projected to decrease from 5.3 years to 3.8 for men and from 6.4 years to 4.7 ears for women.

**Figure 1:** Life Expectancy at 65, 1980-2030 (Years). Bulgaria, Portugal, France




Source: Statistical data from European Commission & Economic Policy Committee, 2012 (for 2015-2030 prognoses), Eurostat (for 1980-2010 data)

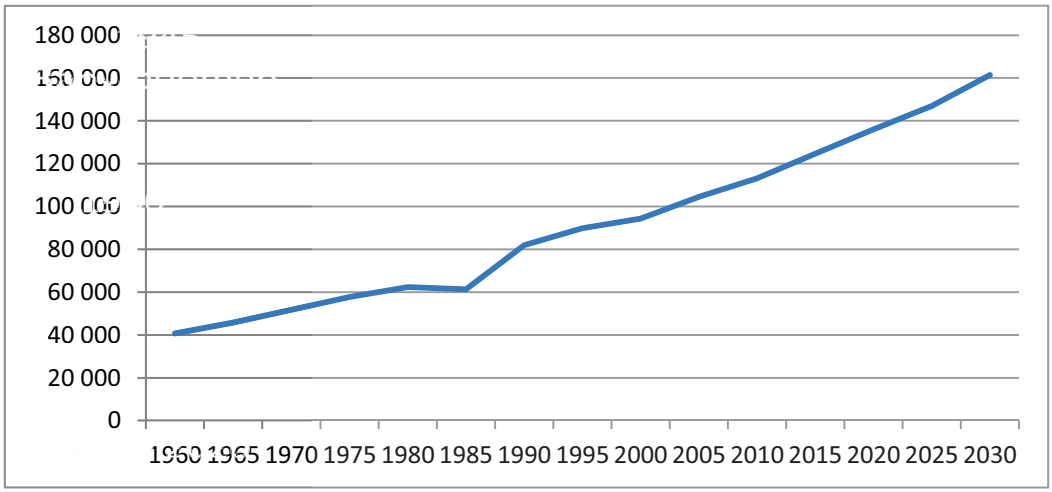
Fertility rates in the European Union have been declining for a long time starting in the early 1960's. They began to recover in 2000 and are now expected to continue to rise. Nevertheless, the European Commission (EC) assumes that the growth will be quite modest and that even in 2060 the average fertility rate will not reach the natural replacement rate.

As stated in the EC report, overall inward migration into EU countries is growing and is expected to rise further until 2020 with Spain, Italy and the UK the main destinations. Even the situation in countries that are now countries of origin (e.g. Bulgaria, Latvia and Estonia) inward migration is forecasted to change in the next 10 years. Although inward migration will reduce the effects of the aging of the population it will not fully offset the decline in labor market participation.

## 2.2 Major Changes

Increasing longevity will lead to an increase in the number of older people. This trend can be observed in all the 29 countries. According to the United Nations prospects (2011), the number of people in the 65+ age group will rise by 43% in these countries between 2010 and 2030 (Figure 2).

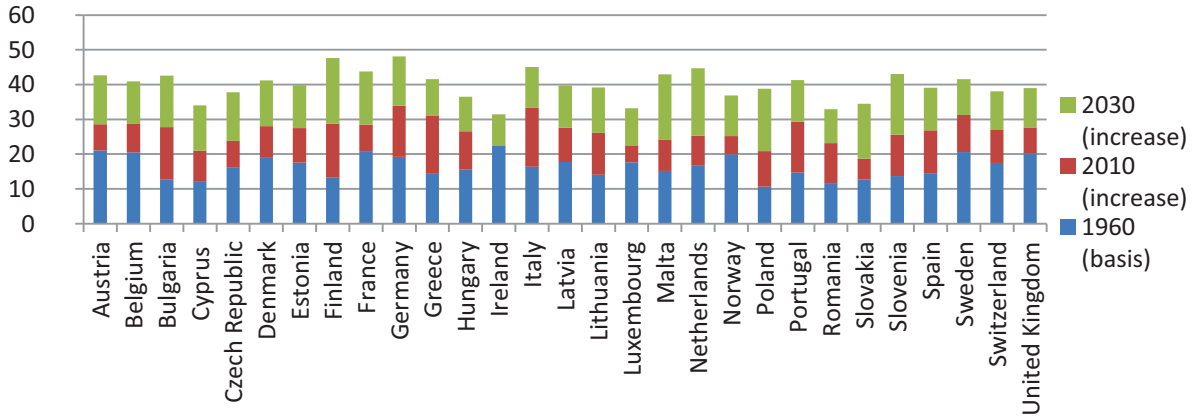
**Figure 2:** Population Aged 65 and Higher 1960-2030, (Thousands)




Source: Statistical data from United Nations, 2011.

Taken together with the long-term modest rise in fertility rates, the proportion of the elderly can be expected to rise. This will mean a relative shrinkage of the relative size of the middle-age population and that there will be relatively fewer children and young people. These changes in the age structure will also mean that the dependency ratio (people in the 65+ age group relative to those aged 15-64) will rise .That is, the number of older people per worker is increasing. Figure 3 shows the cumulative development of the dependency ratio indicating that the trend affects all 29 countries albeit at different speeds.

**Figure 3**: Old-Age Dependency Ratio 1960-2030 (%)

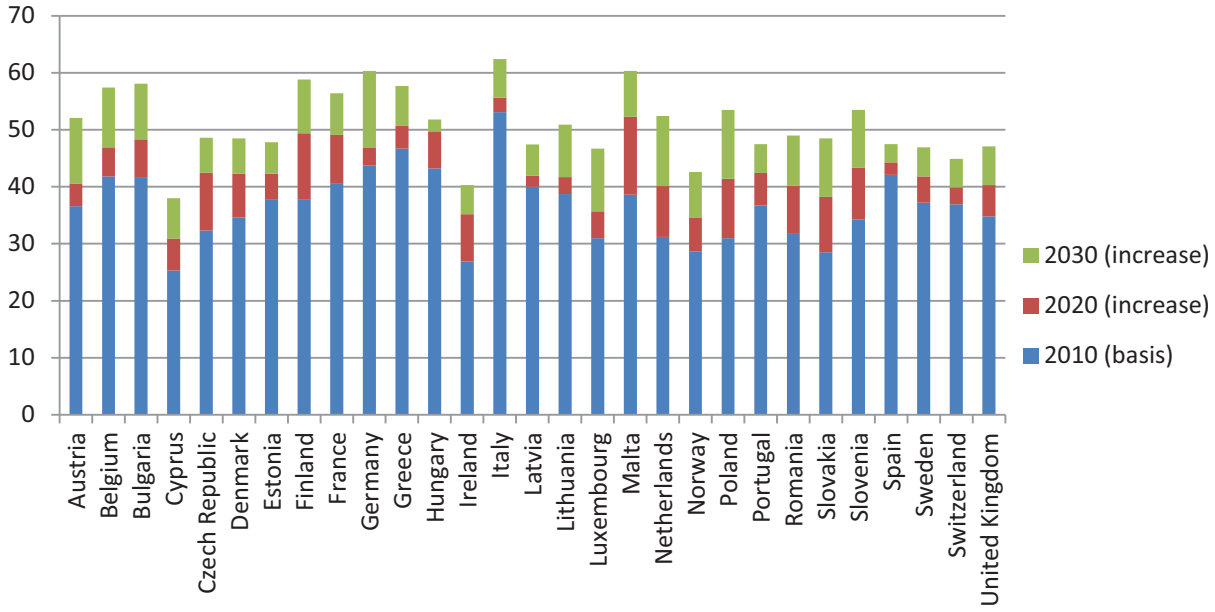



Source: Statistical data from European Commission & Economic Policy Committee, 2012 (2010-2030) Eurostat (1960-2005, Switzerland).

The economic dependency ratio (the ratio of older non-working people per employed person) is growing as well. Retirees depend on the value created by those working since the tax systems imply a certain transfer of resources to finance current pensions. The rising economic dependency ratio implies that there is increasing pressure on the working population and/or lower pensions. Although there are other ways to finance the pension system, eg. through foreign borrowing, the number of people employed and tax revenues are highly dependent on

the growth of the economy and the rise in the economic dependency ratio, therefore, means increasing difficulties to finance the social systems. Figure 4 shows the dependency ratio in 2010 and projections for 2020 and 2030.

**Figure 4:** Economic Old-Age Dependency Ratio Prognosis 2010-2030 (%)



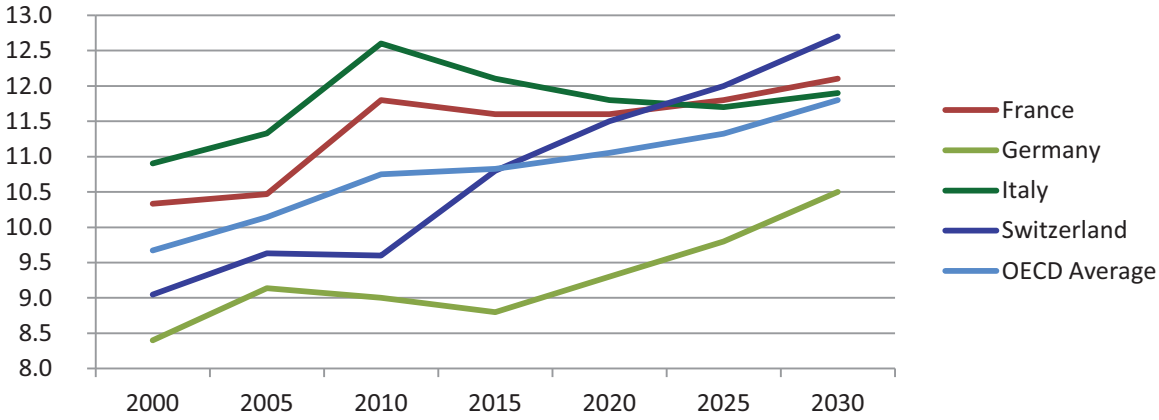

Source: Statistical data from European Commission & Economic Policy Committee, 2012.
Switzerland: own estimation based on statistical data from Eurostat, 2012.

The growing pressure, or difficulties to finance the social system, is a problem in all 29 countries. Using the economic dependency ratio rather than the regular one provides a different perspective and a basis for different solutions. For example, Italy, Belgium, Greece and Cyprus may face greater problems because of their difficult economic situation with high unemployment (low employment) while it may be easier for Portugal and the Netherlands despite their high percentage of older people.

Unfortunately, data from comparable sources were not available for Ireland, Malta, Bulgaria, Romania, Cyprus, Latvia, Slovenia and Lithuania, but it was possible to compare retiree incomes in all the other countries. Over the past twenty years the relative income of pensioners grew in all the countries, except Luxembourg and Estonia were pensions were lowered (see Table 3). If this trend continues there is likely to be growing social tensions in countries such as Italy, France and Portugal, where the relative income of retirees is the highest and still growing.

Finally, the increasing, and varying, financial pressure on the pension systems in the 29 countries is also indicated by the percentage of GDP that is spent for this purpose (Figure 5).

**Figure 5:** Public Pensions 2000-2030 (% GDP)




Source: Statistical data from European Commission, 2012 (2010-2030), Eurostat 2012 (2000-2005).

## 2.3 Major Problems

There are several trends that may lead to future problems in Europe. Table 1 summarizes the main results of the statistical analysis using five parameters and listing the five countries showing the extreme predicted values in 2030 (for relative retiree income-2010). Since the number of people 65+ can not be compared from country to country it depends in part on the absolute size of the population) a relative measure (old-age dependency ratio) was used instead.

The main issue considered in this paper is the future problems associated with intergenerational transfers. In this regard the most important parameters are the economic dependency ratio, the relative incomes of retirees and total spending on pensions. Although the economic dependency ratio does not give a complete picture, because the pension system can be financed by foreign borrowing, a country clearly faces problems when the relative income of retirees is perceived as unjust and the pension system requires too large a portion of available resource (as measured by percent of GDP).

**Table 1:** Countries with Extreme Indicators' Values

| Parameter | Challenging if: (high, low) | Countries showing extreme values |
|---|---|---|
| **Life expectancy at 65** | High | Switzerland, France, Spain, Italy, Luxemburg |
| **Old-age dependency ratio** | High | Germany, France, The Netherlands, Italy, Finland |
| **Economic old-age dependency ratio** | High | Italy, Malta, Germany, Finland, Bulgaria |
| **Retirees' relative income (2010)** | Too high/too low | **Highest:** Italy, France, Portugal, Austria, Czech Republic<br>**Lowest:** Ireland, the United Kingdom, the Netherlands, Denmark, Switzerland |
| **Pensions, % of GDP** | High | Belgium, Finland, Switzerland, Austria, France |

Source: Statistical data from European Commission, 2012 (2010-2030), Eurostat 2012 (2000-2005).

The parameters used in the table are not comparable because some are seen from the perspective of the citizens others from that of the government. Nevertheless it would seem that Italy and France are likely to confront the most difficult problems.

In order to answer the question if the system of intergenerational transfers needs to be changed we have to examine the situation in European countries with different pension systems and political and economic conditions. Italy and France were chosen as examples of countries with demographic problems combined with severe economic problems: declining employment in Italy and large government debt in both countries. Germany has a solid economy but a declining population and a fast ageing society while Switzerland is doing well economically but is facing population distortions as a result of a large inflow of migrants. These matters will be discussed at greater length in the next chapter.

# 3 Intergenerational Transfers

Intergenerational transfers are large in most Western societies and they affect both economic growth and income distribution and they take place throughout our lives. In our youth we receive them in the form of medical care, education and sustenance. In the European Union and Switzerland basic education is free and colleges and universities are largely financed by the governments. In our old age we depend on our families and on a variety of social programs, one of which, pensions, is financed through in intergenerational transfer of resources.

The countries that are the focus of this paper, France, Germany, Italy and Switzerland, have pay-as-you-go pension systems. These are financed by the working population through taxes or other contributions. As noted above, the dependency ratio is growing which means that there are fewer and fewer workers that pay into the system for each retiree who receives a pension. While these trends are present everywhere the demographic trends are slightly different in each country as shown in Table 2.

## 3.1 Demographic Indicators

Although Germany has a well-run and successful economy it clearly faces demographic problems. Table 2 indicates that the German population is likely to shrink and that the dependency ratio will rise to just over 60 percent because fertility is low and immigration modest. The current system is partly debt financed, which implies an intergenerational transfer of wealth. The effect of this situation on the implicit intergenerational contract and on intergenerational communication is discussed below.

The situation in France is different. The population is not likely to shrink as a result of the higher fertility rates in the ethnically diverse segments of society. Italy and Switzerland ,in turn, profit from substantial immigration which enable them to hold their population numbers stable or, in the case of Switzerland, even increasing.

**Table 2:** Demographic core indicators of focus States.

| Demographic Indicator | 1995 | 2005 | 2015 | 2025 |
|---|---|---|---|---|
| **Population** | **Growth rate** (percent) | | | |
| France | 0.5 | 0.6 | 0.4 | 0.3 |
| Germany | 0.3 | -0.1 | -0.2 | -0.3 |
| Italy | 0.2 | 0.4 | 0.3 | 0 |
| Switzerland | 0.5 | 0.4 | 0.7 | 0.6 |
| **Fertility** | **Total fertility rate** (births per woman) | | | |
| France | 1.7 | 2 | 2.1 | 2 |
| Germany | 1.2 | 1.3 | 1.4 | 1.5 |
| Italy | 1.2 | 1.3 | 1.4 | 1.5 |
| Switzerland | 1.4 | 1.4 | 1.5 | 1.6 |
| **Migration** | **Net migration rate** (per 1,000 population) | | | |
| France | 1 | 1 | 1 | 1 |
| Germany | 5 | 1 | 1 | 2 |
| Italy | 3 | 4 | 4 | 3 |
| Switzerland | 2 | 2 | 5 | 4 |
| **Mortality** | **Life expectancy at birth** (years) | | | |
| France | 78 | 80 | 82 | 83 |
| Germany | 76 | 79 | 81 | 82 |
| Italy | 78 | 81 | 82 | 83 |
| Switzerland | 79 | 81 | 83 | 83 |

Source: U.S. Census Bureau, International Data Base

## 3.2 The Situation of Retirees

As noted above, all four countries are caught in a demographic trap. In order to maintain the implicit intergenerational contract the pension system, and especially its financing, need to be changed and adapted to the new demographic situation. The question is which age group will have to bear which part of the burden of these changes. When the pay-as-you-go systems were introduced the demographic factors were very different and as they changed so did the economic situation of retirees, which has improved significantly during the second half of the last century. The incomes of today's pensioners are clearly above the poverty line and in some cases even higher than during their working lives (Table 3). In addition many pensioners have accumulated savings. Table 3 compares the average income of a worker with the average pension received by a retiree. In the year 200 0 the average pension in the OECD area was 60% of the average wage, a number that had risen to 68% by 2005.

The differences within the OECD are very large. While an Italian retiree received 112% of the average wage the Irish pensioner received only 18%. Changes over time are also significant. Luxembourg reduced the ratio by 30 % between 2000 and 2005, Portugal raised it by 33%. Of

the four countries in our sample, Italy has the highest ratio with France second and Germany. Germany's ratio is 12% above the OECD average while Switzerland's is 13% below.

**Table 3:** Population ageing in France, Germany, Italy, and Switzerland, 2000 and 2050.

| | Annual income, wages&salaries | | Pension | | Relation | | Change |
|---|---|---|---|---|---|---|---|
| **Series** | 2011 USD PPPs 2011 constant prices, annual | | Current* USD PPPs current prices, annual | | Pension Percentage of Average annual income | | 2000-2005 |
| **Time** | **2000** | **2005** | **2000** | **2005** | **2000** | **2005** | |
| **Austria** | $40'028 | $41'672 | $28'142 | $35'547 | 70% | 85% | 15% |
| **Belgium** | $42'756 | $43'780 | $21'655 | $26'064 | 51% | 60% | 9% |
| **Czech Republic** | $13'868 | $17'964 | $11'266 | $15'299 | 81% | 85% | 4% |
| **Denmark** | $39'034 | $42'915 | $16'006 | $20'153 | 41% | 47% | 6% |
| **Estonia** | $10'733 | $14'773 | $ 6'637 | $ 8'201 | 62% | 56% | -6% |
| **Finland** | $29'967 | $33'914 | $18'740 | $24'977 | 63% | 74% | 11% |
| **France** | $33'974 | $36'181 | $30'383 | $36'122 | 89% | 100% | 10% |
| **Germany** | $38'866 | $39'249 | $23'872 | $31'291 | 61% | 80% | 18% |
| **Greece** | $24'966 | $28'780 | $15'836 | $23'146 | 63% | 80% | 17% |
| **Hungary** | $14'932 | $20'086 | $ 8'418 | $12'652 | 56% | 63% | 7% |
| **Ireland** | $41'094 | $46'133 | $ 5'694 | $ 8'392 | 14% | 18% | 4% |
| **Italy** | $33'051 | $33'541 | $32'640 | $37'611 | 99% | 112% | 13% |
| **Luxembourg** | $49'159 | $51'892 | $44'402 | $31'154 | 90% | 60% | -30% |
| **Netherlands** | $43'054 | $44'321 | $16'247 | $19'470 | 38% | 44% | 6% |
| **Norway** | $32'506 | $37'799 | $19'127 | $25'090 | 59% | 66% | 8% |
| **Poland** | $17'027 | $17'934 | $ 8'393 | $11'081 | 49% | 62% | 12% |
| **Portugal** | $22'275 | $22'541 | $13'786 | $21'473 | 62% | 95% | 33% |
| **Slovak Republic** | $13'894 | $16'195 | $ 7'058 | $10'264 | 51% | 63% | 13% |
| **Spain** | $32'202 | $31'597 | $18'783 | $22'373 | 58% | 71% | 12% |
| **Sweden** | $31'926 | $34'360 | $22'163 | $26'765 | 69% | 78% | 8% |
| **Switzerland** | $46'215 | $48'728 | $23'495 | $26'962 | 51% | 55% | 4% |
| **United Kingdom** | $41'126 | $44'776 | $12'727 | $16'516 | 31% | 37% | 6% |
| **OECD Average** | $31'484 | $34'051 | $18'430 | $22'300 | 60% | 68% | 8% |

Source: Statistical data from OECD, 2012. For Relation and Change own calculations.

The data in this table was retrieved from the OECD data base. Since annual income and pension statistics were not available with the same base year, annual income at 2011 constant prices and pensions at current prices was used (see Appendix 2). This minimized, to the extent possible, the effect of inflation. The OECD social expenditure data base records as one variable

the pension benefits paid to retirees. This includes all cash expenditures (including lump sum payments) for old age pensions. It is unclear if OECD includes all forms of pension payments (e.g. second and third tier pensions in Switzerland). The OECD notes on the Question of comparability:

“The OECD Social Expenditure Database (SOCX) has been developed in order to serve a growing need for indicators of social policy. It includes reliable and internationally comparable statistics on public and mandatory and voluntary private social expenditure at program level. (OECD, 2012).”

However, it is clear that the four focus countries have different pension systems and that comparisons are difficult. Therefore, all conclusions based on these numbers should be used with care. Nevertheless, the study by Adema W. and Ladaique M. (2009) , which is the base for these data, meets all necessary academic criteria and the numbers can, therefore, be regarded as reliable. As a supporting statistic, and to complete the picture of the financial situation of retired people, the author suggests the use of the holding of wealth by the retirement age group.

## 3.3 The Situation of the Working Population.

Today’s retirees can clearly contribute to resolving the intergenerational problem. The question now is can the working generation, too? Table 2 shows the trend towards longer life expectancy at birth. While a Swiss male had a life expectancy of 66.4 years (BFS, 2012) in 1950 it has risen to 83 today. This trend is true in all OECD member countries and especially in the four states covered by this study. Better nutrition, health care and less physical work mean not only that people live longer but also that they are in better physical shape when they retire.

Economic growth has declined over the past several decades. While in Germany the real gross domestic product grew by an annual average of 4.5% in the 1950-73 period the growth rate had fallen to 2.05% between 1973 and 1990 (Metz, 2002) and it was only 0.4 and 1.04% in the periods 2000-5 and 2010 respectively (Wirtschaftskammer Oesterreich, 2012) (see Appendix 3). The same is true for France, which had average growth rates of 2.6%, 1.6% and 0.6% in the periods 1950-2000, 2000-5 and 2005-10. (ibid.) Italy was no exception with growth rates of 3.4%, 1.0 and -0.2 during the three periods. In Switzerland growth was more even at 2.8%, 1.3% and 2.0% (ibid). The economic situation was clearly more difficult in all three countries in the past decade than in the last half of the last century.

Most governments have already started to finance their spending on pensions through the regular budget. For example the German Federal Government contributed 59 Billion Euros in 2010 and 64.5 Billion Euros in 2011 (Deutsche Rentenversicherung, 2012). Since most budgets are in deficit this contributes to the growing government debt and adds to the contribution that the working population is asked to make. All the other countries in the sample need to do the same in order to fulfill the intergenerational contract (Reuters, 2012).

# 4 Conclusion and Outlook

The debt crisis has forced politicians to focus on the future of their pension systems. While Germany, France and Italy have taken some small steps, in Switzerland the discussion of possible reforms has barely started. The critical question is which generation has to pay which price to secure the future of the system. As noted in this paper, the circumstances have changed dramatically since the old age pension systems were established in Germany, France, Italy and Switzerland. In view of the foreseen demographic changes and the current economic situation it is clear that reforms are necessary to secure the intergenerational contract and maintain social stability.

Social sustainability depends on a balanced and fair sharing of the burden. Intergenerational transfers have lead to a shift of wealth from the working population to the retirees. Although this shift was intentional in the beginning, the level of wealth held by the 65+ generation has now reached a point where most pensioners are now secure. Retirees have almost the same level of income as they had during their working lives (see Table 3) in Germany, France and Italy. The discussion should now focus on how the retired generation can contribute to the future security of the system. A balanced distribution of wealth and a fair relationship between pensions and average annual income would help maintain social stability.

But others should contribute as well. The younger generation should consider working longer considering their longer life expectancy and better health. Questions such as the encouragement of fertility or labor market participation should also not be forgotten. And the questions surrounding migration and the role of migrants need to be resolved.

Every country has its own pension system and its own problems. The intergenerational dialogue, therefore, needs to be conducted at the national, not the international, level. The demographic facts are different everywhere and the issues need to be addressed individually by each nation. The pressure for change is likely to rise and the need for intergenerational dialogue will become critical. This will require a willingness to discuss and communicate by all the parties involved.

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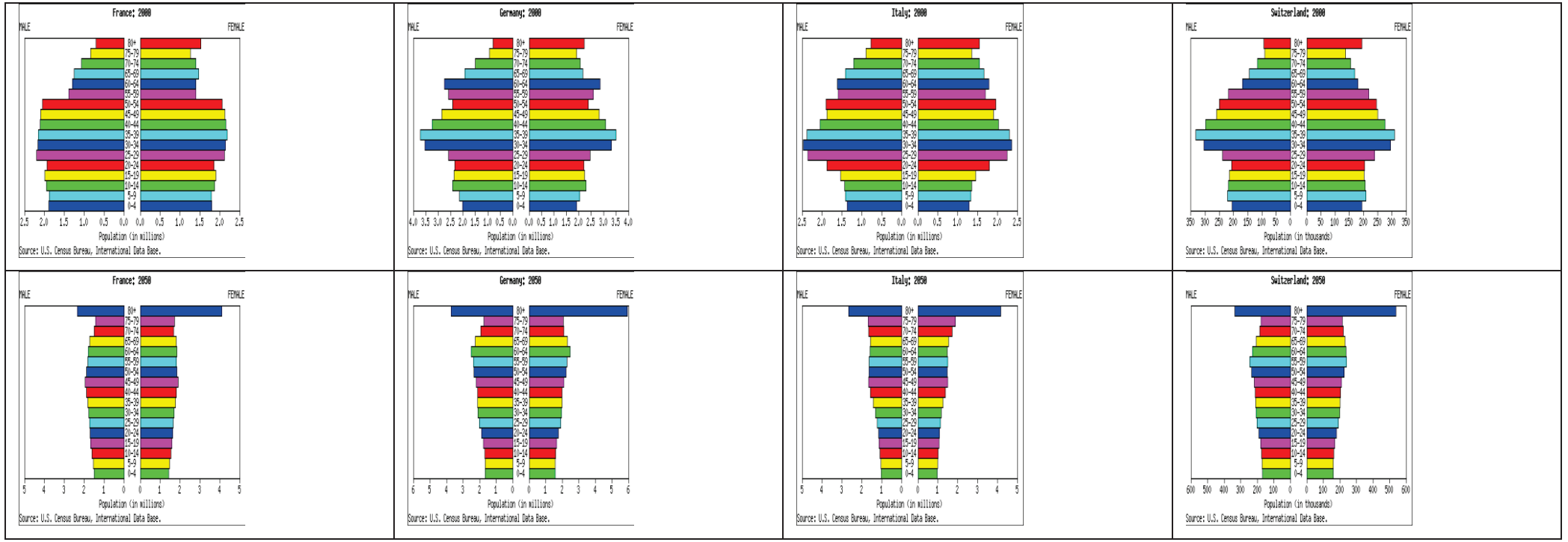
# Appendix 1: Demographic Structure Of Focus States 2000 And 2050




Source: U.S. Census Bureau, International Data Base

# Appendix 2: Relation Of Income And Pensions

| | Annual income, wages&salaries | | Pension | | Relation | |
|---|---|---|---|---|---|---|
| Series | 2011 USD PPPs and 2011 constant prices, annual | | Per head, at constant prices (2000) and constant PPPs (2000), in US dollars, annual | | Pension Percentage of Average annual income | |
| Time | 2000 | 2005 | 2000 | 2005 | 2000 | 2005 |
| Austria | $40'028 | $41'672 | $30'467 | $35'005 | 76% | 84% |
| Belgium | $42'756 | $43'780 | $24'035 | $26'321 | 56% | 60% |
| Czech Republic | $13'868 | $17'964 | $12'660 | $15'413 | 91% | 86% |
| Denmark | $39'034 | $42'915 | $17'963 | $20'590 | 46% | 48% |
| Finland | $29'967 | $33'914 | $19'602 | $24'533 | 65% | 72% |
| France | $33'974 | $36'181 | $33'491 | $35'522 | 99% | 98% |
| Germany | $38'866 | $39'249 | $25'128 | $28'009 | 65% | 71% |
| Greece | $24'966 | $28'780 | $18'576 | $24'383 | 74% | 85% |
| Hungary | $14'932 | $20'086 | $11'549 | $15'083 | 77% | 75% |
| Ireland | $41'094 | $46'133 | $ 6'912 | $ 8'808 | 17% | 19% |
| Italy | $33'051 | $33'541 | $37'264 | $39'896 | 113% | 119% |
| Luxembourg | $49'159 | $51'892 | $51'244 | $31'591 | 104% | 61% |
| Netherlands | $43'054 | $44'321 | $18'695 | $19'552 | 43% | 44% |
| Norway | $32'506 | $37'799 | $22'692 | $24'456 | 70% | 65% |
| Poland | $17'027 | $17'934 | $ 9'527 | $11'251 | 56% | 63% |
| Portugal | $22'275 | $22'541 | $16'032 | $21'008 | 72% | 93% |
| Slovak Republic | $13'894 | $16'195 | $ 8'789 | $11'053 | 63% | 68% |
| Spain | $32'202 | $31'597 | $18'706 | $18'421 | 58% | 58% |
| Sweden | $31'926 | $34'360 | $23'729 | $27'482 | 74% | 80% |
| Switzerland | $46'215 | $48'728 | $24'199 | $25'384 | 52% | 52% |
| United Kingdom | $41'126 | $44'776 | $14'141 | $16'388 | 34% | 37% |

Source: Statistical data from OECD, 2012. For Relation and Change own calculations.

# Appendix 3: Economic Growth (Change Of Real GDP)

| Land | Durchschnitt 2000-2005 | Durchschnitt 2005-2010 | 2000 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 * | 2012 * | 2013 * |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Belgien | 1,6 | 1,2 | 3,7 | 1,8 | 2,7 | 2,9 | 1,0 | - 2,8 | 2,4 | 1,8 | - 0,2 | 0,7 |
| Deutschland | 0,6 | 1,4 | 3,1 | 0,7 | 3,7 | 3,3 | 1,1 | - 5,1 | 4,2 | 3,0 | 0,8 | 0,8 |
| Estland | 7,2 | 0,1 | 9,7 | 8,9 | 10,1 | 7,5 | - 4,2 | -14,1 | 3,3 | 8,3 | 2,5 | 3,1 |
| Finnland | 2,6 | 0,8 | 5,3 | 2,9 | 4,4 | 5,3 | 0,3 | - 8,5 | 3,3 | 2,7 | 0,1 | 0,8 |
| Frankreich | 1,6 | 0,6 | 3,7 | 1,8 | 2,5 | 2,3 | - 0,1 | - 3,1 | 1,7 | 1,7 | 0,2 | 0,4 |
| Griechenland | 4,0 | 0,1 | 4,5 | 2,3 | 5,5 | 3,5 | - 0,2 | - 3,1 | - 4,9 | - 7,1 | - 6,0 | - 4,2 |
| Irland | 5,0 | 0,4 | 10,7 | 5,9 | 5,4 | 5,4 | - 2,1 | - 5,5 | - 0,8 | 1,4 | 0,4 | 1,1 |
| Italien | 1,0 | - 0,2 | 3,7 | 0,9 | 2,2 | 1,7 | - 1,2 | - 5,5 | 1,8 | 0,4 | - 2,3 | - 0,5 |
| Luxemburg | 3,6 | 1,9 | 8,4 | 5,3 | 4,9 | 6,6 | - 0,7 | - 4,1 | 2,9 | 1,7 | 0,4 | 0,7 |
| Malta | 0,9 | 2,5 | 6,4 | 3,7 | 3,2 | 4,6 | 4,0 | - 2,4 | 3,4 | 1,9 | 1,0 | 1,6 |
| Niederlande | 1,3 | 1,4 | 3,9 | 2,0 | 3,4 | 3,9 | 1,8 | - 3,7 | 1,6 | 1,0 | - 0,3 | 0,3 |
| Österreich | 1,7 | 1,4 | 3,7 | 2,4 | 3,7 | 3,7 | 1,4 | - 3,8 | 2,1 | 2,7 | 0,8 | 0,9 |
| Portugal | 0,9 | 0,4 | 3,9 | 0,8 | 1,4 | 2,4 | 0,0 | - 2,9 | 1,4 | - 1,7 | - 3,0 | - 1,0 |
| Slowakei | 4,9 | 4,7 | 1,4 | 6,7 | 8,3 | 10,5 | 5,8 | - 4,9 | 4,4 | 3,2 | 2,6 | 2,0 |
| Slowenien | 3,6 | 1,8 | 4,3 | 4,0 | 5,8 | 7,0 | 3,4 | - 7,8 | 1,2 | 0,6 | - 2,3 | - 1,6 |
| Spanien | 3,3 | 0,9 | 5,0 | 3,6 | 4,1 | 3,5 | 0,9 | - 3,7 | - 0,3 | 0,4 | - 1,4 | - 1,4 |
| Zypern | 3,2 | 2,4 | 5,0 | 3,9 | 4,1 | 5,1 | 3,6 | - 1,9 | 1,3 | 0,5 | - 2,3 | - 1,7 |
| **Eurozone (17)** | **1,5** | **0,8** | **3,8** | **1,7** | **3,2** | **3,0** | **0,4** | **- 4,4** | **2,0** | **1,4** | **- 0,4** | **0,1** |
| Bulgarien | 5,5 | 2,7 | 5,7 | 6,4 | 6,5 | 6,4 | 6,2 | - 5,5 | 0,4 | 1,7 | 0,8 | 1,4 |
| Dänemark | 1,3 | - 0,1 | 3,5 | 2,4 | 3,4 | 1,6 | - 0,8 | - 5,8 | 1,3 | 0,8 | 0,6 | 1,6 |
| Großbritannien | 3,0 | 0,6 | 4,2 | 2,8 | 2,6 | 3,6 | - 1,0 | - 4,0 | 1,8 | 0,9 | - 0,3 | 0,9 |
| Lettland | 8,2 | - 0,8 | 5,7 | 10,1 | 11,2 | 9,6 | - 3,3 | -17,7 | - 0,9 | 5,5 | 4,3 | 3,6 |
| Litauen | 7,8 | 1,0 | 3,6 | 7,8 | 7,8 | 9,8 | 2,9 | -14,8 | 1,5 | 5,9 | 2,9 | 3,1 |
| Polen | 3,1 | 4,7 | 4,3 | 3,6 | 6,2 | 6,8 | 5,1 | 1,6 | 3,9 | 4,3 | 2,4 | 1,8 |
| Rumänien | 5,7 | 2,5 | 2,4 | 4,2 | 7,9 | 6,3 | 7,3 | - 6,6 | - 1,6 | 2,5 | 0,8 | 2,2 |
| Schweden | 2,7 | 1,6 | 4,5 | 3,2 | 4,3 | 3,3 | - 0,6 | - 5,0 | 6,6 | 3,9 | 1,1 | 1,9 |
| Tschechien | 4,1 | 2,7 | 4,2 | 6,8 | 7,0 | 5,7 | 3,1 | - 4,5 | 2,5 | 1,9 | - 1,3 | 0,8 |
| Ungarn | 4,2 | - 0,2 | 4,2 | 4,0 | 3,9 | 0,1 | 0,9 | - 6,8 | 1,3 | 1,6 | - 1,2 | 0,3 |
| **EU (15)** | **1,8** | **0,7** | **3,9** | **1,9** | **3,1** | **3,0** | **0,0** | **- 4,3** | **2,1** | **1,4** | **- 0,4** | **0,3** |
| **EU (27)** | **1,9** | **0,9** | **3,9** | **2,1** | **3,3** | **3,2** | **0,3** | **- 4,3** | **2,1** | **1,5** | **- 0,3** | **0,4** |
| Island | 4,2 | 0,1 | 4,3 | 7,2 | 4,7 | 6,0 | 1,2 | - 6,6 | - 4,0 | 2,6 | 2,7 | 2,3 |
| Kroatien | 4,5 | 0,7 | 3,8 | 4,3 | 4,9 | 5,1 | 2,1 | - 6,9 | - 1,4 | 0,0 | - 1,9 | 0,0 |
| Mazedonien | 1,6 | 3,6 | 4,5 | 4,4 | 5,0 | 6,1 | 5,0 | - 0,9 | 2,9 | 2,8 | 0,8 | 1,7 |
| Montenegro | 2,8 | 4,4 | . | 4,2 | 8,6 | 10,7 | 6,9 | - 5,7 | 2,5 | 3,2 | 0,2 | 2,4 |
| Serbien | 5,3 | 2,0 | . | 5,4 | 3,6 | 5,4 | 3,8 | - 3,5 | 1,0 | 1,6 | - 1,6 | 1,5 |
| Türkei | 4,6 | 3,2 | 6,8 | 8,4 | 6,9 | 4,7 | 0,7 | - 4,8 | 9,2 | 8,5 | 3,0 | 2,9 |
| Schweiz | 1,3 | 2,0 | 3,6 | 2,6 | 3,6 | 3,6 | 2,1 | - 1,9 | 2,7 | 1,9 | 0,9 | 1,9 |
| Norwegen | 2,2 | 0,8 | 3,3 | 2,6 | 2,5 | 2,7 | 0,0 | - 1,7 | 0,7 | 1,6 | 2,3 | 2,6 |
| **USA** | **2,4** | **0,7** | **4,2** | **3,1** | **2,7** | **1,9** | **- 0,4** | **- 3,1** | **2,4** | **1,8** | **2,1** | **2,3** |
| **Japan** | **1,2** | **0,3** | **2,3** | **1,3** | **1,7** | **2,2** | **- 1,0** | **- 5,5** | **4,5** | **- 0,8** | **2,0** | **0,8** |

* Prognose und vorläufige Werte

Source: (Wirtschaftskammer Österreich, 2012).

**Project Paper 2**


Demography Meets Power of Nations

# An outlook on the demographic changes and the global power of nations

submitted by

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# List of abbreviations

| | |
|---|---|
| BRIC | Brazil, Russia, India & China |
| EU | European Union |
| GDP | Gross Domestic Product |
| G8 | Group of Eight |
| IRT | International Relations Theory |
| SC | Security Council |
| UN | United Nations |
| USA | United States of America |
| WW | World War |

## Executive Summary

This paper examines the connection between demography and the power of nations. The goal is to identify trends for the influence and power of the following global players in relation to their demography: the United Nations Security Council, the United States of America, the European Union, the Group of Eight as well as the BRIC (Brazil, Russia, India and China) states and the African Union. This will be done through the application of different criteria such as political, economic and historical backgrounds in addition to pure demography. Since predicting global trends is always a highly complex matter, this paper focuses on the absolute core directions in which the aforementioned players are developing. It is probable that the western countries with a decrease in population also will face a relative decrease in power compared to other regions of the world such as China or Africa, but it is likely that they still will remain among the global players.

## 1. Introduction

Our world is in constant evolution. Demographic changes are happening more and more quickly and will change the face of the world that we currently know. The world population is growing at a huge speed and this will affect the current world structure since most of the population growth is taking place in the developing countries, whereas the population of the developed countries is changing only in a negligible way. Thus, this brings up new questions: will this new structure of world population have an effect on the current power equilibrium? In other words, will the developing countries gain power at the expense of the developed ones? Furthermore, what will be the chances and the challenges that demographic changes will bring to both developed and developing countries? And, last but not least, how might this affect their national power?

In order to answer these questions and to analyse how demographic changes will affect the world, we first start with a theoretical background of power and its impact. After that, we explain the current structure of our selected global players. Although one could look at many players starting from countries to international organisations, we have limited ourselves to five players, which are the United Nations, the United States of America, the European Union, the Group of Eight as well as the BRIC states and the African Union. To analyse these players in the time frame until 2050, chapter 4 will establish several criteria such as demographic, political and economic ones. With all this information, in chapter 5 we will illustrate different scenarios for each case that will be explained in detail. Again, as every case can be discussed individually, we focus on the big picture, trying to capture as much as possible in order to answer the question of how demography will affect global politics.

## 2. Power and Nations

Power in its purity is, besides liberty and freedom, a topic that has been discussed for centuries. However, the International Relations Theory (IRT), which mainly deals with the notion of power, is in this regard a very modern science with its roots in the beginning of the 20$^{th}$ century; the concept of power can be retraced to Machiavelli (Il principe, 15$^{th}$ century) or even further back to the ancient Greeks including Aristotle and Plato (around 400 BC). For the sake of this paper, we will keep this discussion short and focus on the term power itself and its impact on demography. Therefore, we first ask the question what power is and then put it into context by illustrating the relations between nations.

### 2.1. Definition of Power

According to the Oxford Dictionary, power can be defined in two ways: first, as “the ability or capacity to do something or act in a particular way” and, second, as “the capacity or ability to direct or influence the behaviour of others or the course of events” (oxforddictionaries). In other words, one has not only the ability to act but also the ability to make others act by using different tools such as cooperation or threat. This influential power against others is following Schimmelfennig (2010) especially in the context of states on the international level important as they operate in an anarchic system (p.25).

In addition, it is useful to consider Joseph Nye’s (2004) differentiation of soft power compared with hard power. Whereas hard power means factors like military and economic power, and thus the ability of coercion and reward, he adds soft power as a possibility to influence others and possibly bring them to do something that they usually would not do (p.2f.; Schimmelfennig, p.26). Soft power is based not on force but on cooperation and mutual good will.

Another important distinction is the one between absolute power and relative power. Absolute power describes, for example, military force in terms of the number of aircrafts or the amount of military expenditure. This description does not need an object of comparison. In international relations, states count their power in relative power. They compare, for example, their military spending with that of another nation and try to be relatively stronger. The cold war is a well-known example: both Soviet Union and the USA owned enough nuclear warheads to destroy the whole planet multiple times, but they were still building more to outrun their opponent in relative terms.

### 2.2. Power of Nations

To describe how the idea of power of nations works, it is useful to first look at the international system.

All major schools of thought about international relations agree that the international system is anarchic (comp. Schimmelfennig). It means that since an authority like the state authority on an intrastate level is missing, there is no institution or country that can supervise nations and create some kind of order. This authority with the features that come with it (monopoly on violence and rule of law) is missing on a global level, as there are no laws and rules that can be enforced by a higher authority.

Since it is not possible to compare the global arena with the national arena, other mechanisms are at work. Hans J. Morgenthau, a realist thinker on international relations, describes international politics in his influential book *Politics among Nations*, which was published in 1948. In his view, the struggle for power and peace is a struggle for influence and dominance in the archaic world system in which states compete against each other. Based on a Machiavellian image of humans, states are concerned about their security and strive for power to maintain it. According to Morgenthau, one state can never be sure of the intentions of others and will try to maximise its power to keep the risks of aggressions as low as possible. Since every state thinks in the same way, it leads to another characterisation of the international system—the security dilemma. As soon as a state gains power, it will provoke a feeling of insecurity among the others, who in turn will attempt to gain more power for themselves. The result is a vicious cycle because it will not be possible to feel safe in such a system; exactly this dilemma occurred during the cold war. According to Kenneth Waltz, who became with his book *Man, State and War* (1959) a representative of the neorealism within IRT and whose ideas are based on those of Morgenthau, states are in constant competition but at the same time they balance each other, achieving a kind of equilibrium between their relative powers. This balance of power is what gives the international system its form.

These theories of international relations help us in understanding and explaining how states act. In the realist respectively neorealist theory international organisations such as the UNO, the EU and the International Monetary Fund (IMF) play only a marginal role, since they are seen as another tool of their member states to support their relative power. Furthermore, for example, the UNO has laws and rules but no possibility of enforcing them since it has no own army. The only chance is enforcing them via its most powerful body, the Security Council.

### 2.3. Demography as Power

The general description of power has some important implications concerning demography. Of course it is one factor among others, but it is especially connected with economic and military power as a strong working force seems crucial for the growth and, consequently, the power of a nation.

In 2012, the countries with the most population were China and India, followed by the USA. The positions of these three states are inverted in terms of their GDP, whereby the United States of America is far ahead of the other two states. In fact, India has a similar GDP as that of Japan, although Japan’s population is barely one-tenth of India’s (CIA, 2012). This shows

that a big population does not automatically lead to power. However, a strong labour force—people between 15 and 64 years of age—is, besides good economic conditions, the most important factor for a successful economy. Currently, China is far ahead especially through their one child policy, which keeps the number of people under the age of 15 low; this means that China's ratio of dependency[1] is low compared with its past ratios or ratios of other countries (The Economist, 23.01.2012). This ratio will dramatically decrease once all people who count to the working population will get older and there will not be enough people to replace them. As a result, it will become, on the one hand, more difficult to keep up the current pace of development and it will lead to, on the other hand, a complex issue for the Chinese government since more expenses (medical care and pensions) will have to be paid for by less working people. As we can see from this example, demographics require long-term planning from governments and even that, because of the complexity that needs to be managed, cannot automatically guarantee more power for a state.

## 3. Global Players

After having defined the power of nations, this chapter focuses on the most important institutions as well as countries that exert this form of power in world politics. Such actors can also be named the global players as they have through their size, importance or a chair in an international institution an extraordinary power to influence, change or leave things as they are. By explaining the chosen actors, their emergence as well as current status will be taken into account in order to achieve a good background, which is needed in chapter 5.

### 3.1. United Nations Security Council

In the same year as the end of World War II, the United Nations was founded by 51 countries as a replacement for the former League of Nations, which did not include the United States of America. Discussed at the conference in Yalta and signed in San Francisco, the UN's main goal—listed in article 1 of the UN Charter—has been the preservation of global peace and international security through the entities the General Assembly (1), the United Nations Secretariat (2) and the United Nations Security Council (3), which is the most powerful organ and sometimes called world governance since it is commissioned with the primary responsibility of fulfilling article 1 (Herdegen, 2009, p.282ff.). The SC consists of 15 members: five are permanent members and "ten are non-permanent members, five of which are elected each year by the General Assembly for a two-year term" (United Nations, 2012). Although to pass a resolution nine out of 15 members must agree, all permanent members

[1] The number of Chinese not of working age as a percentage of those who are.

(the People's Republic of China, France, Russia, United Kingdom and the United States of America)—representing 1.924 billion people (26.7% of world population)—dispose of a veto power to reject a resolution should it not be in favour of their politics, whereas an abstention from voting (without using the veto) does not hinder a resolution if the rules are met (Herdegen, p.284). Especially during the cold war, the veto power was used very frequently either by the United States or by the former Soviet Republic, which—following Garaies & Varwick (2006)—led to a de facto incapacity of the SC (p.46). With the end of the bipolar world, the use of the veto has also declined.

The veto has been one of the points in the discussions to reform the SC, which have now been going on for over 20 years both within the UN and outside through politicians, scientists and journalists. Looking through the arguments in favour of a reform, one can identify three additional arguments that are brought into discussion. Two of them are directly related to hard facts or numbers as they focus on the representation by economic prosperity (1) or on the size of the represented population (2). In 2011, the members of the SC represented more than 50% of world population as India, Nigeria, Brazil and Germany were all members at the same time (United Nations). The third argument is connected with politics, asking to consider the geopolitical aspects and thus adjust to current representation (3) (CSS, 2010 Varwick & Zimmermann, 2006; Herdegen). In a nutshell, it comes to strengthening the legitimacy, which itself stands in a conflicting position to the ability to act (CSS, p.1).

### 3.2. United States of America

Although the United States of America (USA) took a central role in both World Wars, it was only after WW II that its leading role was accepted and thus it was one of the founders of the UN. Three main reasons have led to the emergence of the USA as a global player. First, a growing migration into the country starting from the nineteenth century onwards led to a population of 314 Million by the mid of 2012 (CIA). Second, this demographical increase was followed by a breath-taking economic prosperity, which itself fostered new migration. And last, the USA's geographical location was surrounded by either the sea or only two countries[1], both of which were not in a position to attack the USA, which helped it to achieve the position of the most powerful country in the world. In order to consolidate and boost this power, the USA can call itself the initiator and co-founder of several world institutions such as the UN, the North Atlantic Treaty Organisation (NATO), the World Bank, the World Trade Organisation and the G8-network, which will be explained separately. Currently, the USA is defending its number one position against China, which has started to become a rival and

[1] Canada and Mexico are the only states having a direct land border.

will thus change the world order, whereby one of the fundamental questions will be whether the future will lead again to a bipolar world or a multipolar world. Still, the USA will have a stable or even increasing population, which will allow them to be one of the most populous countries with—at least for the next several years—the highest GDP (HSBC, p.3f.).

### 3.3. European Union

As soon as the European Union was awarded the Nobel Peace Price in October 2012, debates started whether or not it was deserved. What can be said is that the foundation of the European Coal and Steel Community leading itself to the actual European Union (EU) has probably preserved Europe from more wars; but for sure this has led to a long-lasting period of peace in Europe. What was first thought as an institutional arrangement to prevent new wars between France and Germany has proceeded into a legally responsible entity that consists today of 27 members and represents 504 Million inhabitants (CIA, 2012; Herdegen, 2010, p.61). With its entry in 1973, the United Kingdom—together with France and Germany—has taken over a leading role within the EU. However, the introduction of the Euro has left out the UK in currency and—as the financial crisis has shown—in economical questions concerning the EU, although it still is an important member in other themes. These three countries alone count for 41% of the population of the EU (total: 504 Million, CIA, 2012) and generate 44% of the European GDP, whereas the inclusion of Italy and Spain would equal almost two-third of the European population and GDP (318 Million). For the near future, Schuman's word may still be seen very topical: "Europe will not be made at once … [but] will be built through concrete achievements, which first create a de facto solidarity" (Pinder & Usherwood, 2007, p.9).

### 3.4. Group of Eight

In contrast to the EU, the Group of Eight (G8) does not represent an international organisation but is rather formed as an informal network that, according to Hajnal (2007), "has become one of the central components of global governance" (p.1). At their annual meeting, the G8 members—USA, Germany, France, United Kingdom, Italy, Japan, Canada and Russia—discuss different topics considering economical as well as political issues, which are mainly self-binding and at the same time part of the international agenda as these countries contribute to more than half of the world GDP with approximately 10% of the world population (Hajnal, Welttrends, 2007). The origins of G8 date from 1973 when six countries (excluding Canada and Russia, which joined only in 1998) discussed the aftermath of Bretton Woods and the impact of the oil crisis on the world economy. Since then, different networks have been established, for example, the G15, G20 or G33, that shall not be followed in this

context. However, one is mentionable: Tony Blair's invitation of the so-called outreach countries—China, India, Brazil, Mexico and South Africa, representing a third of the world population—to the 2005 summit, allowing them to participate in the discussions, although they did not have any decision rights (Sengupta cit.in: Welttrends, 2007, p.54). This opens the forum for questions regarding the future and inclusion of the aforementioned countries, yet several authors do not design an extension of G8 (e.g., China) to a G9 but rather the creation of new networks.

### 3.5. BRIC & the African Union

Besides other actors who could gain importance in the global context within the next few decades, we have chosen to concentrate on today's key emerging states also known under the acronym BRIC that includes Brazil, Russia, India and China. Further, we focus on the African Union as well.

The BRIC states are very different from each other. The comparison of working-age population (15-65) is a good indicator of the differences since it shows the population who is able to create value for the country and that who will have to support the others (children and elderly). The working-age population in India will increase by 240 Mio over the next two decades, compared with 20 Mio in Brazil. In Russia, however, the working population will decline by almost 20 Mio. China's working-age population will gradually decline after 2015. By 2030, it will be merely 10 Mio larger than today. Also, India will overtake China in overall population that year (Deutsche Bank Research, 2010). From those states India will thus need to have the biggest economic growth to avoid the increase in unemployment, whereas China will not have to maintain the huge growth rate it has today since less people will need employment.

The countries in the African Union have high population growth rates. The population in 2009 was four times higher than it was in 1955 (Eurostat, 2011). In the past years, there have been some improvements, for example, in overall child mortality, which is declining since 1945 and bringing new trends to population. Overall, the Union faces big problems, such as very low standards of living, desertification, poor political systems and very high unemployment rates in some countries, which lead to big migration flows to wealthier countries. This is a problem for both African and other countries, which ought to be solved.

## 4. Criteria

In order to foresee the development of world politics by 2050, we need to establish a set of criteria that will be taken into account for illustrating the scenarios for our selected cases. For this purpose, the PESTEL[1] framework will serve as our starting point (comp. Groth, 2012, p.36), although we will not go through it point by point. As we believe that not all criteria will play such an influential role in world politics, we have amended the PESTEL framework and will use the political, economic as well as societal criteria; the latter has been renamed as demographic criteria. In addition, we will add a historic approach and sum up all the rest in a paragraph.

### 4.1. Demography

According to recent studies, the world population is expected to keep on growing in the future, going from 7 billion people in 2011 to around 9.2 billion people by 2050 (Groth, 2012). However, this growth will not be equally distributed around the world.

The main drivers of growth will be Africa followed by South America and South-East Asia, and most of the developed countries will not see huge changes in their population density until then (Groth, 2012). But due to an ever-ageing population (higher life expectancy, better health care, etc.), a falling birth rate and more or less stable migration, the age distribution of the population will change in these countries. The share of the working population will become smaller and thus will have an impact on other issues such as maintaining the GDP growth, sustaining its retired population and staying competitive with other countries.

The developing countries, on the other hand, will face a huge increase in their populations due to high fertility, low mortality and growing life expectancies. This evolution will present huge potential in terms of human capital but will also bring along new challenges because an ever-growing population will have new needs that have to be fulfilled (Groth, 2012). Consequently, the share and the structure of world population are evolving.

### 4.2. Political

International politics is played on two different levels—on the local area as well as on the international area. According to some authors the international behaviour of the actors (countries) is nothing else but the transmission of national politics towards the international floor, whereas some other authors argue that this analogy is not given and thus world politics

[1] The PESTEL framework tackles the demographic change from six different angles; these are the political, societal, environmental, legal, technological and economic criteria (Groth, 2012, p.36).

have to be looked at from a different angle. The rationale behind this is the anarchical system, which leads to the security dilemma as there is no sovereign body above the countries that protects the states (Schimmelfennig, p.155). In this paper, we concentrate on the second perspective and do not take into consideration how individual national politics may impact global governance. This implicitly means that we assume from a realistic view that countries seek to maximize their power, that is, both relative power and absolute power. In order to do so, international organisations and alliances are the main drivers for strengthening the power against rivals. Accordingly, countries that are in a leading position today will try to, at least, preserve the status quo, whereas the other big players will try to change the international system in their favour to gain more power and thus more influence.

Further, migration may be the cause or the implication of instability in the international system, which potentially can lead to or emerge from new wars and change the world politics again. In this paper, this uncertain variable will not be considered in our outlook.

### 4.3. Economic

The economy of a nation directly influences its power. To have a successful economy, a country must have human resources. But human resources alone are not enough. Education plays a role in determining how successful a country will be at the international level. This again is interconnected with the amount of available jobs that—assuming all conditions given—can lead to a higher output in terms of GDP and thus an increasing influence on the global floor. Especially for the countries that find themselves in stage three of their population dynamics development (Groth, 2012, p.5) and are characterised by a small amount of retired people, a declining fertility and a high proportion of working population, the ideal utilisation of this “demographic opportunity” can boost the country in the economic perspective and may influence today’s balance in the international system. Yet, one might not forget that huge investments need to be made by the country in order to ensure accelerant conditions such as the building of an appropriate education system and infrastructure, which both may also have downsides, especially when this is financed through enormous public debts as they will diminish the power on the international level.

However, the developed countries face some challenges as well. Although their population might decrease, they can keep their economic strength by either becoming more efficient or achieving competencies that are valuable, that are rare, that are hard to copy and for which substitution offer cannot be easily found (Dubs, Euler, Rüegg-Sturm, Wyss, 2004). In other words, it is the issue of technological progress (inventions) that is a big opportunity for these countries and can consolidate them as global leaders. Still, the developed countries will face

the question of how to finance their retired population (Groth, 2012) and may have a downside on the global influence. To sum up, a strong and growing economy will remain an important criterion for the future, besides the demographical and political criteria.

### 4.4. Historical

As shown in chapter 3, the rise of countries, organisations or networks cannot always be clearly assigned to some specific criteria. In addition to the aforementioned criteria, we introduce a fourth one, which considers historical reasons. By this, we agree that all of the aforementioned criteria have an influence but none of them is so strong to be the only driver of power. Taking the examples listed in chapter 3, one identifies that the United Nations would, maybe, not have been created if the League of Nations had worked or the second WW had not occurred. Looking at the EU, one may argue using either political or economic aspects; but here as well the historical dimension of many long-lasting wars within Europe leading to the two WWs in the time space of less than thirty years cannot be left aside. The same can be said regarding the formation of different networks—e.g., the G8—which followed the fall of Bretton Woods. Equal can nowadays been observed as several countries are getting together to find solutions against the recent world economy crisis. Last but not least, China's exploitation of the demographic opportunity to grow very fast can be regarded as historical criteria.

### 4.5. Other

As we saw earlier, the consequences of population growth represent both chances and challenges. Among the chances, we can count the growing human capital and the military power. But the challenges that come along are not to be underestimated, and handling them will require involvement from the concerned countries. A fast-growing population will be in need of enough water and food supplies as well as adequate infrastructure[1] and education system, which in the end are costly and may impact the power of nations in two ways: either positive by gaining attractiveness or negative by financing this through public debts, which may lead to less influential potential. Other scarce resources that may impact global politics are oil and electricity, which are needed to achieve a similar living standard as in the developed countries. But according to HSBC, this represents an unsolvable problem as the resources of our planet can never provide enough to allow that to happen (HSBC, 2011). As world resources are shrinking, both developed and developing countries will have to find solutions to fight against this scarcity and develop new alternative sources of energy. This

[1] Healthcare, Public Transport, Security, Housing and others.

will probably be one of the most challenging tasks ahead of us and can even lead to new wars, which we will not consider further in this paper.

### 4.6. Implications

Although we have listed all criteria individually, it is important to note that none of them can be taken as the only one for explaining a future situation. Instead we will tackle the cases through an interdisciplinary approach, although the starting point is that all views are principally equal (Brun, Mastronardi & Schedler, 2005, p.157). Then we will discuss a case from different angles by focusing on the main arguments and weigh them up against each other. This will lead, according to Brun, Mastronardi and Schedler, to a pluralism of solutions, whereby the best one will be convincible from the views of most of the criteria (p.162).

## 5. How Global Politics Will Look Like in 2050

What can be taken for certain is that the world will change within the next decades until 2050. First of all there will be a demographical transition, whereby the populations of some countries will increase dramatically, whereas those of others—especially those of today's developed countries—will remain stable or diminish. Besides the demography, we have selected GDP as a key figure in order to analyse the world politics in 2050. In this section, we will first provide an overview of the expected population and GDP by 2050 and then discuss the selected topics through several scenarios.

### 5.1. Outlook

Before concentrating on the selected issues the raw figures of demography and GDP will be displayed, which will then be used to discuss different cases.

#### 5.1.1. Demography in 2050

As we saw previously, world population is growing fast. From the current 7 billion, the world population might achieve—depending on fertility assumption—between 8.1 and 10.6 billion people by 2050 (Groth, 2012). As these demographic changes will not be equally distributed among the world, the ranking of the top 15 nations in terms of population size will change and more developing countries will be ranked within the top 15. In 2050, the population of the developed countries will represent only 4%—compared to 8% in 2010—of the overall population, whereas the developing countries will have a share of 51%—compared to 55% in 2010 (Groth & Huber, 2011). Figure 1 provides the evolution on the ranking of the top 15 nations in terms of population size from 1970 to 2050.

As we can see, the USA will be the only developed country remaining in the top 15 league. If we add the expected population of the five most populated European countries—Germany, United Kingdom, France, Italy and Spain (around 50 Mio by 2050)—these states will account for approximately 330 Million people, whereas overall EU might achieve a similar number as the USA. This provides us with a first hint regarding the direction in which the European countries may develop, but we will discuss this in more detail in chapter 5.4.

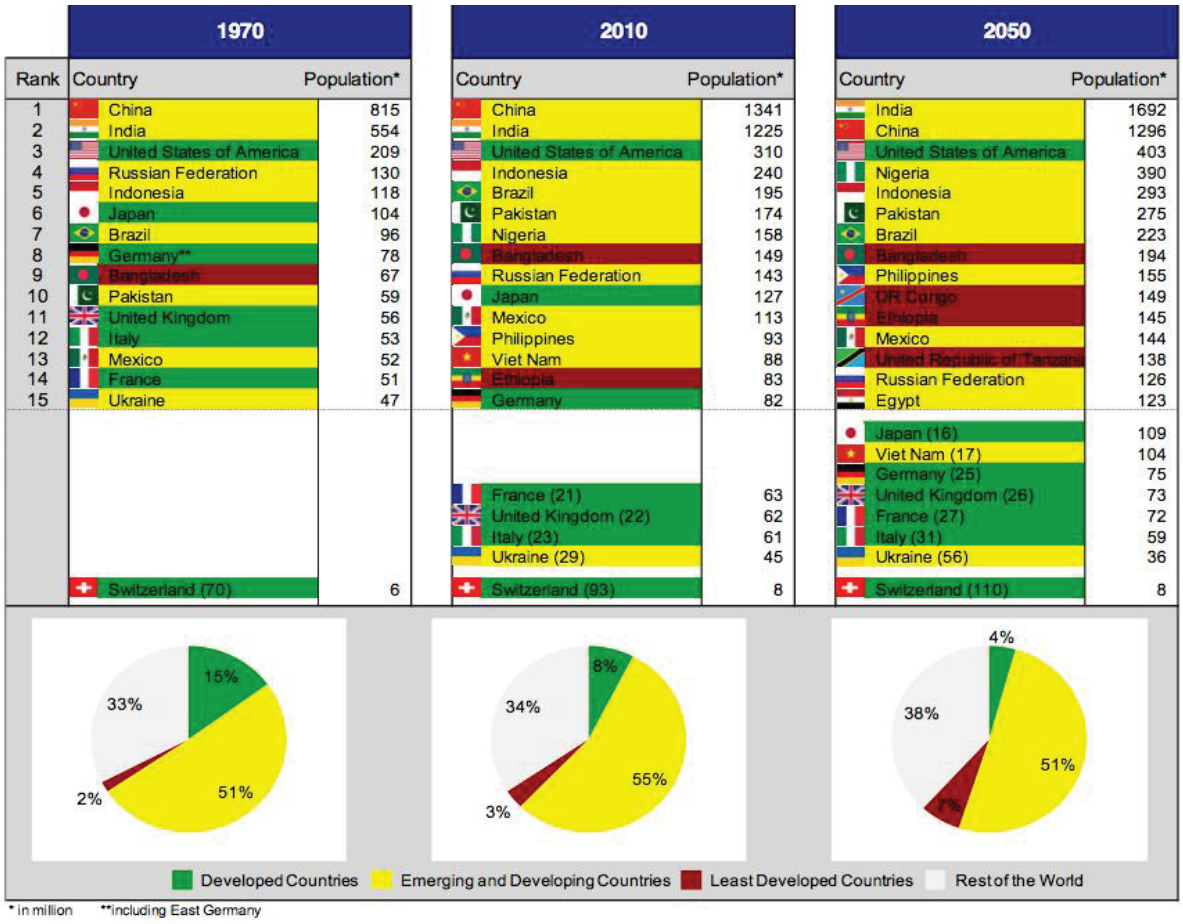



Figure 1: The ranking of the 15 most populous countries from 1970 to 2050 (Groth, 2012)

### 5.1.2. Economy in 2050

The number of inhabitants living in a country is not the only factor that we are interested in for assessing its power. We will take the GDP numbers by 2050 as reference. Both HSCB (2011) and Fouré, Bénassy-Quéré and Fontagné (2010) provide us with their respective economic outlooks for 2050. But whereas the latter only includes two different growth rates (p.68), HSCB uses four different rates (p.16) and even looks at the period between 2000 and 2010 in order to test its method of calculation (p.32). Additionally, it looks back on the historical development (p.5). But the main difference is in their inclusion of other criteria such as the demographic challenge, which is essential in our case (p.18). By doing so, HSBC achieves for some countries a different outcome than Fouré, Bénassy-Quéré and Fontagné

(p.68), which is due to a more precise approach. Hence, on comparing HSBC population projections with Groth's ranking of the most populous countries by 2050 (see above) one can easily see that there are some differences especially with India and China, whereas for the USA and the European countries the numbers are almost equal. Although there is a difference in the size of population, we believe that the HSCB study is useful in providing us with a relative exact amount of GDP by 2050 and will allow us to discuss different scenarios.

| | Order in 2050 by size | Size of economy in 2050 (Bn, Constant 2000 USD) | Rank change between now and 2050 | Income per capita (Constant 2000 USD) 2050 | 2010 | Population (Mn) |
|---|---|---|---|---|---|---|
| 1 | China | 24617 | 2 | 17372 | 2396 | 1417 |
| 2 | US | 22270 | -1 | 55134 | 36354 | 404 |
| 3 | India | 8165 | 5 | 5060 | 790 | 1614 |
| 4 | Japan | 6429 | -2 | 63244 | 39435 | 102 |
| 5 | Germany | 3714 | -1 | 52683 | 25083 | 71 |
| 6 | UK | 3576 | -1 | 49412 | 27646 | 72 |
| 7 | Brazil | 2960 | 2 | 13547 | 4711 | 219 |
| 8 | Mexico | 2810 | 5 | 21793 | 6217 | 129 |
| 9 | France | 2750 | -3 | 40643 | 23881 | 68 |
| 10 | Canada | 2287 | 0 | 51485 | 26335 | 44 |
| 11 | Italy | 2194 | -4 | 38445 | 18703 | 57 |
| 12 | Turkey | 2149 | 6 | 22063 | 5088 | 97 |
| 13 | S. Korea | 2056 | -2 | 46657 | 16463 | 44 |
| 14 | Spain | 1954 | -2 | 38111 | 15699 | 51 |
| 15 | Russia | 1878 | 2 | 16174 | 2934 | 116 |
| 16 | Indonesia | 1502 | 5 | 5215 | 1178 | 288 |
| 17 | Australia | 1480 | -3 | 51523 | 26244 | 29 |
| 18 | Argentina | 1477 | -2 | 29001 | 10517 | 51 |
| 19 | Egypt | 1165 | 16 | 8996 | 3002 | 130 |
| 20 | Malaysia | 1160 | 17 | 29247 | 5224 | 40 |
| 21 | Saudi Arabia | 1128 | 2 | 25845 | 9833 | 44 |
| 22 | Thailand | 856 | 7 | 11674 | 2744 | 73 |
| 23 | Netherlands | 798 | -8 | 45839 | 26376 | 17 |
| 24 | Poland | 786 | 0 | 24547 | 6563 | 32 |
| 25 | Iran | 732 | 9 | 7547 | 2138 | 97 |
| 26 | Colombia | 725 | 13 | 11530 | 3052 | 63 |
| 27 | Switzerland | 711 | -7 | 83559 | 38739 | 9 |
| 28 | Hong Kong | 657 | -3 | 76153 | 35203 | 9 |
| 29 | Venezuela | 558 | 7 | 13268 | 5438 | 42 |
| 30 | South Africa | 529 | -2 | 9308 | 3710 | 57 |

Figure 2: The top 30 [economies] in 2050, HSBC (2011, p.3)

As we can see from the predictions in Figure 2, the developed countries will still have higher GDPs per capita than the developing countries. Yet some emerging countries will overtake the developed ones by absolute GDP numbers within the coming decades. Hence it is remarkable that, although the developing countries will grow around two times faster than the established economies (Fouré, Bénassy-Quéré & Fontagné, HSBC, 2011), seven out of the top eleven will still represent the latter group. To sum up, demography and GDP will change within our chosen time frame, but major shifts such as a complete U-turn might not be reasonable to assume.

### 5.2. United Nations Security Council

There is no doubt that the world will look different from now in 2050. The main question is how different it will be and what impact it may have on the UN Security Council. Whereas the USA will "remain a dominant force at international policy meetings," others, especially small

European countries, will lose their influence in world politics (HSBC, 2011, p.23). But since the SC is mainly dominated by the veto powers, it is useful to focus on them and on the other big players 40 years ahead from now. In order to do this, we will approach this question by considering three different scenarios—a status quo, a transition of power or the foundation of a new international organisation—and will then offer our opinion on this case.

As mentioned in chapter 3.1, the SC is the main body in fulfilling article 1 of the UN Charter and thus preserving global peace and international security. Because the five permanent members possess veto power, they are the decision makers in the UN. In addition, any change in the duty or the formula of the SC is a change in the UN Charter (article 108) and has to be agreed by two-thirds of the General Assembly as well as two-thirds of the Security Council, including the five permanent members. This leads to a de facto endless power in protecting the status quo and is a result of their power as they can use their veto to block any change. In addition, with the exception of Russia (No. 15), China, France, the UK and the USA will remain in 2050 among the top 9 states by GDP size (HSBC, p.3), which is a considerable argument for allowing the status quo to be preserved by 2050. Taking a political approach, one can argue with the realism theory, which says that countries seek either absolute power or at least relative power (Schimmelfennig, 2010, p.66). From the standpoint of the current permanent members, any change in the structure (formula or voting rights) will lead to a loss of power and thus they will act in an “egoistical” way to protect their power. As a result, this will preserve the status quo of the Security Council with the same five permanent members and their veto power.

With the end of the cold war, Russia’s position in the SC as a counterbalance to the USA has lost some of its legitimacy as it ranks in 2010 as No.17 by size of GDP (No.15 in 2050), although it is the ninth most populated country (2050: No.13). Besides Russia, France’s and, to some extent, UK’s seats in the SC have been questioned in the last years. Starting from a demographic point of view, it is obvious that by 2050 countries with higher populations should be included in the SC as permanent members, such as India (No.1), Nigeria (4) and Brazil (6). Together with China (2) and the USA (3), the five countries will represent almost 4 billion people equalling 40 to 50% of world population, depending on the assumption of its total size[1] (Groth & Huber, 2012, p.3). The HSBC economical approach indicates that China, the USA, India, Japan and Germany will be among the top six countries, whereas Brazil, Mexico and France follow in due course and the latter will be responsible for only a third of India’s GDP (p.3). Besides, the political situation needs to be taken into account, where the

[1] According to Groth (2012, p.7), “population projections vary massively depending on their fertility assumptions” and thus shows a world population between 8.1 and 10.6 billion people by 2050.

question is whether the coming years will again lead to a bipolar world[1] with the USA and China as opponents or whether world politics will shift into a multipolar world. In any case, it will lead to a transition of power within the SC as either in a bipolar world the two hegemonial powers will try to build up alliances to achieve a relative balance or in a multipolar world the pressure from the raising countries will be too big to exclude them from a seat in the SC.

The last scenario is the foundation of a counterorganisation similar to the UN but including the non-permanent powers in 2050 such as India, Brazil and Japan. It is questionable whether China will then move to a newly created organisation—e.g., Emerging United Nations[2]—or will remain in the old UN, which—if China would leave—might become a UN of the western (democratic) countries.

Looking at all three scenarios: the latter can be barred with a historical review at the failure of the League of Nations, which did not include important players such as the USA and thus was not able to achieve its goal and even led to WW II. Although the first scenario might be the path for the next decade, we believe that the political pressure will be too big at one time, especially as the so-called G4 countries (Brazil, Germany, India and Japan) have been very vocal within the past years and will put even more pressure on the General Assembly and the SC (Handelsblatt, 2012; CSS, 2010; Prinz, 2004). Insofar that a change will occur, it is still questionable if only the formula might change (e.g., Brazil, China, the EU, Russia and the USA) or if the structure as well will be impacted by the reform. We believe in a structural change of the SC with ten permanent members, consisting of the current five[3] and Brazil, Germany, India, Japan and Nigeria. To conclude, the transition of power in the SC will have its roots mainly in economic and political reasons as both are factors of resources (money) and a little less in demographical issues since only the combination of all three contribute to the legitimacy of being a global player.

### 5.3. United States of America

Being the only developed country among the league of the top 15 most populous countries by 2050, the USA is facing more and more new rivals that will threaten its place as the most powerful country in the world. Through two scenarios we will illustrate the USA's possible position in the world in 2050.

[1] Following HSBC, in 2050, together China and the USA will have a size of GDP, which will equal the GDP size of the countries listed on position 3 (India) to 21 (Saudi Arabia).

[2] This might then be without Japan and Germany.

[3] It can be discussed if France's seat should not be taken over by Mexico, but considering its veto power we argue that if they have to make any concession France will not accept losing its power as a permanent member.

The first one, being a highly positive scenario for the USA, shows that it could keep a leading position in the economical domain, for example, with technological inventions, and consequently in the political domain as well. If the USA would focus on keeping dynamic economy, fostering innovations and being very proactive by reinforcing the education of its population and keeping its leading universities at a good level, this path might preserve its status quo as the world leader. By this, the country will also attract well-educated and motivated foreigners, who would bring their knowledge inside the country and as a result strengthen the USA even more. However, it is clear that it will have to share its unique position it had during about two decades (end of cold war) among others, especially with China and, for example, the European Union, which we will discuss separately in the next chapter. Questions remain as well whether the future will again see a bipolar world or whether the world is moving towards a multipolar world.

Scenario two states that the USA will lose a lot of its power because of its bad political governance concerning the country's debt, its living on credit habits and its lack of adaptation towards a changing economic world. Furthermore, the USA has a countrywide old infrastructure, which will need to be replaced, causing enormous cost to the country and increasing the public deficit. Additionally, its oil dependency will also worsen the situation, especially because other growing countries with large oil resources need them for their own progress.

We strongly believe in a mix of both scenarios as the USA will remain the number one economy for some decades until China overtakes (HSBC, p.3, Fouré, Bénassy-Quéré & Fontagné, 2010). This keeps the USA a strong world leader until 2050. In addition, the USA still possesses good expertise in the economical domain but will undoubtedly lose its competitiveness on a global scale due to its high public deficit, the covering of which will affect the growth rate negatively. Furthermore, the USA will lose some of its leading role due to the fact that first they might not have the necessary funds in future for fighting wars, which cost way too much. Second, with the emergence of China the USA will automatically lose its relative power if it will cooperate closely with the European Union in a realistic way to balance the system in a bipolar world if China should ally itself with Brazil, Russia and Mexico. The loss of relative power will occur as well in a multipolar world as the USA will then stand on its own and as such will automatically have less influence in world politics, but it will still remain a strong power.

### 5.4. European Union

The European Union is now at a make-or-break situation, which will considerably shape the global power landscape for the decades to come. Breaking up seems less probable since the EU has already overcome other crises and the states know that they risk insignificance if they do not manage to stand together. For the European Union, there are two possible directions in which its relative global power can develop: Either a break-up or a further integration and loss of the member states' sovereignty to a super state. The European countries with decreasing populations need a strong union to keep some power without getting crushed by big global players such as China or India that will get even bigger and more populated in the coming decades.

A break-up is a plausible option, although in the last decades the members were never tired of emphasizing the great achievements of the Union. But since the financial crisis that started in 2008 and developed into a debt crisis for some European states and the problems with the Euro, this solidarity is slowly but steadily decreasing. The countries in debt complain about the German imposition of austerity packages and other measures despite their sovereignty. The supporting countries such as Germany and other net payers get frustrated about how little progress is made even though billions of Euros have been spent. Concerning demography, there is a fear of over immigration from the countries in debt because of their high unemployment and also from the North African countries. Countries like Italy and Greece cannot guard their borders as reliably as they did before, causing many countries to reintroduce their own border guards, which stands in contrast to the Schengen agreement. This example shows one of many issues where regression is happening. If this disintegration continues and leads to a break-up of the European Union, it would be a catastrophe for the global power of those countries both economically and militarily since a single country will fall behind emerging countries in terms of not only population but also GDP. In addition, it would destroy credibility as it would send the signal that European countries are not even able to agree among each other and thus they may not be able to maintain their bargaining power in the world. This option would be a disaster regarding global power since especially smaller states would be reduced to their single voice and could not use the leverage of a powerful alliance for their politics. For these reasons, new assertions are made almost weekly that a break-up will not happen (The Economist, 26.05.2012).

The second and more plausible option is a further integration as we have seen since the creation of the Union. Looking back in history, the EU is quite a successful model. As stated in the description chapter, it is obviously not possible to say if the European continent would have developed differently without the EU; but it has brought a very long peaceful period to a

region that was almost constantly at war and an unmatched cooperation between states. The crisis it is in now will probably boost the integration and lead to more common rules and institutions such as, for example, a fiscal union or a more integrated common foreign policy. The states will give up more of their sovereignty for the sake of common policies and therefore will win more power on the global stage. The past crises of the Union such as the so-called empty chair crisis in the 60s were all overcome by modifications and further integration (McNamara, 2010) towards a model, which could be called the United States of Europe. Assuming this scenario to occur, the EU would exhibit a higher population than the USA but still a little weaker total economy according to the HSBC study (2011, p.3). Being almost equal with the USA would lead to a stronger voice on the global level, which may be—depending on the case—either a counterpart to the USA or an amplification of power of the western civilisation.

### 5.5. Group of Eight

By comparing today's figures with those in 2050, one can conclude that the G8 will lose even more of its representativeness compared to other organisations or networks. Although in terms of population they will diminish from approximately 16% now to 12% then, it will contribute much less to the world GDP as now since the emerging countries are expecting a higher growth rate within the next year compared to the G8 countries. Subsequently, the G8 will face a challenge to remain a key player in global governance since HSBC sees a loss of totally combined 8 ranks in their study (p.3). To address the question of how the G8 will look like in 2050, we will discuss two different scenarios out of which one will be chosen.

The first scenario is a new formula or an extension of the G8. But in contrast to the aforementioned international organisations (UN, EU), the G8 is a network and works through voluntary agreement rather than law enforcement, which may not lead to a new formula. An extension of the current G8 might be more promising. Countries to be named here would be the so-called outreach countries listed in chapter 3.4 (China, India, Brazil, Mexico and South Africa), although the latter might not be such an important[1] player to join the club in 2050. Assuming a G12, this network would represent the first eleven countries in terms of GDP and Russia (No.15, HSBC, p.3) and around 45-50% of world population, four times higher than the G8 in 2012. Still, we must not forget that the larger a network becomes, the more difficult it is to agree on common positions. Kahl (2007, cit.in: Welttrends, p.15) concludes that such results often lead to positions that only reflect the smallest common denominator and have no significant effects on the discussed subjects.

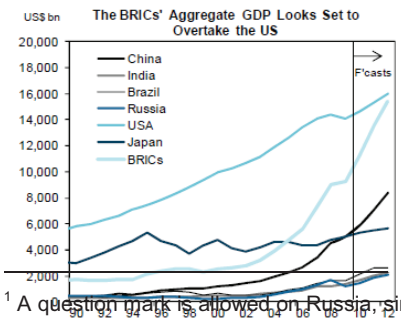
[1] HSBC ranks South Africa's potential on the global leader board in 2050 only at rank 30, which is still behind Switzerland, for example (p.23).

The second scenario foresees the retention of the G8 as it is today with the loss of power in global governance that is due to less representation in economical and demographical points. Although this might be an important aspect, one should not forget that it is easier to find a consensus within a community that has—in a very simplified manner—the same interests and the same cultural background. Additionally, seven of the eight countries will continue to figure in the top 11 rankings by size of GDP (HSBC, p.3). Furthermore, the loss of power can be balanced in a realistic view of politics through alliances and will lead to a still strong, although not unique, player in world politics no matter whether the future might become bipolar or multipolar.

Taking all criteria together, we argue from an economic and political point of view in favour of the second scenario and thus the maintenance of the current G8. As several new networks have been established throughout the last years, an extension of the G8 might be nothing else than the creation of a new network, which does not stand in contradiction to the existing one. Consequently, the G8 will not change in this time period and might establish itself as a network or alliance of the western countries[1] while this may simplify the finding of a common position which can be defended against other networks[2] and international organisations[3] and at the same time build the consensus which will be to brought into themselves.

### 5.6. BRIC & the African Union

The BRIC countries are on a fast lane regarding economic growth. They will soon be among the top ten largest economies and will catch up with the USA, although their living standards are far behind those of the developed world—none of them is even in the top 50 today. Since they have a quite different demography, it is difficult to predict the future. But it is sure that India and China with their huge and increasing population will gain a lot of power compared to the USA and other powerful nations (Goldman Sachs Global Economics, 2011).




China is already acting rather self-confident, especially since the debt crisis. However, a high GDP growth as seen in the last decade is not likely to continue especially after 2015, by which the working population is expected to reach its peak. But even if the growth slows down, China will be a

[1] A question mark is allowed on Russia, since it is not clear whether Russia will follow this line or quit the network, which would lead to the G7 again. Since our focus is mainly on the western countries, we will not pursue this question.

[2] From G2 up to G33 or even more.

Figure 3: The BRICs' Aggregate GDP Looks Set to Overtake the US (Goldman Sachs Global Economics, 2011

major actor in the coming decades. Its power will expand and it will become one of the most powerful actors and the main competitor to the USA. India, although it has a big population and relatively good growth, still lags far behind China and the USA. If it manages to use the demographic opportunity as China did, it might become a global player as well, but only in the midterm and long term.
It is obvious that these four states are so fundamentally different that a grouping such as BRIC is not appropriate, since it implies some similarity except having the strongest economy of their respective region. Sometimes, they even hinder each other: Russia and Brazil are energy exporters and benefit from high energy prices. India as a net importer suffers from them and therefore has diametrically different interests (Foreign Affairs, 11.2012). The acronym BRIC does not make much sense for a common in-depth examination of these countries. It is only useful for western developed countries to group their possible competitors for the future.

In the African Union, there will be a demographic window as well. Currently, there are 70 Mio more Africans under the age of 14 than ten years ago and over the next ten years the number will double. This will open the same kind of demographic opportunity as in China. The question remains whether Africa can use it and boost its economy with so many people in the working age. However, it could develop into a real crisis with civil unrest and famine; with the already high unemployment and poor education, it is possible that the states cannot channel the labour (The Guardian, 17.07.2012) and as such will not play a significant role in world politics. Yet the current growth numbers are encouraging. With a few exceptions, all African states have impressive growth rates. For example, Ethiopia will grow by 7.5% in 2012 and it is now the world's tenth largest producer of cattle. Of course, Africa provides only a small part of the world output with 2.5% of world GDP (The Economist, 03.12.2011). The Economist states: “Nonetheless, Africa's boom will continue to benefit Africans, serving the billion as well as the billionaires. That is no small feat” (The Economist, 03.12.2011). It is also likely that Africa as a continent will catch up and be able to provide employment for more people and offer better quality of life, which would slow down emigration and keep highly skilled workers there to further support the economy. But the education system needs to be improved to compete with that of developed countries. Should several countries achieve this goal, it is likely that—rather later than sooner—African countries will get involved in world politics. For the moment and until 2050, it is less likely that with the exception of Egypt any African state will be so important as to become a world leader (comp. HSBC, p.3).

## 6. Conclusion

Due to demographic development, it is foreseeable that world politics will change by 2050. However, demography will not be the only driver of this change as other criteria such as the economic growth of countries, as well as politics, tend to influence the geopolitical structure and need to be taken into consideration. Although the developing countries will face a huge increase in both demography and economic growth, the western states will remain among the world players. Whereas the USA will compete against China for world leadership, the European states will face a loss of power at the state level. However, a movement towards a United States of Europe may strengthen their relative power in the world, especially against China on the one hand and the remaining BRIC countries (Brazil, Russia and India) on the other hand.

It is noteworthy that the aforementioned cases may represent the starting point of further research, which focus on individual entities and integrate models for unforeseeable events such as new economic crises or even wars. Additionally, the search for global trends and their impact on society are gaining importance (Tagesanzeiger, 2012) and will lead to new assumptions and further implications.

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**Project Paper 3**


Demography meets Retirement Age

# Options for UBS to reinvent work schemes to meet the new demographic realities in business and society

submitted by

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“Retirement is the ugliest word in the language.”

Ernest Hemingway, American novelist and short-story writer (1899-1961), Nobel Prize Winner for Literature in 1954.

## Executive Summary

This study deals with the challenge of demographic change in Switzerland adopting the perspective of a large Swiss bank. It is a case study based on the UBS Education Initiative, which aims to foster awareness of the importance of lifelong learning among UBS employees. On the basis of the scientific findings on specific learning needs of the cohort 50+, it discusses how UBS can take measures to build competitive workforce over the age of 50 and thereby position itself as a multinational company prepared for demographic change and potentially benefit from the first mover advantage. Concrete measures to achieve the goal of (1) reentry and (2) improvement in productivity of its older workforce are being proposed.

Innovative measures with the highest potential to foster (1) awareness for lifelong learning, (2) competence of employees, and (3) finally overall employability of UBS employees are being proposed. A complementary communication plan and KPI for measuring the impact of proposed measures complete the study.

Our main findings suggest that the crucial factor for lifelong learning seems to be a mental factor, namely the motivation and an individual’s preparedness (i.e., mindset) to acquire new skills. We thus see the highest potential to foster lifelong learning in “mixed age groups,” “peer and tandem learning,” and “career planning”. In contrast to traditional, often expensive, training methodologies (i.e., external coaching), the proposed measures can be executed directly on the job, while significantly contributing to awareness and motivation for learning among employees. Although proactively embracing a culture of diversity and fostering interpersonal skills between younger and older workforce, we are convinced that older workforce will be of high value to any Swiss company in the future.

## Content



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# 1. Introduction

Demographic change is one of the major challenges that European countries will face in the next decade. The share of over 64-year-old compared to the total Swiss population will increase from 16% to 24.4% from 2005 to 2030. In terms of numbers, we are talking about 795,000 people. At the same time, the share of people active in labor force will decline, leaving Switzerland with a ratio of two compared to previously four workers per old person (Admin 2007). In combination with a higher life expectancy and improved health care, this scenario implies serious challenges for our social security system and the labor market as a whole. The retirement of the baby boom generation will lead to a reduction of people in labor force, and this needs to be tackled by the state and at the individual company level (Groth/Trippel 2011). In Switzerland, the Federal Council has come forth with a strategy on how to tackle the challenges of an ageing population in 2007 (Admin 2007). On a company level, the scenario calls for a reform as well. There are already some online tools available for companies to assess the demographic risks in different regions (Econsense 2012). Companies in Europe and the United States still invest heavily in high-potential employees and programs to equip young workforce with the necessary leadership skills, while most companies still pay very little attention to the 50+ people, where such required potential is an untapped resource and decisive in competition for human capital. To stay competitive in the next decade, smart companies need to find a way to retain older workforce and even persuade them to delay retirement (Dychtwald 2006).

This study explores how UBS can take measures to build competitive workforce over the age of 50 and thereby position itself as a multinational company prepared for demographic change. Adapting to the longer employee life-cycle will lead to lifelong learning and ultimately benefit the employees, the company, and the society as a whole.

# 2. Background of the UBS Education Initiative

In context of its 150th anniversary, UBS has launched an education initiative including projects for different age levels, with two main goals.

First, UBS is convinced that education is Switzerland's most important resource to compete in the globalized world. As the largest bank, UBS has a clear interest in long-term success of the country and sees the education initiative as a contribution to society as a whole.

Second, UBS wants to raise awareness that education and learning shall be fostered not only for young talents, but also for older workforce. A paradigm shift shall be reached whereby

lifelong learning is promoted. Employees and the public shall be made aware that it is important for our country to stay competitive so that it can count on workforce that update and competent, open to new challenges, and thereby contribute to better work quality overall (UBS 2012b).

Goals of the education campaign in summary are as follows:

- Raise awareness for lifelong learning
- Foster competences and skills to improve work quality and efficiency
- Improve the employability of the employees

UBS currently has 5000 employees aged over 50, which makes up for 20% of the total employees in Switzerland. In terms of relevance of this age cohort, trend statistics indicates that the share of 50+ is still increasing.[1] The current practice of education at UBS is built up along "education tracks" for different job positions in the bank. There is the teaching of technical know-how, which is regularly updated by sending employees to trainings. As an overarching training, UBS offers a specific training seminar for potential team leaders across all sectors in the bank. Since the launch of the education initiative in April 2012, the new approach shall, additionally to the existing measures, target different age cohorts specifically.

## 3. Strategies to tackle demographic ageing as a Swiss company

On a company level, we identify four general methods to mitigate the problem of an ageing population and scarce workforce in the next decade.

- Target highly skilled and often younger people from EU countries, especially Germany, which can make up for some of the missing labor force in the future. To date, we see many companies that employ this measure; however, it will not be enough in the long run (European Foundation, 2010).
- Try to keep your own employees (30+ to 50+) loyal to your company.
- Foster possibilities for 50+ cohorts to return to work. This is especially important for women who often take a maternity leave or quit their jobs to take over family responsibilities.
- Try to improve the productivity of your existing (50+) labor force (SHRM 2011).

It is true that fluctuation is significantly lower in the 50+ cohort compared to the 30+ cohort and thus a 100% success of the measures taken for the 50+ employees can be assumed. Nevertheless, we suggest that in the long run, companies have to apply a comprehensive

[1] Older workforce is defined as people from the age of 45 onwards. Further, we like to stress that we are talking about the intellectual age, meaning experience in the present company, rather than a clear cut age limit.

strategy targeting different options at the same time if they want to effectively mitigate scarce labor force. For this study, however, we leave the migration factor and focus on the existing labor force available in Switzerland.

## 4. Competence and awareness building

To deduct potential options for engagement with the 50+ cohorts, it is vital to understand how their learning needs differ from other age cohorts.

### 4.1 Theoretical background: learning of 50+ cohort

Raymond Cattell (1963, p.2) identified that there are two different types of intelligence: the cristallized and the fluid intelligence. In further researches, he specified cristallized intelligence as a "…knowledge that comes from prior learning and experiences. Situations which require crystallized intelligence include reading comprehension and vocabulary exams. This type of intelligence is based upon facts and rooted in experiences. As we age and accumulate new knowledge and understanding, crystallized intelligence becomes stronger" (Cherry 2012a).
In contrast, fluid intelligence can be described as "the ability to reason quickly and to think abstractly. Furthermore, it is the ability to solve problems and to adapt to new situations[…] This type of intelligence tends to decline during late adulthood" (Cherry 2012b).
While fluid intelligence involves our current ability to reason and deal with complex information around us, crystallized intelligence involves learning, knowledge, and skills that are acquired over a lifetime (Die Zeit 2002).
Lessons learnt from this piece of research for this study are as follows:

- Fluid intelligence begins to decrease after adolescence.
- Crystallized intelligence continues to increase throughout adulthood.

Nevertheless, one has to consider that the decrease of the fluid intelligence differs from person to person and that there are several possibilities to actively improve and retain the fluid intelligence up to a certain level (Die Zeit 2002). Grob and Lüthi (2006) also advise to do mental exercises, especially if ones job tasks consist of standardized tasks (typically "low level jobs") and where the concept of lifelong learning or learning on the job is not a precondition to perform your tasks. Another important factor in keeping a high learning ability is motivation. Vollmeyer and Rheinberg (1998) say in their cognitive–motivational process model that motivational factors affect performance by way of mediators.

However, it is important to stress that the theory of fluid and crystallized learning is discussed very controversially in education research. Rather than the mental ability, some researchers suggest that motivation is the decisive factor when it comes to ability of elderly people to embrace lifelong learning. Since motivation is closely linked to the mindset of a person toward learning new tasks, we are focusing extensively on the potential of awareness raising in each of our proposed measures in Chapter 5.

## 4.2 Methodology of learning

To gain an overview on potential learning measures that could be implemented, we propose to have a look at the learning pyramid created by the national training laboratories. The pyramid shows the retention rates of learning by using different methods. Even though the theory is controversially discussed (Letrud 2012, p. 117-123), it offers an appropriate framework about the possible methods and their estimated relative success rate. In our opinion, it fits into the special content of training on the job for the 50+ cohort. Although more theoretical methodologies (i.e., lecturing, reading,) have the lowest rate in terms of information retention, more practical styles of learning (i.e., practice by doing, teaching others) are said to be more effective learning strategies. Against this theoretical background, we shall now consider lifelong learning in the banking sector in more detail.

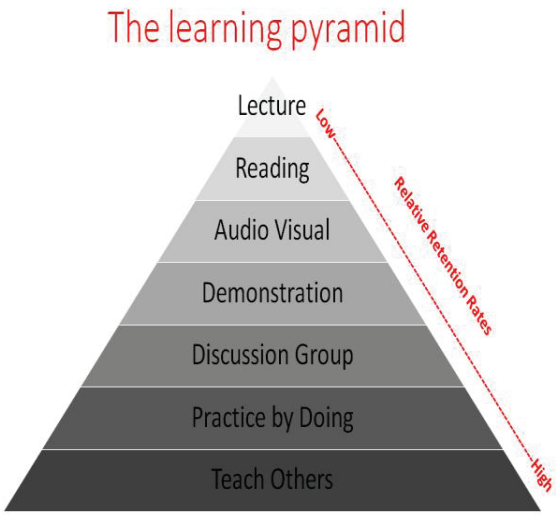


Figure 1 Learning pyramid. Adapted from National Training Laboratories. Bethel, Maine

## 4.3 Importance of lifelong learning in the banking sector

An online survey conducted by the Swiss Bankers Association in June 2010 has revealed important insights on the topic of advanced vocational training among 11,000 bank employees in

various positions and across all banks in Switzerland. The following conclusions have to be taken into account when designing education programs for older employees.

- Lifelong learning is path-dependent. Such processes are not self-correcting but rather self-perpetuating.
- The educational background of an employee determines his/her willingness and motivation and ultimately the probability of undergoing further education. Although higher education is positively correlated to the effectiveness of lifelong learning, the reverse effect holds for lower education levels.
- Age matters. The probability of continuing learning decreases at the age of 50 and more dramatically at the age of 55[2].

Education measures thus have to target two different groups. While employees with a BA, MA, or PhD degree mainly learn on the job when executing more complex and less standardized jobs, employees with a first degree face a high risk of stagnation when it comes to lifelong learning (Hoffmann, 2011). The intersection that needs to be in focus of awareness building seems to be older employees with a lower education level.

Concrete measures have to be developed at the individual company level. Since path-depending processes are difficult to break in, awareness for lifelong learning has to start early, preferably during the core competence training already. Once the habit of denial of education has been established, it is difficult to teach employees otherwise (Hoffmann, 2011).

The Swiss Banking Association is convinced that lifelong learning is essential for banks. The president of the Association, Pascal Odier, stresses that essential skills that bank employees need to have are developing very quickly and that lifelong learning is an imperative to keep up with international competition. In contrast to other sectors, the “marketing factor” is crucial for the service sector, and older workforce is desired. Not only employees but also customers of the bank grow older in the future. Studies have shown that older customers prefer to be served by older consultants. It is also proven that employees who cannot keep up with job requirements are a major risk and cost for banks. Finally, lifelong learning contributes to the attractiveness of a bank as an employer on the global competition for talents. Offering life cycle education attracts people who are willing to develop skills and are motivated to learn (SwissBankingFuture 2012).

### 4.4 Awareness raising

Commitment to an active ageing initiative has to come from the top management. One of the few representative studies that has ever been done on the issue of company motivation to retain

[2] An average UBS employee spends 3 days per year in training. 50 +cohorts are below this average.

older employees has been conducted in Norway[3]. The study reveals that subjectively assessed recruitment problems do not influence the probability of a company to adopt a strategy to foster lifelong learning among older workforce, but that this voluntary commitment has to come from top management (Midtsundstad 2011, p.1287).

Companies that are committed to older workforce shall create a company culture that honors experience. The environment for people aged over 50 has become alienating since human resource practices often target younger people. Experience and knowledge are overshadowed by job ads calling for "fresh-thinking," "dynamic," or "fast pace," which are not appealing to 50+ generation. The same holds for modern interview practices, which are often intimidating to older applicants who are used to show their skills in a more traditional approach (Dytchwald 2006, p.51). If UBS wants a credible education initiative for older workforce, the changing attitudes toward embracing diversity in mixed age workforce is key to success.

## 5. Competences and Awareness Building Measures

On the basis of the identified fields of action of UBS[4], we outline different concrete implementation steps to build competences, to raise awareness on the importance of lifelong learning, and ultimately to keep the motivation of employees high.

### 5.1 Entry possibilities for returning workforce of 50+

As a first step, UBS should actively promote the reentry of senior workers or give ancient workers the possibility to come back after motherhood or any other breaks in their career. As a benchmark, we identified the German ING-DiBa financial services, which launched a successful new program called "Azubi 50+," focusing on the reentry by offering internships.

For this program, they created a new recruiting process where employees apply without CV, so applicants without work experience in the past years will not be separated in the first selection round. Against all prejudices, DiBa successfully managed to integrate highly motivated, high-performing, responsible, and adaptive workers of the 50+ generation (INQA 2012).

UBS could implement a similar measure while encouraging people with a background in banking to apply for jobs. Although the current record of the CV will be of minor importance, staff

[3] Norway has adopted the so-called Tripartite Agreement (2001) on a more inclusive working life. This voluntary government initiative shall alter the negative attitudes toward older employees. The study cited identifies company's willingness to adopt an active policy in line with the proposed strategy. The surveys were conducted in 2005, based on a representative sample of 713 Norwegian companies.

[4] See Table 1 in the Annex.

selection can be made by other criteria such as motivation to face new challenges, readiness to adapt in a team, personality, charisma, and the like.

This selection is based on the rationale that employees who go through an application process are intrinsically motivated and thus high performing even if they have had a long absence from work. While ING-DiBa offered some intensive refresh course for 50+ applicants and some ongoing education days off from work, we would strongly advocate for learning on the job. After some initial refresh courses, we would suggest a “buddy-system” whereby each returning 50+ employees is assigned to a current colleague performing the same job in the bank. The “buddy-system” offers two main advantages. First, it allows for direct interaction between old and young people in the bank, while a “buddy” can be a very young employee indeed. This interaction contributes toward the positive company culture of lifelong learning, and apart from important technical knowledge-transfer, interpersonal skills are also strengthened among employees of diverse backgrounds and age. It is important to mention that exchange of know-how is expected to take place both ways, from the 50+ in training to the “buddy” and vice versa.

Second, learning on the job proves to be more adequate for older people than making them feel like school kids while sitting in a classroom and listening to an instructor. Practical knowledge transfer that occurs from peer to peer is easier to process and to integrate into existing knowledge than abstract teaching of theoretical background. The learning progress is immediately visible, which raise the motivation and leaves the employees a feeling of success (Leutloff, 2011).

As a measure of nondiscrimination and acceptance of the “buddy-system,” we also suggest introducing this format for any new, young trainees who start at UBS. This would enhance credibility of the whole initiative as well as foster the impression that “equal treatment for new employees” is applied, regardless of age.

### 5.2 Tandem learning: a measure to foster knowledge-transfer

One of the most significant points in time when knowledge transfer is indispensable is the moment when a retiring employee hands over to his successor. This formal takeover procedure often includes written documents, sometimes guidelines and a booklet with some useful hints on the daily business routine. However, introduction is usually rather short, and often the shorter or neglected if we imagine senior position in the bank. These conventional forms of take-over are accompanied by a major loss of know-how.

Also, companies are often faced with the problem that the older generation is not willing to share their knowledge with younger employees, because they are afraid of making themselves

exchangeable. To ensure that the knowledge of a company will be transferred to the next generation, a company has to actively support and motivate older people.

Opportunities for an innovative approach to work have been developed by Buck, Kistler, and Mendius for the German Federal Ministry of Research and Education. They suggest the following four preconditions to ensure knowledge-transfer from the older to the younger generation:

- The work role must be enhanced: the teaching role must become a definite task of their working tasks
- Older employees must be supported on how to fulfill their teaching task in the best possible way.
- You have to create opportunities to teach. That means that there has to be enough time for the senior workers to teach younger employees their knowledge and there has to be a fitting task where they can explain their knowledge.
- A successful way to motivate older employees to transfer their knowledge is to give them material incentives (2002, p. 60).

One popular method and systematic model to ensure that these preconditions are met is tandem learning between a retiring employee and his successor where both the employees are assigned the same task.

Tandem learning functions best if specific projects are assigned and a fixed date for the hand-over is defined in advance. A pilot project in this regard was the reorganization of the sales function and ensuring continuity of customer support at a large pharmaceutical company in Germany.

The age integrating work project or tandem learning is a win–win situation as illustrated in Figure 2.

For the retiring marketing manager (i.e., incumbent), a large challenging project helps to ensure that transition to pension is a self-determined exit and thus mitigates the feeling that he has become obsolete since his experience is highly valued in this last project. In teamwork, knowledge of the senior employee can be retained, conserved, and transferred to a younger employee, where the successor at the same time gets a first opportunity to be introduced to his tasks and gradually assume more responsibility. Such projects have high potential of leading to a real success for a company since the successor brings motivation to perform his first task very well. The combination of new perspectives or technologies with experience and know-how makes a powerful team.

On the customer side, the benefits are as important as the knowledge transfer in the company. If the marketing manager was able to introduce his successor personally to its clients, continuity in the business relationship could be ensured. This is especially important in banks where customer relations are of high relevance to the core business. It has to be ensured that the chain of confidence is not interrupted.

Finally, it should be mentioned that such tandem projects, especially long-term, have the potential to build on interpersonal skills among younger and older employees while also contributing against negative prejudices (and thus contributes to positive working climate). A first positive experience of the young employee will pay out as valuable for future projects he gets involved. Tandem learning offers an opportunity for newcomers to integrate themselves into the company.

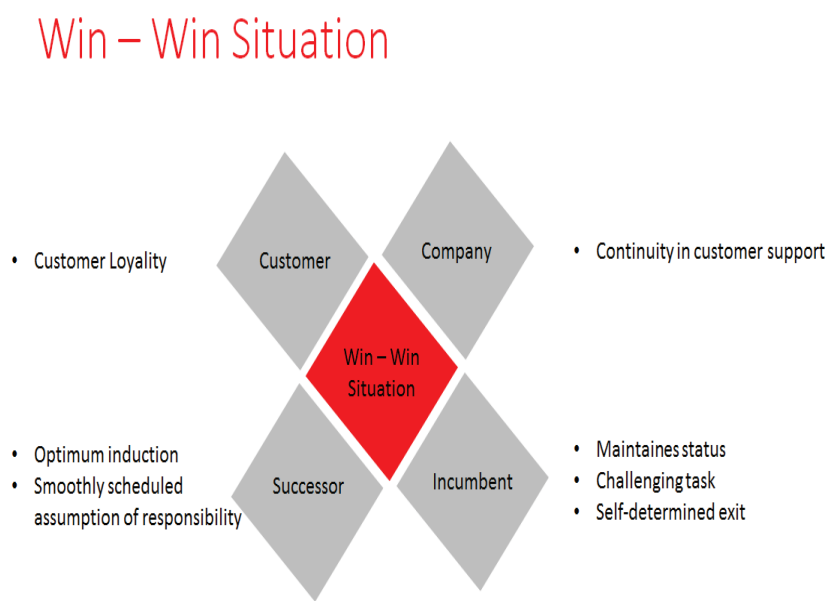


Figure 2 Graphic adapted from Buck, Kistler and Mendius (2002, p.62)

### 5.3 Career Planning: a measure to retain your workforce

Career planning seems an important factor not only for young employees but also throughout the whole employment life cycle. A measure to improve the learning environment for the 50+ generation is to provide individual development plans for this target group. By showing what are their strength and weaknesses and what they still can achieve, the motivation of the target group will highly increase.

Swisscom Fixnet and also Siemens are two pioneers in developing strategic career reflexion program for older employees. As a benchmark, we want to analyze the “Kompass Prozess,”

which Siemens successfully implemented in Germany. In a three day workshop, employees aged 40+ were coached by professional trainers figuring out their individual development potential based on an assessment by others and a self-assessment. Together with employees of the 40+ generation, Siemens figured out how employees could develop their skills, what kind of new tasks in the company would make sense for them, or even what they could change in their personal lifestyles.

The main result was an increased motivation for work among older employees. Their assessments could lead them to take over new tasks in the department of the company, that is, taking over internal projects, negotiate new cooperation agreements, acquire customers. Some also changed career within the company branch or went to work abroad.

The benefit for Siemens is a more efficient use of human capital, while tapping the full potential of its older workforce (INQA 2012).

### 5.4 Senior Consultants: a measure to create an environment that values experience

To keep older employees in the workforce, experience has to be valued at UBS.

Different companies have already implemented some system of how to value senior employees. At Deloitte, in 2003, about 40% of its 850 partners were aged 50 and more and Deloitte did not want to lose this talent pool of highly skilled professionals.

Therefore, they created the Senior Leaders program, which elected people who have made a significant contribution to the firm. Employees who have been elected by the Committee were offered special projects such as mentoring, training of younger staff, internal restructuring, development or global expansion, and the like. The program became very prestigious internally as well as to external clients, but unfortunately had to be put on hold because of internal reorganization (Dytchwald, 2006, p.53). ABB Switzerland has a similar approach whereby employees aged 60 have the possibility to join their external consultancy firm, Consenec AG.

For a bank such as UBS, a Senior Leaders Program seems a very valuable option. Especially in the service sector where informal networks and personal contacts matter, this pool of experts have the potential to initiate big ideas in the company.

### 5.5 Mixed-age teams: a measure to integrate diversity into daily business

The business case for diversity in workforce can be made by many individual companies that have experience with mixed-age teams. As Siemens Switzerland confirms, diverse teams have the advantage to face the problem from different angles and are able to reach a higher productivity and more innovative solutions. However, if a more standardized work needs to be

executed, a diverse team is likely to be less efficient due to lack of common ground or informal rules, and so on.

To avoid tensions between team members of demographic dissimilarity and to ensure performance, the faultline theory of Lau and Murninghan (1998) has to be taken into account. Their thesis is that demographic diversity impairs integration and leads to separation into subgroups when several demographic attributes are aligned as illustrated by the Figure 3.

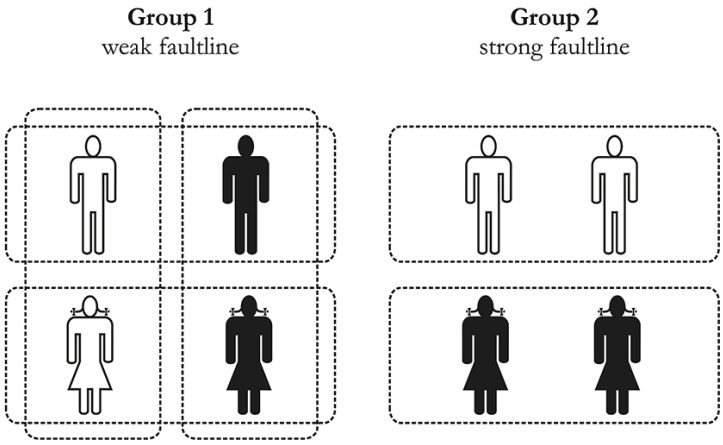


Figure 3 Intensity of faultlines in two different groups (figure adapted from Michael Mäs 2012)

Both groups comprise two white and two black members. In addition, there are two male and two female group members. Thus, both groups have the same (maximal) demographic diversity. In group 2, however, the demographic attributes are aligned and thus create two maximally dissimilar subgroups. Lau and Murnighan call this a group with a "strong demographic faultline." In group 1, however, the faultline is weak because demographic attributes are not aligned and no subgroups form[5].

We thus suggest to deliberately create mixed-age working groups with weak faultlines to work on projects that are beyond the daily business of the individual employee. Cross-cutting issues such as a new strategy for communication or internal guidelines for the use of social media and the like are projects that require innovation and where diverse teams shall be used in an initial phase.

Demographic dissimilarities will become a given in the next decades. The mobility of labor, especially from the EU but also from Asia or different parts of the world, will further intensify. The

[5] Explanation are adapted from Michael Mäs http://www.maes-sociology.eu/research-projects/social-identification-processes

global competition for talent necessarily leads to diverse workforce at a company level. If UBS employees are becoming advanced in terms of being used to a diverse work environment, this will definitely make the bank more competitive in the long run.

### 5.6 Peer Learning: a measure to foster the culture of lifelong learning

Another measure that could be taken as a more comprehensive approach among all age groups toward lifelong learning is what we call “peer learning.” Peer learning is a voluntary training opportunity. The idea behind the concept is that employees benefit from skills or know-how of other employees in the same company. In this context, we think about very open format in-house workshops taught by employees from all levels and all positions of the bank. Employees who have special expertise could share with other employees. Potential topics and indications what employees are interested in shall come from employees themselves.

Here are some ideas to illustrate the idea with application to UBS:

- Technical Workshops
- Possible topic: How to integrate new technological tools into your daily working routine?

Tools could be internal UBS tools currently not used by all employees or also other programs such as Skype, Google Docs, Dropbox, Doodle, or the like that significantly simplify an employee’s work when used wisely. An efficient use of technical tools eventually leads to a higher productivity at each individual level.

Instructor: The workshops could be taught by a very young assistant or an IT support employee or whoever is “computer-savy” and uses these tools very often.

- Thematic Workshops
- Possible topics could be as follows:
    - How does the stock market work?
    - Historic moments in the history of banking (e.g., the different financial crises)

Instructor: A senior trader could elaborate on his work.

    - How to combine family and career?

Instructor:  A mother in the bank could talk to younger woman about her own experience and challenges she faced to manage career and family and how she managed.

The approach shall be bottom up and suggestions on topics must come from the employees themselves or peers who suggest the speakers. The Human Resource Department would set up the agenda of workshops and publish them in the newsletter or other classic internal communication tools. The target audience is anyone interested in the bank.

The voluntary method of peer learning offers in our opinion three main advantages to conventional trainings. First, it would break the general prejudice among young/old people since both happen to be in a position of teachers and learners at these occasions. An old employee as well as a young employee can be champion in a specific field and share knowledge. Such interaction fosters mutual acceptance and understanding.

Second, the peer learning approach breaks up the strict hierarchies that are often found in larger corporations. It has the potential to build relationships among employees of different levels within the bank, since it brings people together along cross-cutting issues rather than bringing them together based on their position in the bank.

Finally, the introduction of peer learning would significantly contribute to the credibility of the whole education initiative. If education is taken seriously at UBS, it shall not only be implemented top-down in the context of trainings but rather embraced as a culture and a factor that is omnipresent at the bank. Since experience shows that as an employee you learn from colleagues every day, and sometimes indeed even without noticing it, we see a high potential to institutionalize peer learning at UBS.

### 5.7 Education Time-Out: a measure to retain employees

A longer break in the professional career (i.e., 6-12 months) is similar to a sabbatical where their work contract continues. However, employees use their time-out specifically to develop skills in an area of their interest and job profile. We expect that especially employees in higher position in the bank could make use of this time-out to complete a Master in Business Administration or other Diplomas, which do not only foster competences but also personal motivation upon return. With an application process, supervisors together with employees could plan their time-out according to individual needs and preferences.

### 5.8 Cost: Impact Analysis

In a summary, Figure 4 shows the relative potential and relative costs of several introduced and several common initiatives. On the *x*-axis, we define the potential of each measure in generating human capital, whereby human capital includes professional competences and interpersonal skills (informal knowledge transfer). On the *y*-axis, we have the potential of each measure in terms of generating awareness of the importance of lifelong learning amongst employees.

In terms of cost, we divide the measures into three categories. All fields colored in red are assumed of relatively high cost, while fields in yellow and blue are assumed as of medium and low costs, respectively. We like to stress that the assessment of the impact and costs depends

heavily on the effective arrangement and the given situation of every single initiative and can only be seen as assumption.

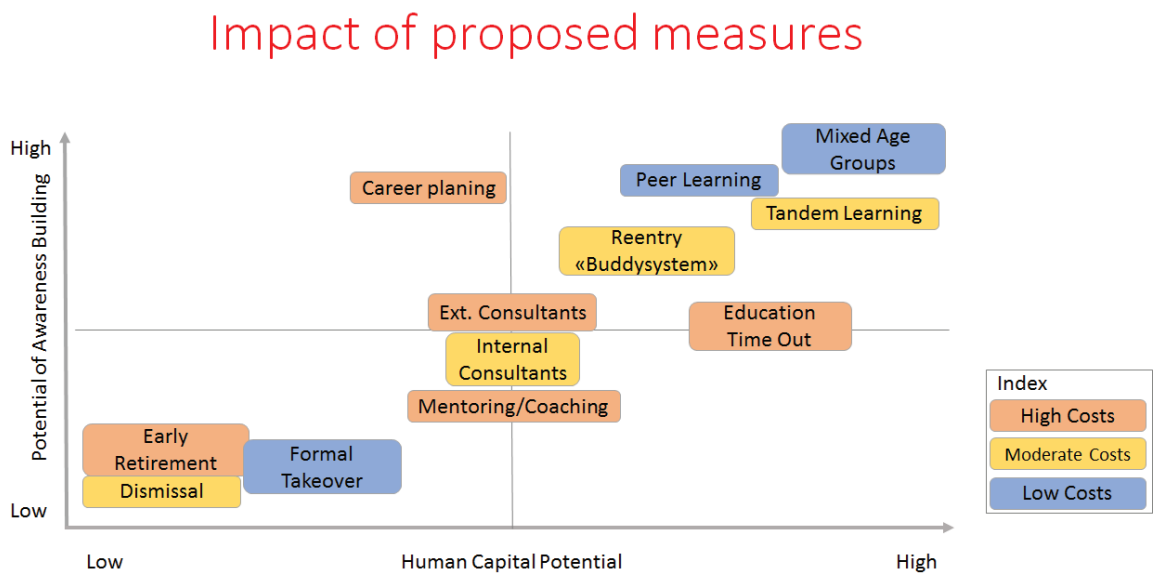


Figure 4 Impact of proposed measures (own graphic)

Analyzing the chart, we can see that especially mixed-age groups, peer learning, tandem learning, and the reentry "buddy-system" are classified as high potential measures in both categories, while career planning is classified as a good instrument to raise awareness but classified as less useful in terms of building human capital.

The reasons for this classification are the following. In contrast to the traditional training methodologies (i.e., career planning), new measures such as peer learning, tandem learning, or reentry "buddy-system" can be executed on the job while embracing diversity and fostering interpersonal skills between younger and older workforce at UBS. In addition to knowledge transfer of professional competence, informal knowledge and skills are also transmitted. Thus, we assume that the potential increase in human capital capacity in total is higher compared with the classical methods. Furthermore, we are convinced that interaction among younger and older workforce will lead to better integration and mutual understanding, which classifies the measures high on the awareness scale.

Costs of these measures are quite low, because there is no expectation that there will be a short-time lack of productivity after a reorganization, especially if you compare them to measures such as tandem learning, where two salaries have to be paid for one job or career planning, which requires experts and which cannot be integrated into normal working tasks.

Furthermore, career planning will not improve the daily business in a short view. We also rated peer learning as a rather low-cost measure, because it is mainly designed on a voluntary base.
Giving the older workforce a chance to become internal and external consultants is more cost intensive because of the high salaries that have to be offered and also the limited effect of knowledge spill over because of their rather “isolated” job task compared to measures, which specifically foster teamwork such as tandem/peer learning.
The least useful methods to achieve a benefit for a company are a dismissal or an early retirement or a classical formal takeover procedure, all three measures cause an abrupt break in an employee’s life cycle, which results in a huge loss of knowledge and does not contribute to awareness of the importance of lifelong learning at all.

## 6. Communication

Besides developing a new 50+ education plan, it seems as important to us to communicate the new action plan in an appropriate way. Recalling our goal, we want to achieve that the 50+ generation or any other generation at UBS does not feel discriminated in any way. In specific, we do not want to make the 50+ feel old, instead, our goal is to show them opportunities how to develop and how important it is to work and still keep up with the latest developments until retirement.
For this reason we propose to integrate any of the planned initiatives into already existing programs like the UBS Business University. To make sure that the new initiatives will be perceived, the communication of the new university should be enlarged.

- All education initiatives should be announced in the name of the UBS Business University
- Start a credit system, with a recommended number of credits an employee in a certain age or position should do within a year (including a propose for the numbers of voluntary credits)
- Create a list of mandatory and open courses where employees can attend
- Make education more attractive by offering some non-business courses, for example, personal skill building, sports, photography, or any other leisure activities
- Try to involve employees. Let them decide which topics to offer or let them the possibility to actively engage in a topic they are interested in (peer learning). For this reason think about an online platform where employees can apply with their ideas or register for courses.

- Try to use education courses as enabler in your company to open direct communication between different departments.
- Also integrate career planning into the UBS Business University. Think about an external or neutral department for this task to assure that employees can talk about their real needs in an open and confident manner.

Although concrete implementation steps might be available as suggested above, the main challenge seems to be initiating mental change and raise awareness among older generations. Partly based on Oertig (2006, p. 176), who analyzed the case for Swisscom, we thus give the following recommendations on how to support this mental change with smart communication measures.

- One of the hardest steps is to unlock the mental barrier in your employee's heads. Most of them still see the classical career path as the only option. This bases on the fact that learning is path-dependent as described in Section 4.3.
- It needs strong supporters and promoters in the upper management to do a successful change in the staffing policy
- Initiate the new lifelong learning campaign with the aid of a figurehead of the UBS by telling how he/she handles lifelong learning. Furthermore, publish internal articles in the Intranet or In-House Magazines and tell stories about the learning program and the successful reorientation of employees within the UBS. Successful candidates who obtained new degrees can be published in newspapers with UBS giving public gratulations to its employees as seen the practice by many consulting agencies in Switzerland[6]. This contributes to credibility that lifelong learning is highly valued at UBS and that the bank is proud of its employees who commit to learning.
- Communicate open and transparent also about the negative sides that can occur and connect them with suggestions for improvement
- Age Management is a long-term process; therefore, consistent implementation is as important as the measures themselves.

[6] For example, PwC or KMPG in Switzerland do regularly publish their graduates with names in the two biggest Swiss newspapers Neue Zürcher Zeitung or Tagesanzeiger.

## 6.1 Lifelong learning program

From interviews with Talent Development Managers at UBS, we know that they are thinking about calling their new offer “lifelong learning program.” In general, we support that idea, as it is already a widely acknowledged term in society and does not need any further explanation. It also fits the strategic goals and gives the campaign a high credibility. However, we suggested to communicate, also internal, with a more UBS-specific slogan such as “UBS Business University—because we will not rest,” which is the core theme of the UBS advertising campaign. “We will not rest” isn't just the theme of our advertising campaign; it encompasses the spirit in which we approach everything we do at UBS. It is our commitment to client relationships. It is about understanding our clients’ financial goals and leaving no resource untapped in our effort to help them achieve those goals (UBS 2012a).

By using a more specific slogan, UBS has more possibilities to actively create her own interpretation of lifelong learning, without changing the given mindset for the common term “lifelong learning.” The slogan, “because we will not rest” perfectly captures “the spirit of UBS as in everything they do,” thus the education and training of their employees is one major part of a successful service to clients.

If we recall the target group of the education initiative in general, it is the 50+ cohort with the lower education level who currently does fewest further trainings at UBS. We, therefore, are skeptical about whether employees who have no academic background, even regardless of age, would associate with the term “Business University,” which rather sounds as if only the “elite” of the bank could pursue an education there. In terms of marketing, it might be useful to rethink the concept and come up with a more broad term which more people could identify with. Examples could be “UBS Education Centre,” “UBS Institute for Education” or if the association with an academic institution shall be maintained, we rather suggest for a direction of the Swiss examples of “Fachhochschulen,” thus bringing in the element of “applied science” instead of “academic ivory tower” association. We are aware that people in senior positions with an MA degree, MBA, or PhD are not attracted by this terminology.

Thus, the strategy in education can be seen as twofold. While the large amount of employees, including the 50+ generation, shall be attracted by the UBS internal training options, the education offerings have to be completed by the option of an “education time out.”

The option to complete a degree at an external institution mainly targets highly skilled, the 30–40 cohorts who want to pursue an MBA or another advanced certificate at some prestigious

business university around the world. The two measures are complementary to each other and need to be fostered if both age/education levels want to be targeted.

## 7. Key Performance Indicators

Key performance indicators are essential for UBS to screen their goals and measure the impact of implemented projects. Lockwood (2006, S.3) propose to measure human capital with the aid of the following categories: "…the most common categories of people measures include turnover, productivity (revenue, profit per employee), employee satisfaction/employee engagement, recruitment, diversity, remuneration, competencies/training, leadership, and health and safety. Most frequently measured are turnover, voluntary resignation, average compensation, average workforce age, diversity, and compensation/total cost."

To identify possible indicators, we have to orient ourselves on the formulated objectives of the education campaign in Chapter 2.

It is important to note that the key performance indicators are based on the proposed initiatives made in this Study. Depending on which of the suggested programs are going to be implemented, the indicators might not be adequate to measure the level of impact.

General KPI's (Survey Based)

- Motivation of the 50+ cohort
- Satisfaction of the 50+ cohort/Employee Engagement Level
- Diversity Index (age, gender, nationality, background)

| Goal | Raise awareness for lifelong learning | Foster competences and skills to improve work quality and efficiency | Raise employability of the employees |
|---|---|---|---|
| Variable | # of career planing interviews | Δ increase in innovation (or number of new initiatives launched) | # reentry over age 45 |
| | # voluntary peer learning events realized | Productivity (revenue or profit per employee) | turnover ratio (fluctuation) in the category 30 to 50 |
| | # of participants on voluntary peer learning events | employee core competency profile | leadership skills profile |
| | # of successful tandem projects at takeovers | customer satisfaction | interpersonal skills profile |
| | # courses taken at UBS University by persons over 50 | customer dissatisfaction (e.g. # of complaints) | employee core competency profile |
| | Δ percentage of highly skilled employees attending courses | | |
| | Δ percentage of lower education employees attending courses | | |

| | | | |
|---|---|---|---|
| | voluntary resignation; the more it declines, the higher the awareness | | |
| | early retirement; the more it declines, the higher the awareness | | |
| | Life Long Learning Awareness Level | | |

Figure 5 Key Performance Indicators

## 8. Critical Reflexion on suggestions made

We shortly like to address the “demographic change” for multinational companies such as UBS in the broader picture. The proposed measures are useful if a company wants to target 50+ generation. However, looking at the problem of scarce labor force in Switzerland, only symptoms, that is, the absence of older work force, are addressed. The crucial question to ask, however, is why does people leave work in the first place.

Two thesis can be deducted from literature

- The social security system in Switzerland permits to enjoy pension, which fosters early retirement among older employees
- Conflicting interests, such as family and job does not go together well in Switzerland, people often have to sacrifice their job for family responsibilities.

Some alternatives named in Chapter 3 have not been discussed in this study, but they will be essential for a successful strategy to cope with demographic change. Flexible work schemes and other HR measures must be implemented and are a great opportunity to keep workforce loyal to the company.

However, to address demographic change in the long run, measures on company levels seem not to be enough. Society has to accept fundamental change in their work/life schemes.

Furthermore, regulation needs to come from the government if demographic change shall be tackled proactively. The Swiss Government states that measures to increase participation of older workforce in the labor market at current point in time are moderate but adequate to the situation on the ground.

However, it seems self-explanatory that a working group has already been implemented with the task to develop reform measures on three priority areas, mitigation of incentives for early retirement, improvement of health to ensure motivation and working capacity, improvement of reintegration of older unemployed people for the future (Seco 2012).

## 9. Conclusion

To sum up, lifelong learning becomes a necessity for employees and companies alike in the coming decades. Demographic ageing of the population is a challenge, which needs to be addressed by smart companies if they want to stay competitive and mitigate scarce workforce.

At the strategic level, a comprehensive education program shall be implemented by taking into account older employees with a lower level background education who are rather reluctant to lifelong learning. A basket of mandatory and voluntary courses seems the best option to keep motivation for learning high. For this project to become successful, we strongly recommend to offer attractive courses at the UBS Education Centre by including courses beyond professional core competences.

To reach the objectives of the UBS Education campaign, we recommend that (1) awareness raising measures, (2) competence building measures, and (3) communication have to go hand in hand for an effective and credible strategy toward lifelong learning. Research in the field learning methods of 50+ suggest that although older people generally have a reduced capacity compared to young people to acquire new skills effectively, the crucial factor seems to be a mental factor, namely the motivation and an individual's preparedness (i.e., mindset) to acquire new skills. Thus, in terms of concrete measures, we see the biggest potential to achieve both goals, raising awareness and building core competences of older workforce, in mixed-age groups, career planning, and peer and tandem learning. In contrast to traditional training methodologies, the proposed measures can be executed on the job while embracing diversity and fostering interpersonal skills between younger and older workforce at UBS. In the long run, UBS can be optimistic of fostering employability of its employees and contributing to a society which is prepared for demographic change if such measures are implemented thoroughly.

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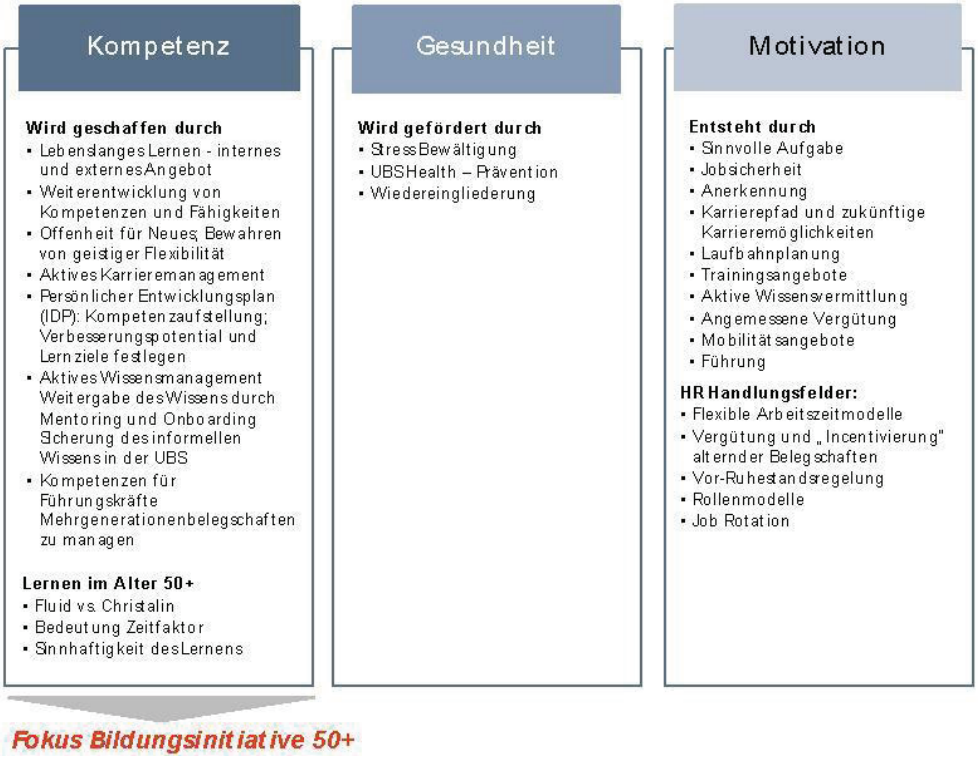
## Annex

### UBS Bildungsinitiative - *Handlungsfelder*



**Project Paper 4**


Demography meets Africa

# An outlook on the demographic challenges of Sub-Saharan Africa until 2050

submitted by

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Dr. med. Hans Groth, MBA

## Table of Contents

# 1 List of Abbreviations

| | |
|---|---|
| AIDS | Acquired immune deficiency syndrome |
| CPR | Contraceptive Prevalence Rate |
| FFPS | Fertility and Family Planning Section |
| GDP | Gross Domestic Product |
| HIV | Human immunodeficiency virus |
| HSBC | Hongkong and Shanghai Banking Cooperation |
| IMR | Infant Mortality Rate |
| MDG | Millennium Development Goals |
| NA | Northern Africa |
| NGO | Non-Governmental Organization |
| SEA | South East Asia |
| SSA | Sub-Saharan Africa |
| TFR | Total Fertility Rate |
| UN | United Nations |
| UNAIDS | United Nations AIDS program |
| UNESCO | United Nations Educational, Scientific and Cultural Organizations |
| UNESCO EFA | Unesco Education for All |
| WHO | World Health Organization |

## 2 Table of Figures

# 3 Executive Summary

Africa is the most rapidly growing continent in the world in terms of population. According to the United Nation's medium-variant scenario, Africa's population could more than double and reach 2.19 billion people by 2050. This study focuses on Sub-Saharan Africa (SSA), because it is projected to make up for 89.2% of the continent's population in 2050 and follows a different demographic transition dynamic than Northern Africa.

A youth bulge is emerging in SSA, as more than 40% of its population is under the age of 15 at present. As a consequence, the active workforce is expected to almost triple by 2050. To ensure political stability of the region in the future, education of the youth and creation of jobs seem ineluctable.

The demographic dividend, arising from a growing ratio of potential workers to nonworkers, is about to present itself to SSA for a limited amount of time. This might give SSA the opportunity to trigger economic growth important enough to significantly increase its population's average standard of living.

Even though the average SSA gross domestic product per capita is expected to rise more than threefold by 2050, it would not suffice to significantly improve the regional living standard as it is starting off at a current value of approximately 2.5 USD per person and per day. Therefore, seizing the demographic dividend appears to be the only viable means to reverse the socio-economic trends within SSA. However, to do so, major issues related to corruption and governance throughout the region need to be addressed.

By comparing SSA with the South East Asia of the 1980s, one gets an idea of how well-prepared for its demographic dividend the region is. The picture drawn by this comparison is disappointing. SSA does not invest enough in its health system, and its decreasing savings per capita, which are already the world's lowest, do not allow for the necessary investments in education and infrastructure to be made.

In addition to trying to achieve the United Nations Millennium Development Goals for its present population, SSA also has to cope with the growth of its population without proper funding for the additional expenses. To reduce the population growth rate, which is capital for the demographic dividend to materialize, family planning distinguishes itself as a possible solution. However, whether a large enough proportion of the population will accept to use contraceptives to make a difference remains unclear.

Our conclusion is that if no major investments in family planning, health, education, and infrastructure are rapidly undertaken with the help of international institutions, the 40 years leading to 2050 might very well end up being called SSA's lost decades.

# 4 Introduction

In 2010, 1.02 billion people lived on the African continent, which represented 14.8% of the global population or 1.4 times Europe's 0.74 billion inhabitants. By 2050, Africa is expected to double its population, which will result in a total population between 1.93 and 2.47 billion people, depending on the variant used in the calculation[1].With the medium variant, the population would reach 2.19 billion people, which means that by 2050, Africa will be the home of roughly 23% of the global population or around 3 times Europe's 0.63 to 0.81 billion inhabitants. This makes Africa the most rapidly growing continent in the world in terms of population (UN Population Division).

# 5 Population dynamics in Northern Africa and Sub-Saharan Africa

Population dynamics in Africa can be clustered into the two regions of Northern Africa (NA)[2] and Sub-Saharan Africa (SSA)[3], which vary heavily from each other. In 2010, 0.86 billion people or 83.8% of Africa's population lived in SSA. By 2050, this share will increase to 89.2% (United Nations Department of Social and Economic Affairs). In addition, the two regions are also fundamentally different in regard of the demographic transition (Bloom, Canning, & Sevilla, 2002).

NA is currently in an early stage of the demographic transition (Bloom et al., 2002). Infant mortality rate (IMR)[4] decreased steadily during the last 30 years from 111 in 1980 to 37 in 2010. For 2050, IMR is projected to be at 16, which means that it will be more than halved (cf. figure 1). Fertility rates are still high but started to decline. Northern Africa's total fertility rate (TFR)[5] decreased from 6.16 in 1980 to 2.97 in 2010 and is

[1]For a better comprehensitivity, all subsequent analysis is based on the medium variants of the calculations of UN Population Division.

[2]*Northern Africa* consists of Algeria, Egypt, Libya, Morocco, Tunisia, Western Sahara, and Sudan. Sudan is also included in Sub-Saharan Africa, since population dynamics are similar to SSA. Since figures on NA excluding Sudan are not available, validity of comparison from NA and SSA figures is restricted. Without Sudan, differences between NA's and SSA's population dynamic would be even more evident.

[3]*Sub-Saharan Africa* consists of all other African countries (for an exhaustive list see Appendix), including Sudan.

[4]*Infant mortality rate (IMR):* Number of children per 1000 live births that die within their first live year (UN Population Division). IMR is measured within a five-year time frame. For comprehensibility reasons, we will only state the last year (e.g., 2010 for 2005–2010 data).

[5]*Total fertility rate (TFR):* Average number of births a woman would have based on the age-specific fertility rates of a given year (UN Population Division). FMR is measured within a five-year time frame. For comprehensibility reasons, we will only state the last year (e.g. 2010 for 2005–2010 data).

expected to further decrease to 2.03 by 2050 (cf. figure 2). Life expectancy[6] improved constantly over the last 30 years from 54.5 years in 1980 to 69.3 years in 2010 and will mount to 77.1 years in 2050 (cf. figure 3). The decreasing mortality rate combined with the high (and only recently) decreasing fertility rate has led to a high population growth. This growth is reflected in the age structure of the population in NA. In 2010, 31.3% of the population were younger than 15 years, 61.1% were between 15 and 59 years old, and only 7.5% were older than 60. By 2050, the under-15 years old will account for 20.9%, the segment of the 15 to 59 years old for 59.8%, and the over-60 years old for 19.4% of the population (cf. figure 4) (UN Population Division).

SSA, however, still has to experience this demographic transition(Bloom et al., 2002). Its IMR declined from 122 in 1980 to 85 in 2010 and is estimated to further descend to 36 in 2050 (cf. figure 1). Compared to NA, the IMR was more than twice as high in 2010, and this will also remain the case until 2050. In addition to that, SSA is the region with the world's highest fertility rate. In 2010, TFR was at 5.10, and for 2050, it is projected to be 3.16, which will still be the world's leading region in terms of population fertility (cf. figure 2). Life expectancy in SSA has been rising steadily and is projected to increase in the future. From 46.98 years in 1980, it increased to 52.51 years in 2010. In the future, this trend is expected to continue, resulting in an average life expectancy of 66.75 years in 2050 (cf. figure 3). This is low compared to NA, for which life expectancy was about 30% higher in 2010 and will still be 15% higher in 2050. Just like it is the case for NA, the population in SSA is growing strongly and thus very young. However, this effect is more pronounced in SSA, because in contrast to NA, fertility rates have not yet started to significantly decline and will remain on a higher level in the future. In 2010, 42.4% of the population of SSA were under 15, 52.7% were between 15 and 59, and 5.1% were over 60 years old. By 2050, the share of the under-15 years old will be 32.1%, the 15 to 59 years old will account for 59.6%, and 8.3% of the population will be older than 60 (cf. Figure 5) (UN Population Division).

[6] Life expectancy: Number of years an individual is expected to live at birth (UN Population Division). Life expectancy is measured within a five-year time frame. For comprehensibility reasons, we will state only the last year (e.g., 2010 for 2005–2010 data).

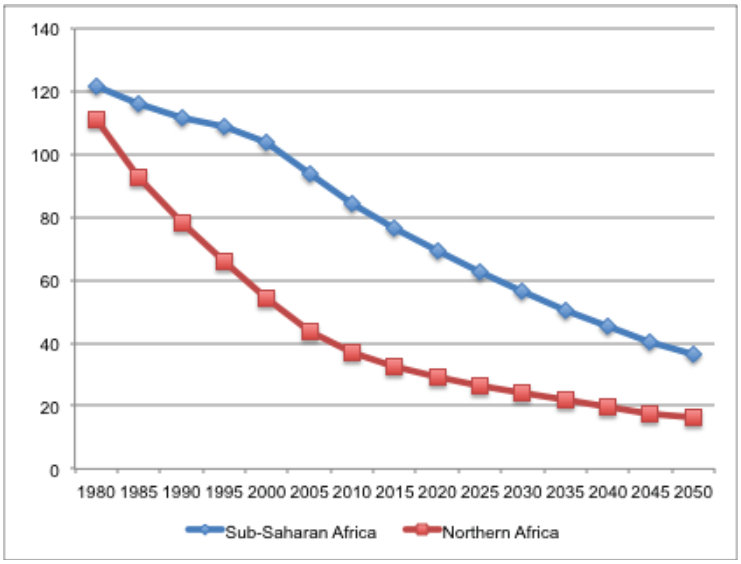


**Figure 1:** Infant Mortality Rate (per 1000 live births) for NA and SSA, 1980-2050 (own figure, based on data from UN Population Division, 2010)

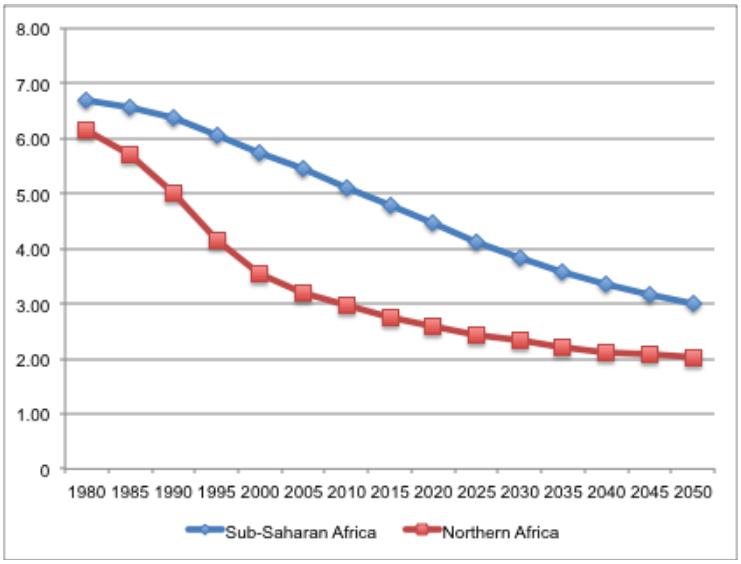


**Figure 2:** Total Fertility Rate (in number of children) for NA and SSA, 1980-2050 (own figure, based on data from UN Population Division, 2010)

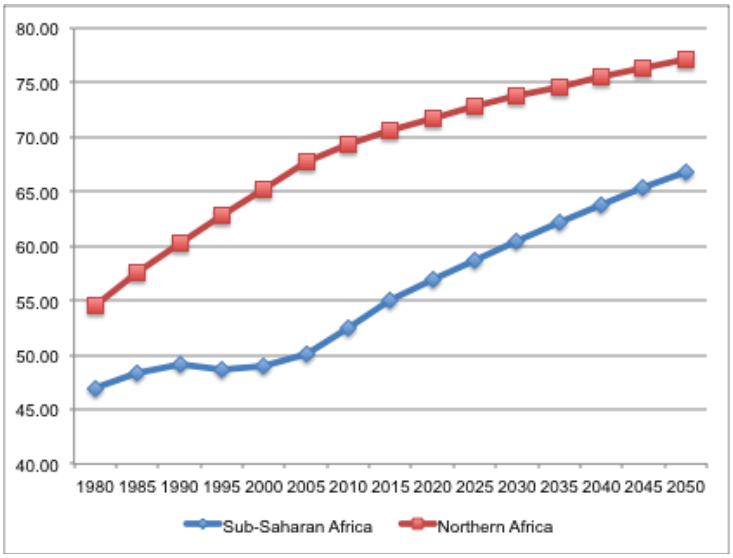


**Figure 3:** Life expectancy (in number of years) for NA and SA, 1980-2050 (own figure, based on data from UN Population Division, 2010)

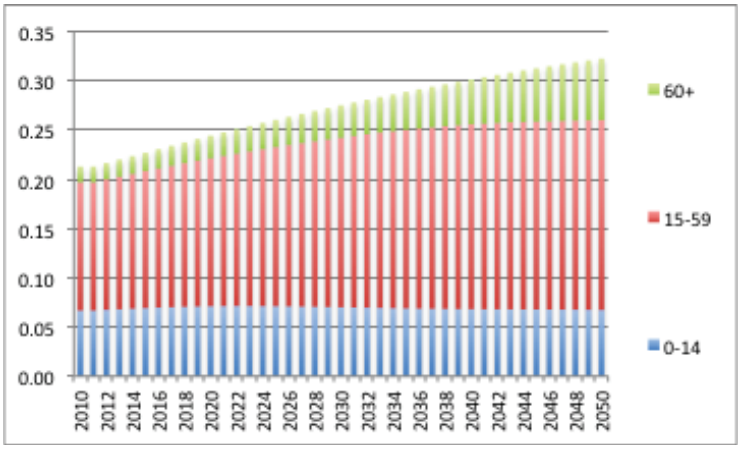


**Figure 4:** Age structure (in billion inhabitants) of NA's population, 2010-2050 (own figure, based on data from UN Population Division, 2010)

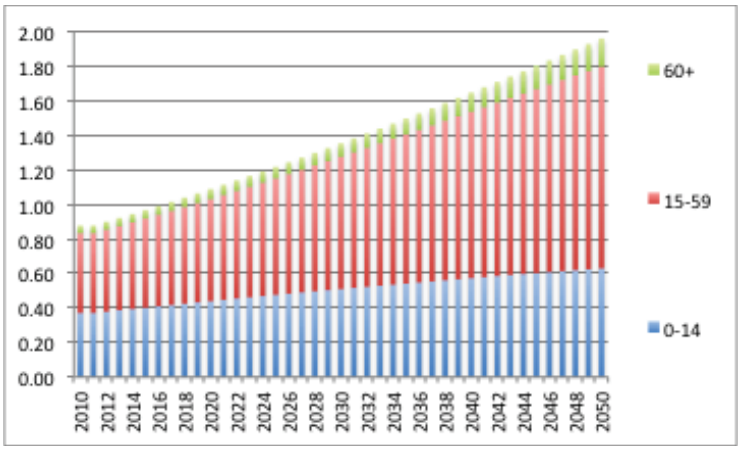


**Figure 5:** Age structure (in billion inhabitants) of SSA's population, 2010-2050 (own figure, based on data from UN Population Division, 2010)

## 6 Scope and limitations of our subsequent analysis

In our analysis, we will focus on SSA, since we see this region as the main driver of the projected doubling in Africa's population size within the next four decades. In addition to the overproportional weight of SSA in the continent's total population, population dynamics differ fundamentally between SSA and NA. This means that the population in these two regions will grow at a different pace, and as a consequence, the age structure will differ as well. In addition, political, economical, and cultural factors further differentiate SSA from NA and would thus require a separate consideration (Kirk, 2010). It is important to mention that SSA is a very heterogeneous region that consists of a multitude of countries, of which each one has its specific economical, political, and social background. However, the given scope of this study does not allow us to do a country-level analysis. Our goal is not to do a granular analysis of each country, but to analyze the trends in population development, economy, migration, family planning, education, and health from a broader and interrelated perspective to highlight the challenges SSA will be facing during the next four decades. Therefore, we will only deep-dive into the country level to highlight specific examples. However, at this point, we would like to point out South Africa, which is included in the statistics of SSA, although it is particilarly different in terms of its economic situation and development. Although South Africa's economy is the strongest in SSA, the country's weight in the total population of SSA was only 5.7% in 2010 and will decrease to 2.9% in 2050. Therefore,the demographic weight of South Africa within SSA is negligible as long as analysis are not based on economic factors (UN Population Division).

## 7 Consequences of population dynamics in SSA

The above discussed population dynamics lead to two fundamental consequences: On the one hand, SSA currently has a very young population, a so-called youth bulge in the population pyramid. On the other hand, the increased life expectancy strenghtens the ageing of the total population and creates a hitherto barely existing class of older people in SSA's population.

### *7.1 The youth bulge*

As mentioned earlier, in 2010, around 42.5% of SSA's population was less than 15 years old. By 2050, these children will enter the labor market and almost triple the size of the active workforce, which poses a major challenge for the region (cf. figure 5).

Amongst the young workforce (aged 15 to 24), unemployment is very high. Precise data, however, is scarce (Okojie, 2003). According to Garcia and Fares (2008), in 2003, more than 21% of the young workforce was unemployed. Since then, the situation for the young workers is very unlikely to have improved. Events such as the economic crisis in 2007 rather worsened the employment perspectives for young workers (Agbor, Smith, & Taiwo, 2012). The African Union (2011) sees the high unemployment rate amongst the young population as an important threat for the stability of the region in the future.

The young people who do work are mostly self-employed in the agricultural or in the informal sector, which includes jobs such as casual labor, street trading, shop assistants, or also criminal activities (Garcia & Fares, 2008). On the side of the workforce, the lack of qualification and training hinders young people from accessing more sophisticated positions. From the labor market perspective, the quality of the jobs is critical, since productive and fair remunerated jobs are rare.

Therefore, education of the youth and creation of better jobs by the economy are crucial to improve the employment situation of the young workforce in the future and to create enough jobs for the youth bulge that yet has to enter the labor market (Okojie, 2003; Garcia & Fares, 2008).

### *7.2 The ageing of the population*

In 2050, SSA's population will include a nowadays barely existing class of old people. In 2010, only around 44 million persons of the total population were older than 60. In 2050, this figure will increase to 163 million persons. Thus, the segment of the older people will be 3.7 times as large compared to 2010, while in 2050, total population is expected to only be 2.2 times the number in 2010 (cf. figure 5) (UN Population Division).

The main challenge for most of the SSA's countries is that they are not prepared for the requirements that an aging population class imposes to the public. Social security, health, and other infrastructure to support the aging population are nearly inexistent. In addition, the countries lack funds to establish the necessary provisions (Kowal & Velkoff, 2007). Traditionally, older people have been supported and taken care of by their family.

However, this system is shaking. On the one hand, as everywhere else in the world, social and economic changes affect the family structure, social ties, and obligations. On the other hand, the HIV/AIDS pandemic has been seen to have a critical impact as well. The disease does not directly concern the older people but rather their children, who are in the working age. This in turn means that the older people lose their social support when their own children die because of HIV/AIDS. Given that situation, an additional burden on the older people is that they also might have to take care of their grandchildren, who are now orphans (National Research Council, 2006).

Therefore, the situation of the elderly in SSA depends on economic factors, such as government policies and infrastructure, as well as on health issues, which mainly include the HIV/AIDS pandemic and its consequences on traditional family support.

Because of the, in relative terms, smaller importance of the absolute size of the aging population compared to the youth bulge in SSA, our subsequent analysis will mainly focus on the youth bulge.

# 8 Economy, Migration, Politics and Governance

As seen in the earlier paragraphs, the SSA regions will have to face all the consequences brought by a huge growth in population. It will be crucial that in the years to come the immense potential that lies within the youth bulge gets unleashed to trigger the economy of this battered region to reach a brighter future. This potential can be unleashed by the SSA governments with the help of local and international institutions, which will have to improve the skills of the extraordinarily large and young workforce by equipping them with tools and technology (Ward, 2012).

However, this window of demographic opportunity, also referred to as a demographic “bonus” or “dividend” and arising when a larger ratio of potential workers to nonworkers is in place, will have to be exploited as long as it is present, since it is available for just a limited period of time (Fadayomi, 2011).

In the next chapters, the study will take a close look on the regions’ expected economic development until the year 2050 and the implications that arise from the developments in the area of migration and politics.

Economic growth is heavily influenced by the demographic development (Bloom & Canning, 2001; Bloom & Williamson, 1998; Kelley & Schmidt, 1995). To demonstrate this dependence, we will compare today’s situation in SSA with the situation of the South East Asian (SEA) countries in the 1980s and 1990s. This also provides compelling

evidence on how to successfully leverage the demographic dividend, among other factors, to build up economic success (Bloom & Williamson, 1998; Mason, 2001; Mason, Merrick &Shaw, 1999).

### *8.1 Economy*

Before looking at the number of economic development in SSA, it appears relevant to identify the drivers that stand behind economic growth. Typically, economic growth can be achieved either through having more people by the production line via growth of working population or by making each individual worker more productive (Ward, 2012).
For SSA, the first driver is projected to become reality through the population dynamics highlighted in the first chapters: The decreasing fertility and child mortality rate combined with a growing life expectancy will lead to a triple of the work population by 2050 (UN Population Division, 2010). Individual productivity, the second driver, will be the more crucial factor since it is responsible for the economic development towards higher added-value activities and could therefore be the way out of poverty for SSA. Growth in the individual productivity is driven by good governance, education, and health (Ward, 2012). These factors were brought together in a study named "The World in 2050," published by the Hong Kong and Shanghai Banking Cooperation (HSBC) in January 2012 (Ward, 2012).The report analyzes the pool of the top 100 economies in the world by size in 2050 and indicates how the economic situation in SSA might look like in 2050, by forecasting the gross domestic product (GDP) based on 5 factors that address also the before mentioned factors driving individual productivity: current income per capita, rule of law[7], democracy (measured by the democracy index issued by the Economist Intelligence Unit[8]), education levels (measured by the number of years of schooling), and demographic change (measured by the growth in total population) (Ward, 2012).

[7]Issued by the World Justice Project (2010), a non for profit organization, the rule of law refers to a rules-based system in which the following four universal principles are upheld:

1. The government and its officials and agents are accountable under the law.
2. The laws are clear, publicized, stable, fair, and protect fundamental rights, including the security of persons and property.
3. The process by which the laws are enacted, administered, and enforced is accessible, fair, and efficient.
4. Access to justice is provided by competent, independent, and ethical adjudicators, attorneys, or representatives, and judicial officers who are of sufficient number have adequate resources and reflect the makeup of the communities they serve.

[8] The Democracy Index is an index compiled by the Economist Intelligence Unit (a private business) that measures the state of democracy in 167 countries. The index is based on 60 indicators grouped in five different categories: electoral process and pluralism, civil liberties, functioning of government, political participation, and political culture. The Index was first produced in 2006 (Economist Intelligence Unit, 2010).

According to the forecast, nine countries of SSA will be part of the 100 largest economies worldwide by 2050. These nine countries, namely Angola, Cameroon, Ethiopia, Ghana, Kenya, Nigeria, South Africa, Tanzania, and Uganda, which we label as the SSA Sample, will be the subjects for our further economic analysis.

Although the sample does not reflect the total SSA economy, it is a good proxy since the nine countries included are responsible for 72.69% of the total GDP of SSA and account for 59.9% of the total population of the region (World Bank, 2012).

As we can see from Figure 6, SSA's economy will grow dramatically in size, namely by 564.9% over the next 40 years. Ethiopia and Ghana will grow by more than 1000% points and Tanzania even by 1800%[9]. The SSA sample will reach an average GDP of 235 billion USD in 2050, starting with just 41.6 billion USD on average in 2010. To be able to grasp such numbers, we can confront the size of the economy of SSA with the one of the United States of America. From only 374 billion USD in 2010, the economy of these nine countries will grow to a total of 2,115 billion USD in 2050. In the same time frame, the USA will almost double the size of its economy, from 11,548 billion USD in 2010 to 20,270 billion USD in 2050. This means, that despite the dramatic growth rates, the overall size of the SSA economy will only be 10.4% of the US economy in 2050. On the other side, by 2050, the estimated SSA population of 1.96 billion people is more than four times the size of the US population of 0.40 billion people (UN Population Division, 2010).

When looking at the income per capita, we can get an idea on how much the population in SSA is earning in a year and per day. On average, a person living in SSA earned 885.2 USD per year in 2010. This ratio is expected to grow to reach 2,687.7 USD by 2050. This means that income per capita would more than triple over a 40 year time period. In average, the population of the nine SSA sample states lives with an income of approximately 2.5 USD per day (World Bank, 2012) and people from Ethiopia, Ghana, Uganda, and Tanzania even have to survive with 1 USD or less per day (cf. Appendix 12.7).

At this point, Nigeria deserves special attention. The expected population growth from approximately 158 million to 389.62 million inhabitants until 2050 will leave the country with a population slightly smaller than the one of the United States (UN Population Division, 2010). Although Nigeria's GDP will grow by 600% until 2050, the country's economy will still be far away from what is being perceived as a developed economy.

[9] An exhaustive list of growth rates per country is given in Appendix 12.5.

Nigeria's GDP will grow from 78 billion USD in 2010 to 515 billion USD in 2050. When comparing these figures again to the size of the economy of the United States, we see that Nigeria's economy will amount for 2.31% of the US economy in 2050, while having almost the same size of population.

An interesting issue is also the position of South Africa within SSA. Accounting for 50% of the region's current GDP, South Africa's importance will be reduced to 25% of total GDP until the year 2050. Nevertheless, South Africa is having by far the highest income per capita today and will still have it in 2050.

The economic outlook for SSA might look good at first: growth rates are the highest worldwide and GDP is expected to almost sextuple. However, SSA starts off from a very low level and the economy will still be underdeveloped in 2050, when compared with developed countries. Taking into consideration the projected growth of SSA's population makes us realize that the economic growth is mainly driven by the increase in workforce. This, however, does not mean in any way that the living conditions of the people in SSA will be improved. To boost the economy by taking advantage of the demographic dividend, SSA also needs to increase the productivity of its workforce by investing in education and health of the people and by providing good governance.

**The SSA economic leaugue table**

| | Size of economy (GDP) | | | Income per capita (GDP / population) | | Population | |
|---|---|---|---|---|---|---|---|
| | 2010 | 2050 | Change in rank | 2010 | 2050** | 2010 | 2050 |
| In top 100* | Bn Constant 2000 USD | Bn Constant 2000 USD | | Constant 2000 USD | Constant 2000 USD | Mn | Mn |
| 74 Angola | 24 | 134 | 1 | 1,313 | 3,170 | 19 | 42 |
| 90 Cameroon | 14 | 79 | 1 | 694 | 2,048 | 20 | 38 |
| 63 Ethiopia | 17 | 196 | 23 | 201 | 1,352 | 83 | 145 |
| 85 Ghana | 8 | 100 | 22 | 343 | 2,035 | 24 | 49 |
| 67 Kenya | 18 | 163 | 16 | 452 | 1,683 | 41 | 97 |
| 37 Nigeria | 78 | 515 | 9 | 506 | 1,325 | 158 | 390 |
| 35 South Africa | 187 | 529 | -8 | 3,710 | 9,308 | 50 | 57 |
| 53 Tanzania | 16 | 288 | 34 | 382 | 2,085 | 45 | 138 |
| 81 Uganda | 12 | 111 | 14 | 366 | 1,179 | 33 | 94 |
| **SSA Total** | **374** | **2,115** | | **7,967** | **24,183** | **473** | **1,050** |
| **SSA average** | **41.6** | **235.0** | | **885.2** | **2,687.7** | **52.6** | **116.7** |

Source: World bank, UN population projections and HSBC estimates

* this number refers to the ranking in the worlds top 100 economies according to the HSBS ranking.

**Income per capita forecasts are not the cumulative sum of the forecasts for income per capita presented later in the document. This is because the GDP created by the working population must be shared between the population as a whole, not just the working population.

**Figure 6:**SSA economy outlook (Ward, 2012)

## *8.2 Migration*

The economic situation in SSA has a certain impact on the migration patterns in the region. The next paragraphs will analyze them more into detail.

When talking about migration and Africa, the prevailing belief is that a large part of the African immigrants move to European countries or other developed countries. However, only 1.5% of all SSAs, living outside their country, live within the European Union. In fact, more than two-thirds of all migrants from SSA, approximately 16.3 million, migrate within SSA (Fischer &Vollmer, 2009).

A large chunk of migration in SSA is due to forced migration. Forced migration is defined as flight and expulsion particularly as a consequence of armed conflicts.

Therefore, it is no surprise that the region is holding approximately 20% of the world's refugee population, which is quite heavily influencing the development, stability, and security of the SSA states. This imposes great challenges to the policy makers in the region as well as for the international humanitarian institutions (Fischer & Vollmer, 2009).

As discussed in the economic analysis of SSA and its outlook for the year 2050, the region can hardly compete on an international level with other economies. This was quite impressively emphasized by the rough comparison with the US economy. The same line of argumentation can be applied when talking about more basic matters. Poverty, conflicts, and the HIV/AIDS pandemic have to be tackled immediately. These factors are not just negatively influencing the economic development of SSA but also have a severe impact on the SSA development often value-destroying migration (Adepoju, 2007).

Meanwhile, be it for international or intranational migration, the decisive driving factor always remains the location of employment and economic opportunities (Adepoju, 2007). As an example we can take landlessness. Because of a series of ecological- and production-related factors[10], it has become one of the major drivers of migration throughout SSA (Findley, Traore, Ouedraogo and Diarra, 1995).

On a final note, it appears that SSA's development would be clearly better off if the value-creating migration of the job-seeking population were to supplant the largely destructive forced migration, and this as soon as possible.

### *8.3 Politics and Governance*

When talking about politics, we can come back to the comparison we made in the introduction of this chapter, namely the relation of SSA today and SEA in the 1980s. We

[10] These factors are the following: small farm sizes, marginal ecological conditions, depleted soil, low productivity, intense population pressure, lack of access to credit, and institutional constraints.

thereby use SEA as the platform of "best practices," since it has been widely successful in taking advantage of its demographic dividend in the past.

The most striking observation resulting from this comparison is that SSA needs to reduce consumption, public and private, to generate savings that are needed for making sufficient investments in health, education, and infrastructure. Indeed, those investments are not high enough—especially in absolute terms—compared to the SEA precedent. The problem is that the population in SSA barely saves money. Africa's saving quote has been the lowest in the world, averaging about 13% in the 1990s, and it is the only major region that presents declining numbers when it comes to investment and savings per capita (Fadayomi, 2011). However, with the low GDP per capita levels of SSA, those numbers are not likely to increase anytime soon. Nonetheless, it would already be helpful if the local governments could incentivize the fraction of the population that can afford to save and invest in doing so.

Further, governments need to provide a healthy and stable environment for economies to grow. Next to principal problems of instable states, SSA faces one major governance challenge: the problem of widespread corruption. Transparency International is a civil society organization that measures corruption in 183 countries with the "Corruption Perception Index," which ranks countries on the basis of how corrupt their public sectors are perceived to be. In our research, we focused on the 2011 index. It includes different aspects of corruption, such as bribery of public officials, embezzlement of public funds, as well as the effectiveness of the public sector anticorruption efforts.

The index refers to perception of corruption, because corruption is to a large extent a hidden activity that is difficult to measure, also because countries are not voluntarily issuing corruption reports and figures. The scores of the ranking go from highly corrupt (0) to clean (10). On a global scale, the best performers are New Zealand and Denmark with scores of 9.5 and 9.4, respectively, while the countries with the highest level corruption are Somalia and North Korea, both with a score of 1.0 (Transparency International, 2011).

All of the SSA countries are certainly located toward the lower end of the scale, having an average corruption perception score of 2.9[11].

The range between the countries is quite large: on the one hand, Botswana, with a score of 6.1 and ranked 32nd cleanest country globally, or Cape Verde, with a score of 5.5 and ranked 41st, are quite clean and relatively successful in dealing with corruption. On the

[11] The full list of the corruption perception score of all SSA countries can be seen in Appendix 12.8.

other hand, SSA also consists of countries like Somalia and Sudan, with scores of 1.0 and 1.6 on the scale, respectively, thus being amongst the most corrupt countries in the world. In addition, it is interesting to look at the countries analyzed in Chapter 7.1, which will become the most important economies of the region. Nigeria and Ethiopia have a high corruption with scores of 2.4 and 2.7, respectively. South Africa is also doing quite badly, with a corruption perception score of 4.1 (Transparency International, 2011).

The scores help us see the problem that goes deep into the way of doing business and politics in the SSA region. From an economic point of view, corruption bears huge costs. Research showed that the costs of corruption in Africa are 150 bn USD per year. A large part of this cost derives from political graft, which imposes a direct financial cost on the countries. Bribes also are the biggest problem on the political level, because they affect basic institutions and undermine public trust in the government. It is in fact more reliable and effective for politicians to buy the votes instead of running an election based on successful programs and plans for the future. Furthermore, politicians are seeking to be re-elected because it gives them immunity in front of the law and they can therefore continue their game of corruption (Hanson, 2009).

A possible way out is the fact that countries are seeking more consistently for more foreign investments. This can be the trigger for governments to install better anticorruption systems and policies to tackle corruption and to raise scores in the corruption perception index issued by Transparency international. Raising the score in the corruption index has a direct effect on the GDP of a country: a one-point improvement in a country's score is correlated with a productivity increase equal to 4% of GDP. This correlation gives us an understanding of the importance of appropriate anticorruption measures such as strengthening existing institutions by allocating money to specific development activities in health and education or reducing the dependency on foreign aid, because it is encouraging accountability to donors instead of citizens (Hanson, 2009).

Fighting corruption goes certainly hand in hand with the economic development of the SSA region and will be a key factor in successfully exploiting the window of opportunity that is opened up by a favorable age structure, because it creates the stable and long-term sustainable base on which an economy can be built.

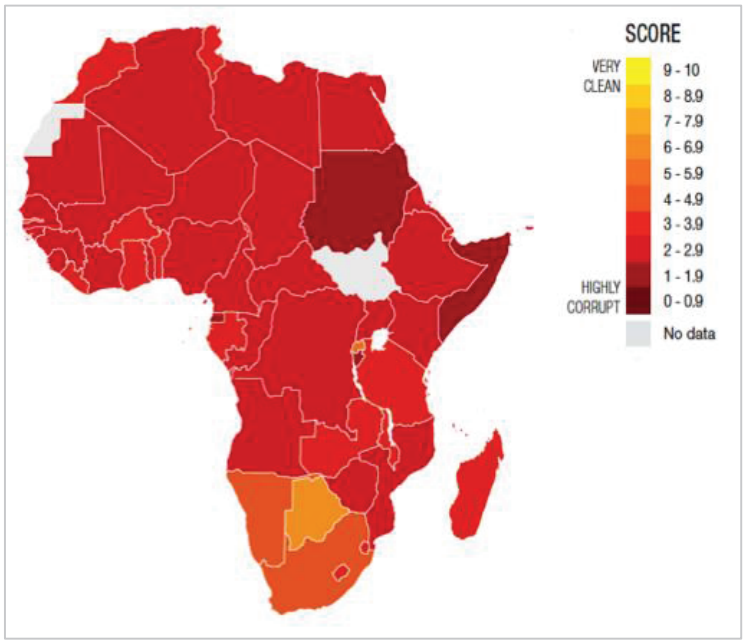


**Figure 7:**Corruption Perception Score in Africa (Transparency International, 2011)

# 9 Family Planning, Education and Health

SSA's average population growth rate has remained above 2% for the last 60 years (cf. figure8). It peaked between 1980 and 1985 at 2.82% and has been decreasing ever since with a current value slightly above 2.4% (UN Population Division). The United Nations medium-variant scenario, which forecasts a population increase in SSA from 856 million in 2010 to 1,960 million by 2050 uses a decreasing population growth rate estimation with a value of 1.68% for the period between 2045 and 2050 (UN Population Division). The demographic change that will result from the expected population growth slowdown should give SSA the opportunity to benefit from its demographic dividend, as mentioned in the section on the economy. SSA's child dependency ratio[12] of just below 80% is the world's highest at the moment (cf. figure9). It is more than three times as high as the one of Central Europe and more than 25% points greater than the second highest value worldwide, which can be found in the Arabic region (UNESCO Institute for Statistics, 2011; UN Population Division). However, it is expected to decrease to around 50% by 2050, thereby alleviating the heavy burden of dependent children on the working age population (UN Population Division). If the forces at work around the creation of the

[12]Child Dependency Ratio: Number of children below the age of 15 per 100 working age persons.

demographic dividend are well harnessed, they have the potential to increase national savings and accelerate urbanization, which could result in higher productivity and more rapid economic growth for SSA(African Development Bank, 2011).

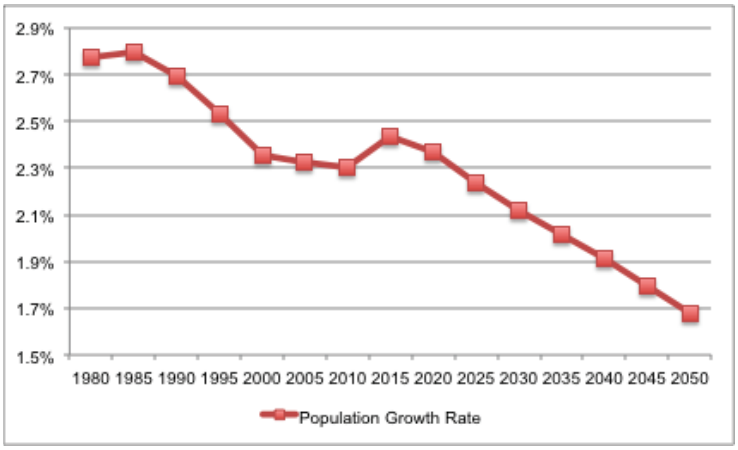


**Figure 8:** Population Growth Rate (in % of total population) of SSA, 1980-2050 (own figure, based on data from UN Population Division, 2010)

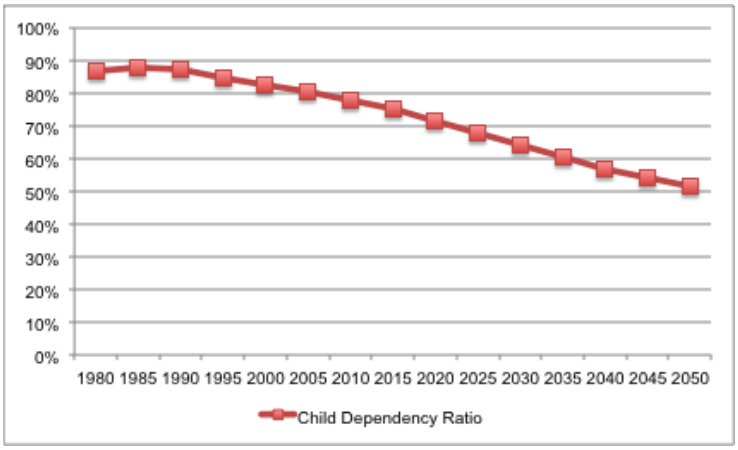


**Figure 9:** Child Dependency Rate (total children under 15yrs in % of working age population) of SSA, 1980-2050 (own figure, based on data from UN Population Division, 2010)

Nonetheless, there is one key issue with regard to the United Nations medium-variant population projections, which lies at the heart of the debate concerning the above-mentioned demographic dividend. Indeed, the United Nations forecasters are betting on a quite strong fertility decline in SSA over the next decades. This hypothesis, however, is based on the assumption that contraceptive use among married women or women in a union will rise from slightly above 20% today to a number between 60% and 80% by 2050 (Guengant & May, 2011; UN FFPS, 2010). In the meantime, the current unmet

need for family planning in SSA rests around 25% of the total married women and women in a union, according to the United Nations Fertility and Family Planning Section (UN FFPS, 2010). When adding up the 20% of women married or in a union who presently use contraceptives and the 25% who would like to but don't have access yet, the percentage of women using contraceptives strongly increases, but it doesn't reach the level accounted for in the fertility decline forecasts, which are used to predict a general population growth slowdown. From this calculation, the extent to which societal choices, local culture, and changing values will have an impact on SSA's future becomes apparent. Indeed, as long as women still want to have five children or more—as has been measured in 11 of 13 SSA countries that participated in a study published in 1998—the demographic dividend is likely to stay out of SSA's reach(Bankole & Singh, 1998). Therefore, the size of SSA's population and its standard of living depend to a certain extent on how its people will accept to adopt new choices and principles in reproductive matters (Guengant & May, 2011).

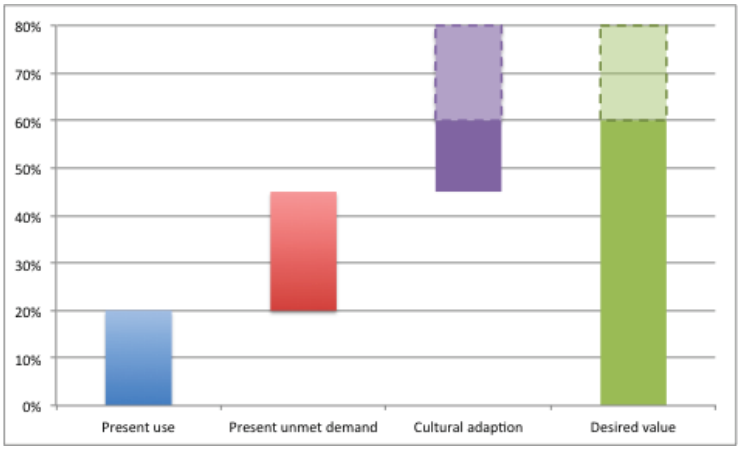


**Figure 10:** Use of contraception (in % of married women or women in a union) in SSA, 2009 (own figure, based on data from World Health Organization, 2012 and Usman, 2012)

## *9.1 Family Planning*

As discussed earlier, SSA's future is heavily dependent on the evolution of its fertility rate. According to the Worldwatch Institute, it is not the growth per se, but rather its speed that is worrisome (Sai, 2003). As a matter of fact, SSA has the fastest regional population growth rate in the world (UNESCO Institute for Statistics, 2011). To counteract the high-risk potential of that speed, the World Health Organization (WHO)

advertises family planning[13] as the main way of slowing down the unsustainable population growth and thus its negative consequences on the environment, economy, and development efforts (World Health Organization, 2012). In recent years, several organizations have been trying to increase global awareness on the importance of contraception for the world's and especially SSA's future. The Bill & Melinda Gates Foundation is one of them. During the London Summit on Family Planning that took place on July 11, 2012, they asserted that through a wider availability of contraceptives, developing countries would experience an improvement in child and maternal health, a decrease in the female school drop-out rate, a diminution of hunger and poverty, an increase in the literacy rate, and a reduction of government expenditures for public services (Usman, 2012).

In 2009, only 21.8% of married women or women in a union were using contraceptives of any kind in SSA, as opposed to 82.8% in East Asia and 72.9% in Latin America (World Health Organization, 2012). Therefore, there is a clear room for improvement on the use of contraceptives in SSA, especially with regard to the aforementioned unmet need for family planning of approximately 25% of the married women or women in a union throughout the region (cf. figure10). The fears that accompany the global increase in contraception awareness are that a top-down family planning approach may lead to an oppression of the most vulnerable. Indeed, governments that want to reach a certain population control target can be quite ruthless on their own citizens. Their actions can go as far as to endanger their population's legitimate reproductive rights, that is, through forced sterilization (Usman, 2012).

An interesting study published in Nigeria in 2010 indicates that the contraceptive prevalence rate (CPR)[14] is positively correlated with wealth and education (UNFPA, 2010). It would, therefore, be erroneous to neglect the effects of socio-economic components on women's family size desires. Education and the economic situation have an important role to play in improving the CPR and, therefore, contributing to the SSA growth rate slowdown (Usman, 2012). In addition, the WHO points out that the use of contraception by men—which have only the choice between condoms and a vasectomy—contributes only a small fraction to the total CPR. This stresses the importance of investing into the education and the social role of women within SSA as

[13]Family planning is defined by the WHO as a means through which people attain their desired family size and are able to determine the spacing of pregnancies, thanks to the use of contraceptives.

[14]The CPR is the percentage of women aged between 15 and 49 who use a method of contraception.

they are the ones who make the difference by ultimately deciding to use contraceptives or not (World Health Organization, 2012).

### *9.2 Education*

According to the literature on the topic, education is the key to unlock SSA's economic potential. Even though basic literacy is essential, it is increasingly the accessibility and the quality of primary, secondary, and tertiary education that will determine whether SSA has a role to play in the higher spheres of the global value-added production chain in the close future (African Development Bank, 2011).

In 2008, there were more than 167 million illiterate adults in SSA (UNESCO EFA, 2011). Behind that number lies hidden an impressive literacy increase from a measured 53% between 1985 and 1994 to 62% between 2005 and 2008 (UNESCO EFA, 2011). Even though the increase of the literacy rate is mainly due to women closing the gender inequality gap, there are still 104 million illiterate women versus 63 million illiterate men (UNESCO Institute for Statistics, 2011; UN Population Division). The increase of the literacy rate is encouraging. Nonetheless, its slow growth did not manage to compensate for SSA's strong population growth, thereby causing a 25% increase in the absolute number of illiterate adults in the region. There also exists an impressive discrepancy between the different SSA countries, with a literacy rate below 40% for countries such as Burkina Faso, Chad, Mali, or Somalia and above 90% for others such as Lesotho, Equatorial Guinea, or Zimbabwe (UNESCO EFA, 2011).

As seen from the present, the challenges the SSA educational systems will have to cope with during the next decades are twofold.

First of all, they are committed to reaching the Millennium Development Goal of 100% primary school enrolment by 2015, even though it appears that they are likely to fall short (UN Development Programme, 2000). In the 2000s, the growing commitment of SSA to the education of its children could be observed through an annual increase of 6.1% of education expenditures among 26 SSA countries. On average, SSA countries spend 18.3% of public resources on national education as compared to 13.1% from the USA (UNESCO Institute for Statistics, 2011; World Bank, 2012). Meanwhile, in absolute terms, the invested amounts are not comparable because of the different sizes of public expenditures. In addition, SSA's high child dependency ratio of 78 compared to the USA's 30 means that fewer adults have to fund the schooling of more children, thereby decreasing the size of the piece of an already smaller pie that goes to a single SSA child

for his education (UNESCO Institute for Statistics, 2011; UN Population Division). As additional investments are so bitterly needed, donors have been co-financing the boost in SSA education that has been measured in recent years with a contribution of just below 6% of the region's total education resources (UNESCO Institute for Statistics, 2011).

Second of all, they have to cope with the growing population in absolute terms. The number of 5- to 14-year-old children in SSA is expected to increase from 225 million in 2010 to 409 million in 2050 (UN Population Division). This immense structural pressure caused by an 82% increase of school-age children will need to be taken care of with additional equipped school facilities, qualified professors, and adequate learning material (UNESCO Institute for Statistics, 2011). The fact that besides English, French, and Portuguese, there are over 2000 living African languages that are being spoken throughout SSA constitutes another challenge as the large demand for education is strongly fragmented and brings along logistical issues. While it is known that a common instruction language constitutes a powerful nation-building tool, SSA government officials need to consider that instruction in their native language contributes to the preservation of the culture of minority groups and might contribute to the children's ease of learning (UNESCO Institute for Statistics, 2011).

With regard to primary school education, the proportion of children of primary school age who are enrolled either in primary or secondary school has increased by 31% from 1999 to 2008 to reach an average of 77% over the SSA region (UNESCO EFA, 2011). Meanwhile, the fact that the primary school completion rate in SSA was only of 70% in 2010 shows that the dropout rate is an existing problem that needs to be dealt with (World Bank, 2012). On average, only one third of the SSA children of the right age participated in secondary education in 2008 (UNESCO EFA, 2011). Also, the quality of the education seems to be at risk within 2010, an average pupil teacher ratio of 43 for SSA primary schools (World Bank, 2012). Tertiary school enrolment remained very modest at 7% for SSA in 2010, which is far below the world average of around 26%. Nonetheless, the absolute number of SSA students participating in tertiary education increased more than twofold since 1999 (World Bank, 2012; UNESCO EFA, 2011).

One of the main constraints the educational system is facing is its weak governance. It is important to make sure that all the committed funds, be they from private or public hand, reach the projects for which they have been expensed. The SSA region is expected to need an additional one million teachers between 2011 and 2015 to provide satisfying

quality of education on primary level. This represents an enormous amount of funds with which the SSA states will need to come up somehow. To do so, the UNESCO suggests focusing public spending on primary education while increasingly working with private funds on secondary and tertiary education. The latter would include higher tuition fees for households, a stronger collaboration with the industry, and loans or scholarships from private and international institutions (UNESCO Institute for Statistics, 2011). All in all, it appears that only massive investments—made possible by an over proportional growth of the SSA economy or by intervention from international institutions or private donors—can help SSA educate its children on time to seize the demographic dividend.

### *9.3 Health*

SSA accounts for one-fifth of the worlds' children, but is responsible for half of global childhood mortality (UNESCO EFA, 2011). SSA also has to fight strongly with health issues such as HIV/AIDS, tuberculosis, malaria, and malnutrition. With an average life expectancy at birth of 54 years in 2010 and a mortality rate for children under 5 years at 108.3 per 1,000 births for 2011, respectively, the world's lowest and highest numbers, SSA has many issues at hand (World Bank, 2012). As the many health issues SSA is facing could make the objective of a paper of their own and therefore exceed the scope of this one, we will focus on the HIV/AIDS problematic.

Without doubt, HIV/AIDS constitutes one of the major threats to SSA. In 2011, the number of people living with HIV was approximately 23.5 million in the region, compared to 34.2 million worldwide. Every year, approximately 1.7 million people are newly infected while 1.2 million AIDS-related deaths occur within SSA (UNAIDS, 2012). Even though the percentage of HIV-infected population between the ages of 15 and 49 in SSA dropped from 6.3% to 5.5% from 2002 to 2009, HIV/AIDS still has enormous implications for the social and economic development of the region (World Bank, 2012). The World Bank estimated in 2009 that approximately 122,000 teachers were living with HIV in SSA. For a country like Mozambique, it is approximately 10% of primary school teachers who are considered to be infected with HIV. The government AIDS-related costs due to the loss of teachers or their absenteeism because of sickness are taking unprecedented dimensions. According to the UNESCO, in Mozambique in 2005, the costs due to teacher absenteeism and an increase of teacher-training amounted for roughly USD 3.6 million out of a total education budget of approximately USD 265 million (UNESCO Institute for Statistics, 2011; World Bank, 2012). On the other side of the class room,

HIV/AIDS also creates problems in SSA with an estimated 12 million children who lost both their parents to AIDS before 2005. As orphans are less likely to attend school because of the lack of financial and family support, this constitutes another serious threat to the regional educational development (UNESCO Institute for Statistics, 2011).

The problems SSA's health system is facing are many. In 2010, McKinsey consultants published an interesting analysis looking at how it could be improved. According to them, there are three main problem areas. First, the population has an insufficient access to public institutions or NGOs to get the health care. Second, there is an acute shortage of health workers. This is due to the lack of education centers, the brain drain, and insufficient remuneration. Third and finally, there is a clear lack of funding. These three shortcomings are likely to prevent the SSA states from reaching the health-related Millennium Development Goals by 2015 (Lowell, Conway, Keesmaat, McKenna, & Richardson, 2010). As it was in the case of education, not only do the governments and other stakeholders have to find the funds to improve the situation for the existing population, but they also have to cope with its growth.

# 10 Conclusion

This study looks at the implications the extraordinary population growth will have for SSA by 2050. Especially, the forming youth bulge and the aging population represent two daunting challenges for the region. It appears that to substantially elevate the standard of living of their ever-growing population, the SSA states will have no choice but to reach for the demographic dividend, which is about to materialize, thanks to the region's increasing average life expectancy and decreasing fertility rates.

However, it is important to mention that in order for the fertility rates to decrease to the level required for the demographic dividend to occur, the use of contraceptives throughout SSA still needs to increase substantially. The use of contraceptives is positively correlated with the level of education and wealth, but is also heavily influenced by the local culture and government regulation. Once and if the demographic dividend materializes, the working-age population will have to be well-educated and healthy in order for the local economy to gain momentum and for the demographic dividend to be taken advantage of. Meanwhile, for education and health to reach the target levels necessary within the short period of time, major public investments need to be made. In addition, inefficiencies such as forced migration due to armed conflicts need to be stopped to counteract the active destruction of economic value.

An interesting aspect of the visualization of the interdependence of demographic challenges for SSA (cf. figure 11) is the observation that a change of the local culture could have a potentially game-changing positive impact on the quality of the regional governance as well as on the use of contraceptives throughout SSA. However, an evolving culture is the long-term result of heavy investments in education and a constructive dialogue between and with the autochthones. In addition, with SSA's colonial history, the idea of a proposed cultural change according to Western standards is a sensitive one to address. All in all, because of its long-term horizon and sensitivity, it seems doubtful whether this tool might contribute to successfully addressing the challenges at hand in the short and middle term.

The main issue, though, remains that even if the SSA countries' governance was not affected by inefficiencies, corruption, nepotism, and other hindering factors, their resources available at the present would most likely not suffice to make the variables needed for SSA's development to take off fall into place. Therefore, if nothing is undertaken, SSA is likely to fail to seize its demographic dividend, which would almost certainly translate into many more decades of misery and regrets for the region.

On the other hand, if the necessary investments in education, family planning, infrastructure, and health can be made with the help of international institutions, SSA's economic situation is expected to improve, which would contribute to the decrease of its fertility rate. This could then start a fructuous cycle, which would have the potential to put the demographic dividend and its promises of a better future within SSA's reach. As the opportunity window for such investments to pay off will expire soon, a sense of urgency such as the one expressed through the United Nations Millennium Development Goals seems perfectly appropriate.

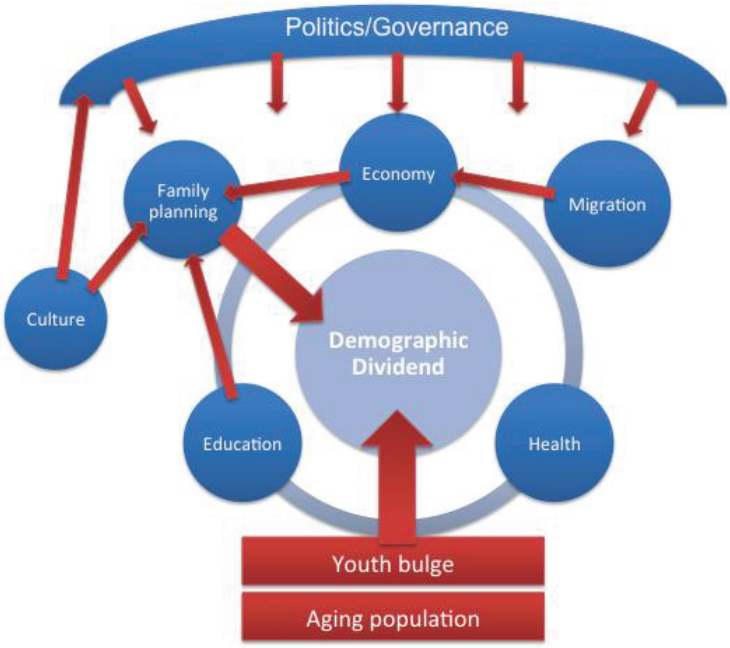


**Figure11:** Visualization of the interdependence of SSA's demographic challenges (own figure)

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# 12 Appendix

## *12.1 Country list of Northern Africa(UN Population Division, 2010)*

Algeria
Egypt
Libya
Western Sahara
Morocco
Sudan
Tunisia

## *12.2 Country list of Sub-Saharan Africa (UN Population Division, 2010)*

Angola
Benin
Botswana
Burkina Faso
Burundi
Cameroon
Cape Verde
Central African Republic
Chad
Comoros
Congo
Côte d'Ivoire
Democratic Republic of the Congo
Djibouti
Equatorial Guinea
Eritrea
Ethiopia
Gabon
Gambia
Ghana
Guinea
Guinea-Bissau
Kenya
Lesotho
Liberia
Madagascar
Malawi
Mali
Mauritania
Mauritius
Mayotte
Mozambique
Namibia
Niger
Nigeria
Réunion
Rwanda
Saint Helena
São Tomé and Príncipe
Senegal
Seychelles
Sierra Leone
Somalia
South Africa
Sudan
Swaziland
Togo
Uganda
United Republic of Tanzania
Zambia
Zimbabwe

## *12.3 SSA Constant GDP 2000 for countries and total(Ward, 2012)*

| Country | Bn Constant 2000 USD | Population in 2010 (Mn) |
|---|---|---|
| Angola | 26,1 | 19 |
| Benin | 3,3 | 8,8 |
| Botswana | 8,4 | 2,7 |
| Burkina Faso | 4,6 | 16,4 |
| Burundi | 1,1 | 8,3 |
| Cameroon | 14,0 | 19,5 |

| | | |
|---|---|---|
| Cape Verde | 0,9 | 0,4 |
| Central African Republic | 1,0 | 4,4 |
| Chad | 3,3 | 11,2 |
| Comoros | 0,3 | 0,7 |
| Congo | 5,0 | 4,04 |
| Côte d'Ivoire | 11,6 | 19,7 |
| Djibouti | no data | 0,8 |
| Equatorial Guinea | 5,9 | 0,7 |
| Eritrea | 0,7 | 5,2 |
| Ethiopia | 18,2 | 82,9 |
| Gabon | 6,3 | 1,5 |
| Gambia | 1,2 | 1,7 |
| Ghana | 8,7 | 24,3 |
| Guinea | 5,4 | 9,9 |
| Guinea-Bissau | 0,2 | 1,5 |
| Kenya | 18,9 | 40,5 |
| Lesotho | 1,0 | 2,1 |
| Liberia | 1,0 | 3,9 |
| Madagascar | 5,0 | 20,7 |
| Malawi | 2,7 | 14,9 |
| Mali | 4,1 | 15,3 |
| Mauritania | 2,1 | 3,4 |
| Mauritius | 6,6 | 1,2 |
| Mayotte | no data | 0,2 |
| Mozambique | 8,9 | 23,3 |
| Namibia | 6,1 | 2,2 |
| Niger | 2,1 | 15,5 |
| Nigeria | 85,5 | 158,4 |
| Réunion | no data | 0,8 |
| Rwanda | 3,5 | 10,6 |
| Saint Helena | no data | no data |
| São Tomé and Príncipe | no data | 0,1 |
| Senegal | 6,9 | 12,4 |
| Seychelles | 0,7 | no data |
| Sierra Leone | 1,5 | 5,8 |
| Somalia | no data | 9,3 |
| South Africa | 187,6 | 50,1 |
| Sudan | 22,8 | 43,5 |
| Swaziland | 1,9 | 1,1 |
| Togo | 1,5 | 6 |
| Uganda | 12,7 | 33,4 |
| United Republic of Tanzania | 19,9 | 44,8 |
| Zambia | 5,5 | 13 |
| Zimbabwe | 4,0 | 12,5 |
| **TOTAL** | **538,7** | **788,6** |

### *12.4 Sub-Saharan nine countries sample Constant GDP for countries and total(World Bank, 2012)*

| Nine Countries in the model | Bn Constant 2000 USD | Population in 2010 (Mn) |
|---|---|---|
| Angola | 26,1 | 19 |
| Cameroon | 14,0 | 19,5 |
| Ethiopia | 18,2 | 82,9 |
| Ghana | 8,7 | 24,3 |
| Kenya | 18,9 | 40 |
| Nigeria | 85,5 | 158,4 |
| South Africa | 187,6 | 50,1 |
| Tanzania | 19,9 | 44,8 |
| Uganda | 12,7 | 33,4 |
| **Total Model** | **391,6** | **472,4** |

### *12.5 Sub-Saharan nine countries sample GDP growth rates, 2010-2050 (Ward, 2012)*

| Nine ountries in the model | GDP growth rate |
|---|---|
| Angola | 558,3% |
| Cameroon | 564,3% |
| Ethiopia | 1152,9% |
| Ghana | 1250,0% |
| Kenya | 905,6% |
| Nigeria | 660,3% |
| South Africa | 282,9% |
| Tanzania | 1800,0% |
| Uganda | 925,0% |

### *12.6 Sub-Saharan nine countries sample population growth rates, 2010-2050 (Ward, 2012)*

| Nine ountries in the model | Population growth rate |
|---|---|
| Angola | 221,05% |
| Cameroon | 190,00% |
| Ethiopia | 174,70% |
| Ghana | 204,17% |
| Kenya | 236,59% |
| Nigeria | 246,84% |
| South Africa | 114,00% |
| Tanzania | 306,67% |
| Uganda | 284,85% |

### *12.7 Sub-Saharan nine countries sample daily USD income per capita (Ward, 2012)*

| Nine countries in the model | Daily income per capita [USD] |
|---|---|
| Angola | 3.60 |
| Cameroon | 1.90 |
| Ethiopia | 0.55 |
| Ghana | 0.94 |
| Kenya | 1.24 |
| Nigeria | 1.38 |
| South Africa | 10.1 |
| Tanzania | 1.05 |
| Uganda | 1.00 |
| **Total** | **2.43** |

### *12.8 Sub-Saharan Africa Corruption Indices and ranks by countries (Transparency International, 2011)*

| Country | Ranking | Score |
|---|---|---|
| Angola | 168 | 2.0 |
| Benin | 100 | 3.0 |
| Botswana | 32 | 6.1 |
| Burkina Faso | 100 | 3.0 |
| Burundi | 172 | 1.9 |
| Cameroon | 134 | 2.5 |
| Cape Verde | 41 | 5.5 |

| | | |
|---|---|---|
| Central African Republic | 154 | 2.2 |
| Chad | 168 | 2.0 |
| Comoros | 143 | 2.4 |
| Congo | 154 | 2.2 |
| Côte d'Ivoire | 154 | 2.2 |
| Democratic Republic of the Congo | 168 | 2.0 |
| Djibouti | 100 | 3.0 |
| Equatorial Guinea | 172 | 1.9 |
| Eritrea | 134 | 2.5 |
| Ethiopia | 120 | 2.7 |
| Gabon | 100 | 3.0 |
| Gambia | 77 | 3.5 |
| Ghana | 69 | 3.9 |
| Guinea | 164 | 2.1 |
| Guinea-Bissau | 154 | 2.2 |
| Kenya | 154 | 2.2 |
| Lesotho | 77 | 3.5 |
| Liberia | 91 | 3.2 |
| Madagascar | 100 | 3.0 |
| Malawi | 100 | 3.0 |
| Mali | 118 | 2.8 |
| Mauritania | 143 | 2.4 |
| Mauritius | 46 | 5.1 |
| Mayotte | | No data |
| Mozambique | 120 | 2.7 |
| Namibia | 57 | 4.4 |
| Niger | 134 | 2.5 |
| Nigeria | 143 | 2.4 |
| Réunion | | No data |
| Rwanda | 49 | 5.0 |
| Saint Helena | | No data |
| São Tomé and Príncipe | 100 | 3.0 |
| Senegal | 112 | 2.9 |
| Seychelles | 50 | 4.8 |
| Sierra Leone | 134 | 2.5 |
| Somalia | 182 | 1.0 |
| South Africa | 64 | 4.1 |
| Sudan | 177 | 1.6 |
| Swaziland | 95 | 3.1 |
| Togo | 143 | 2.4 |
| Uganda | 143 | 2.4 |
| United Republic of Tanzania | 100 | 3.0 |
| Zambia | 91 | 3.2 |
| Zimbabwe | 154 | 2.2 |
| **Average** | | **2.9** |

# Project Paper 5


# Demography meets Latin America

submitted by

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## Executive Summary

The aim of this article is to analyze the future demographic development of Latin America, and to contrast it with that of more developed regions, such as Western Europe and Japan. We also assess whether Latin America will be able to draw a large demographic bonus from the youth cohorts as China was able to.

Based on indexes such as HDI (human development index), GCR (global competitiveness ranking), and demographic statistics (infant & child mortality rates, total fertility rates, median age, and child and old-age dependency ratio), Latin American countries were clustered into 5 groups. Among the groups, we find very different stages of demographic transition. In addition, we find evidence of a strong correlation between economic and human development and the stage of demographic transition. Chile and Brazil are in very advanced stages, with fertility rates below replacement and already facing aging populations, whereas other countries such as Bolivia and Honduras are still facing high (for current standards) fertility and mortality rates, and a very high burden to support a large number of children.

Latin America has been very successful in reducing mortality levels. In 1950, the gap in life expectancy between Central America and more developed regions in the world was 17 years. In the past 60 years, life expectancy in the region increased by 26 years and currently, there is only a 2-year gap. Part of this is explained by dramatic reductions in child mortality. However, some countries, especially the poorest ones in the region, are still lagging behind. More impressively, Latin America was the region with the most dramatic reduction in fertility rates in the world during the past 60 years, moving from the highest rates in the 1950s and 1960s (and consequently, fastest population growth), to fertility rates close to those of developed areas and not far from replacement levels. Due to the sharp reduction in fertility rates in most Latin American countries, we expect population growth to decrease from current sluggish to negative levels in the short to medium term. Populations will age quickly, and the demographic development pattern is likely to be more similar to the one experienced these days by Western Europe than by China, despite a number of similar features in aging between some Latin American states, and between China and Japan.

Based on social, political, and institutional differences from the Chinese case, we expect Latin America to not be able to take advantage of the demographic dividend to the same extent that China was able to. There are too many barriers, such as inflexible labor markets, poor human capital development, and weak governance in the area, that prevent the region from benefiting as much as China did. Although

some countries are already almost at the end of the opportunity window, some others are still able to undertake reforms and to create a more favorable socioeconomic environment from which they could benefit.

## Introduction

In October 2011, our planet welcomed its 7th billion baby. This global milestone presents both an opportunity and a challenge. According to "The State of World Population 2011" report, the decisions and choices we make these days in response to this demographic milestone will determine what the future holds for everyone. The world's population did not reach 1 billion until 1804, and it took 123 years to hit the 2 billion mark in 1927. However, after growing very slowly for most of human history, the pace then accelerated. Over the previous century, the Earth's population has more than doubled: from 3 billion in 1959 to 6 billion in 1998 (United Nations Report 2011; R. Lee 2003). Looking ahead, the United Nations projects that the world population will reach 8 billion by 2025. This enormous population growth will put tremendous pressure on the natural resources of our planet.

According to the United Nations Department of Economic and Social Affairs (DESA) 2012 report, there has been a general trend toward a greater demographic divide, that is, the gap in birth and death rates among the world's countries has widened. On one side of this divide are mostly undeveloped countries with comparatively high birth rates and low life expectancies. On the other side are mostly wealthy countries in Europe and Japan, with birth rates so low that population decline is guaranteed and where average life expectancy extends past the age of 75 (Riley 2001). In this situation, most of the population growth in the future will happen in the less developed countries, whereas population in the developed areas will quickly age and start shrinking.

Latin America, similar to the rest of the world, has experienced a sharp decline in mortality rates followed by reduced fertility rates, which led to a high population growth. Currently, the region as a whole is experiencing a rapid deceleration in population growth, which is accompanied by population aging. However, some countries such as Brazil, Chile, and Costa Rica are already in an advanced stage of the demographic transition, whereas other countries are still in earlier phases and have more time to prepare for the challenges of an aging population.

Two features of the demographic change in Latin America are startling: (i) the speed of change, which is happening much faster than experienced in Europe and other developed areas, leading to an

accelerated transformation in population age structure; and (ii) the reduction in mortality, which has been slower and less profound than the reduction in fertility rates.

With sinking fertility rates and a smaller number of dependent children per household, the society's total dependency burden falls. Subsequently, a rising share of the population reaches the productive working years, opening up a window of opportunity for economic growth. This concept is referred to as the *demographic dividend*. Many studies (Bloom & Williamson, 1999; Cheng 2003) have confirmed that the age structure of East Asian countries, such as Japan, Korea, and, more recently, China, explains around 25% to 33% of the growth in their per-capita GDP since the 1970s. By taking advantage of the demographic dividend while populations are still young and growing, Latin America achieved higher per-capita income and boosted its living standards.

However, the demographic opportunity window for Latin America has a short time span, due to the accelerated speed of the demographic transition in most parts of the region. The number of elderly people in the region is growing quickly, and it will soon surpass children and become the main burden for working-age adults. The United Nations Development Report projects that the population of seniors in Latin America will more than double in the coming decades. In 2005, 6.3% of the total population was the elderly aged 60 years and older; by 2050, this number is expected to reach 22%. New policies should be implemented, and adjustments should be made as a response to the higher proportion of the elderly and the increase in longevity (United Nations, 2009). This topic will be discussed further in this article.

The focus of this article is on Latin America's demographic challenges and the future prospects for the region based on demographic development and the region's ability to take advantage of it. The main research question is whether Latin America will be able to extract similar economic benefits from the youth cohorts, as China was able to. Our starting point is a description of the current stage of demographic transition in Latin America. Given the size and diversity found in the region, we conduct a country-level clustering exercise, seeking patterns of convergence and divergence in terms of economic and demographic development.

In Section 1, we describe the clustering methodology used in our analysis. This is followed by Section 2, which presents the clustering results and analyzes the demographic transition in Latin America. Section 3 attempts to draw a parallel of Latin America's expected demographic development with that of developed countries. Section 4 considers the success factors of China's recent demographic and economic development and implications for Latin America, and discusses the future of the region.

## Methodology

For the purpose of describing the demographic transition in Latin America, we analyzed the region's demographic development over the past 60 years and the available projections for the future. Comparisons between Latin America and other regions of the world, including aggregate figures for developed and less developed regions, were undertaken and served as the basis for our analysis.

In order to identify shared demographic patterns of various countries across Latin America, an in-depth country-specific analysis was conducted, and established indexes were used to group the countries into clusters depending on their stages of demographic and economic development. This allowed us to further trace patterns (of convergence or divergence, if any) from a historical perspective, while they provided grounds for educated opinion for forecast and evaluation purposes.

The five main key indicators used in the clustering are as follows: (1) Human development index (HDI), (2) Global competitiveness ranking (GCR), (3) Population size, (4) Mortality and fertility rates, and (5) Population age structure (old-age, child dependency ratios, and median age). Among these measures, HDI and GCR were given higher weighting, due to the inclusive nature of their methodologies.

All the data in this article, unless explicitly mentioned, refers to the 2010 Review of the World Population Prospects, published by the Population Division of the Department of Economic and Social Affairs of the United Nations. The 20 countries in Latin America were analyzed, excluding the Caribbean Islands that represent 6.9% of the regional population and 4.6% of the Gross National Income (World Bank, 2010 data, see Exhibit A in Appendix).

### Current Stage of Demographic Transition: Country Clusters

The 20 countries in Latin America were divided into 5 clusters following the methodology presented earlier. Table 1 presents a summary of the main variables per country. As indicated in the final cluster table given next, various countries across the Latin American region have displayed patterns of demographic development in significantly different ways.

| | | Human Development Index | | Competitiveness | Population | | Mortaliy and Fertility | | Age Structure | | | Inequality | Migration |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Country | HDI Value (1) | Development Group | Global Competitiveness (2) | Population Size | Annual growth rate | Infant Mortality (3) | Fertility (4) | Child (5) | Median Age | Old Age Dep (6) | Gini Coefficient (7) | Net Migration (8) |
| Tier 1 | Chile | 0.805 | Very High | 4.65 | 17,114,000 | 0.9% | 7 | 1.83 | 51.4 | 32.1 | 15.4 | 52.1 | 0.3 |
| | Argentina | 0.797 | Very High | 3.88 | 40,412,000 | 0.9% | 12 | 2.17 | 59.4 | 30.4 | 18.9 | 44.5 | -0.5 |
| | Mexico | 0.77 | High | 4.36 | 113,423,000 | 1.1% | 14 | 2.23 | 70.6 | 26.6 | 11.6 | 48.3 | -2.4 |
| | Brazil | 0.718 | High | 4.4 | 194,946,000 | 0.8% | 19 | 1.8 | 57.3 | 29.1 | 11.9 | 54.7 | -0.2 |
| Tier 2 | Uruguay | 0.783 | High | 4.13 | 3,369,000 | 0.4% | 12 | 2.04 | 54.5 | 33.7 | 24.7 | 45.3 | -1.8 |
| | Panama | 0.768 | High | 4.49 | 3,517,000 | 1.5% | 16 | 2.41 | 67.8 | 27.3 | 11.8 | 51.9 | 0.6 |
| | Costa Rica | 0.744 | High | 4.34 | 4,659,000 | 0.9% | 9 | 1.81 | 57.5 | 28.5 | 11 | 50.7 | 2.7 |
| Tier 3 | Peru | 0.725 | High | 4.28 | 29,077,000 | 1.1% | 18 | 2.41 | 73.6 | 25.6 | 11.3 | 48.1 | -2.9 |
| | Venezuela | 0.735 | High | 3.46 | 28,980,000 | 1.5% | 15 | 2.39 | 69.9 | 26.1 | 10.1 | 44.8 | 0.3 |
| | Colombia | 0.71 | High | 4.18 | 46,295,000 | 1.3% | 17 | 2.29 | 67.9 | 26.8 | 10 | 55.9 | -0.5 |
| | Ecuador | 0.72 | High | 3.68 | 14,465,000 | 1.3% | 19 | 2.39 | 74 | 25.6 | 11.6 | 49.3 | -1.6 |
| Tier 4 | Belize | 0.699 | High | 3.87 | 312,000 | 2.0% | 16 | 2.68 | 93.6 | 21.8 | 8 | - | -0.6 |
| | Suriname | 0.68 | Medium | 3.73 | 525,000 | 0.9% | 20 | 2.27 | 61.2 | 27.6 | 11.9 | - | -1.9 |
| | Guyana | 0.633 | Medium | 3.73 | 754,000 | 0.2% | 37 | 2.19 | 85.1 | 23.8 | 8.3 | - | -9.5 |
| Tier 5 | Honduras | 0.625 | Medium | 3.94 | 7,601,000 | 2.0% | 24 | 3 | 101 | 21 | 9.1 | 57 | -1.3 |
| | Nicaragua | 0.589 | Medium | 3.78 | 5,788,000 | 1.4% | 18 | 2.5 | 92.6 | 22.1 | 9.3 | 40.5 | -4 |
| | Guatemala | 0.574 | Medium | 4.01 | 14,389,000 | 2.5% | 26 | 3.84 | 121.8 | 18.9 | 10 | 55.9 | -1 |
| | Bolivia | 0.663 | Medium | 3.8 | 9,930,000 | 1.6% | 41 | 3.23 | 96.8 | 21.7 | 9.7 | 56.3 | -3 |
| | El Salvador | 0.674 | Medium | 3.84 | 6,193,000 | 0.6% | 19 | 2.17 | 88.5 | 23.2 | 14.1 | 48.3 | -7.3 |
| | Paraguay | 0.665 | Medium | 3.67 | 6,455,000 | 1.7% | 27 | 2.86 | 86.4 | 23.1 | 10 | 52.4 | -1.2 |

**Table** 1 **– Clustering exercise results and main clustering variables**

(1) HDI: United Nations Development Program 2011–2012 report

(2) Ranks out of 144 economies and scores measured on a 1-to-7 scale

(3) Mortality under age 5, deaths per 1,000 births

(4) Total fertility: children per woman

(5) Child dependency ratio: ratio of the population aged 0–19 to the population aged 20–64
They are presented as number of dependents per 100 people of working age

(6) Old-age dependency ratio: population aged 65+ of the population aged 20–64

(7) Total dependency ratio: ratio of the population aged 0–19 and 65+ to the population aged 20–64

(8) Net migration per thousand

In Tier 1, we have **Chile, Argentina, Mexico, and Brazil.** Chile, Argentina, and Mexico are ranked consistently at the top at both HDI (life expectancy, education, and per capita income) and global competitiveness ranking. These countries have large and diverse populations, ranging from 194 million inhabitants in Brazil to 17 million in Chile. In addition, they have reached an advanced level of demographic transition with a sluggish population growth rate and population aging. In most cases, fertility rates are already below replacement level, and mortality rates are close to the developed region's figures. Due to their size and diversity, different stages of development are found within the countries, which pose additional challenges for policymakers.

Brazil, being the exception here, occupies only the 84th position in the world's HDI ranking (or 10th out of the 20 Latin American countries studied). However, it has the lowest total fertility rate in Latin America, of only 1.8 children per woman, and in some of its regions, it is as low as 1.6 (Human Development Department, 2011). Mexico also diverges from the group in terms of migration, with a large emigration outflow of -0.24% per year.

Among these 4 countries, a positive correlation has been observed between the human development level and economic performance. Chile, the Latin American success story, fueled much of its good performance with state-run welfare programs for health, education, and security. Its relatively stable political environment and return to democracy have sustained social expenditure and economic growth. As will be shown later in this article, Chile has been one of the most successful countries in the region in terms of taking advantage of the demographic dividend benefits.

In Tier 2, we have **Uruguay, Panama, and Costa Rica**. These small-sized countries have high levels of human development and are fairly competitive by Latin American standards. Similar to Tier 1, they are already in an advanced stage of the demographic transition, have below-replacement fertility rates (exception is Panama, with 2.41), and show clear signals of population aging. The main difference between the first two groups is the population size, which makes it easier for the government and societies to face the challenges imposed by the demographic transition.

Costa Rica in this category represents a country with a strong commitment to human development. With half of government expenditures devoted to health, education, and social services, it was not surprising that Costa Rica was able to ensure relatively even income distribution and achieve the best mortality rates in the region.

In Tier 3, we have **Peru, Venezuela, Colombia, and Ecuador.** Large to middle sized, with populations ranging between 46 million in Colombia and 14 million in Ecuador, these countries also have high human

development levels but lower per capita income compared with Groups 1 and 2. Population growth has already slowed, but it is still above 1% per annum in the whole Tier. In the region, with exception of Venezuela, there is a low but consistent outflow of migrants. It is noticeable that these countries have shown promising trends in terms of human development and economic development. With a steady growth rate over the years (with short-term fluctuations), the countries in Tier 2 have slowly narrowed the output gap from most developed in the region.

In Tier 4, we have **Guyana, Suriname, and Belize.** Being very small countries, with medium human development (with the exception of Belize) and lower-medium income levels, they show considerable divergence in demographic terms. Belize has a medium fertility rate (2.68 children per woman) and rather low mortality rates, leading to a 2% annual population growth rate, which is one of the highest in Latin America; whereas Guyana and Suriname have total fertility rates that are close to replacement level and face large emigration outflows. They also face noticeably higher mortality rates.

In Tier 5, we have **Honduras, Nicaragua, Guatemala, Bolivia, El Salvador, and Paraguay**. These countries lag behind in performance in all the rankings studied and are at a lower stage in their economic transition. High fertility and mortality rates (in comparison to the rest of the region) are coupled with extreme poverty.

With a young population and a high child dependency ratio, these countries face the challenge of creating employment for the vast number of young people. If the countries cannot reduce extreme poverty and the substantial level of population growth rate, which are the basic preconditions for choice in other dimensions, they will have a difficult time with developing and progressing effectively, which eventually leads to capacity building. In some of the countries, it seems that they are stuck in a poverty trap, where the vicious cycle starts as follows: Poor performance in the human development dimension leads to poor growth performance, which subsequently depresses governmental and social expenditure, further limiting the potential in human development areas. Most Central American countries fall under this category.

## Latin American Demographic History

Table 2 presents the evolution of main demographic statistics for the whole Latin America, the Caribbean region, and the world between 1950 and 1980. An extended table with data for more and less developed regions can be found in Appendix B.

Reliable demographic data for Latin America is only available starting in the 1950s; so, it is not possible to determine exactly when the region's demographic transition started. By the 1950s, however, it already presented lower mortality rates than the aggregate figure for the less developed regions in the world. The improvements in health conditions have been progressing continuously in the past 60 years and, as a consequence, mortality rates and life expectancy are converging to the levels of the developed regions.

| | World | | | Latin America and the Caribbean | | |
|---|---|---|---|---|---|---|
| | 1950 | 1980 | 2010 | 1950 | 1980 | 2010 |
| **Population** | | | | | | |
| Total population (millions) | 2,532 | 4,453 | 6,895 | 167 | 363 | 590 |
| Population density (per km2) | 19 | 33 | 51 | 8 | 18 | 29 |
| Median age (years) | 23.9 | 23.1 | 29.2 | 20.1 | 20.1 | 27.6 |
| **Dependency Ratio** | | | | | | |
| Child dependency ratio (%) | 85.7 | 92.9 | 62.6 | 108.1 | 111.6 | 66.1 |
| Old-age dependency ratio (%) | 10.1 | 12.2 | 13.4 | 7.6 | 9.9 | 12.3 |
| Total dependency ratio (%) | 95.8 | 105.1 | 76.0 | 115.7 | 121.5 | 78.4 |
| | 1950-55 | 1980-85 | 2010-15 | 1950-55 | 1980-85 | 2010-15 |
| **Population growth** | | | | | | |
| Annual rate of population change (%) | 1.8 | 1.8 | 1.1 | 2.7 | 2.1 | 1.1 |
| Population doubling time (years) | 39 | 40 | 64 | 26 | 33 | 65 |
| **Mortality** | | | | | | |
| Crude Death per 1,000 inhabitants | 18.7 | 10.1 | 8.2 | 15.6 | 7.8 | 5.9 |
| Infant mortality per 1,000 live births | 133 | 71 | 42 | 127 | 57 | 19 |
| Under five mortality rate per 1,000 live births | 203 | 105 | 60 | 189 | 74 | 24 |
| Adult mortality per 1,000 | 385 | 219 | 161 | 317 | 209 | 135 |
| Life expectancy at birth (years) | 47.7 | 62.1 | 69.3 | 51.3 | 65.2 | 74.7 |
| Male life expectancy at birth (years) | 46.7 | 59.9 | 67.1 | 49.6 | 62.1 | 71.6 |
| Female life expectancy at birth (years) | 48.7 | 64.3 | 71.6 | 53.1 | 68.4 | 77.8 |
| **Fertility** | | | | | | |
| Crude birth rate per 1,000 population | 36.9 | 27.7 | 19.2 | 42.7 | 30.7 | 17.8 |
| Total fertility (children per woman) | 4.95 | 3.59 | 2.45 | 5.86 | 3.93 | 2.16 |
| Mean age childbearing | 28.9 | 27.8 | 27.4 | 29.5 | 28.4 | 26.9 |
| **Migration** | | | | | | |
| Net number of migrants (thousands) | 0 | 0 | 0 | 80 | -3,679 | -3,655 |
| Net immigration rate (per 1,000) | 0 | 0 | 0 | 0.1 | -1.9 | -1.2 |

**Table 2 - Demographic features of Latin America, the Caribbean, and the World. Source: United Nations Department of Economics and Social Affairs / Population Division. World Population Prospects: The 2010 Revision**

These achievements were driven largely by improvements in nutrition, sanitation, and basic public health, which led to a decline in infant and child mortality rates, and also advancements in modern technology and medical progress, which brought down mortality rates in the middle aged and the elderly (Tuljapurkar, Li, & Boe 2000).

Although all countries showed considerable gains in health standards, some were able to progress faster. Countries in Tier 5, which presented the lowest life expectancy in the 1950s, of an average of 42 years (ex. Paraguay, with 63 years), progressed the most, adding an average of 28 years in the past 60 years

(see appendix C). This is in line with the trend observed in the world, with the less developed countries adding an average of 23 years, whereas the more developed regions only gained 11. Even with the convergence observed, life expectancy in Tier 5 countries is still 5 years lower than that in Tier 1 and close to the average for less developed regions. Interestingly, the more developed regions in the world had the highest improvements in child mortality, and a similar convergence pattern is not seen. A similar trend is also observed in Latin America. Chile saw a 94% decrease in child mortality, whereas Bolivia faced only 74% (see Appendix D). This provides evidence that most of the increase in life expectancy could be due to reductions in adult mortality in the poorest countries.

As a consequence of the decreasing mortality rates and still considerable high fertility rates, Latin America (especially Central America) experienced the highest population growth rates in the world between 1950 and 1970. After peaking at an annual growth rate of 2.76% in the early 1960s, population growth started declining with rapidly falling fertility rates (as depicted by Figure 1), and the region was surpassed by Africa, which was the fastest growing. Between 1950 and 2010, Latin America's population increased from 167 to 590 million inhabitants, a 3.5-fold increase; whereas the world population increased from 2.5 to 6.9 billion, which was a 2.7-fold increase.

Two countries in Latin America are an exception to the trend verified in the region. Other countries had fertility rates above 5 and in some cases reaching 7 children per woman; whereas Argentina and Uruguay's total fertility rates, defined as the number of children per woman, were, respectively, 3.15 and 2.73 (see Appendix E), which were very similar to European levels. The two countries showed the lowest decrease in fertility, which before 2010 was still above the replacement level of 2.1 children per woman.

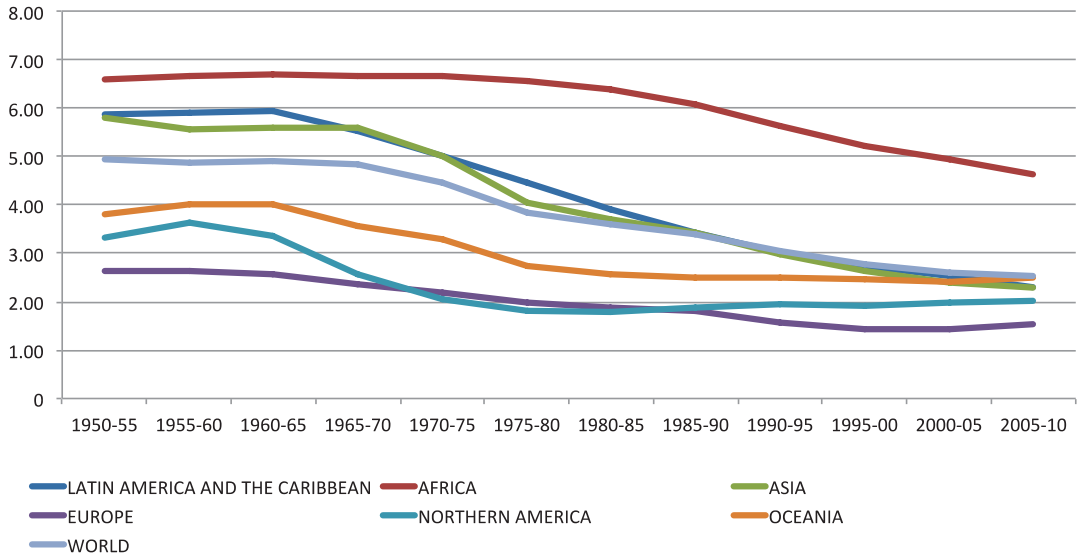


**Figure 1 – Evolution of total fertility rate per continent (children per woman)**

The steep downward trend in fertility rates in Latin America has been very similar to the one experienced in Asia, particularly in Eastern Asia. In fact, Brazil, the country that experienced the sharpest decline in fertility rates in Latin America, has seen a drop which is comparable to the one verified in China after the introduction of the "One-Child" policy, as shown in Chart 2. With the exception of South Korea, Brazil had the fastest decline from a total fertility rate of 3 to 2 per woman, within 19 years; whereas in Europe, this change took more than 60 years (Human Development Department, 2011). Currently, the fertility rates in Brazil as well as in Chile, Costa Rica, and Uruguay are below the 2.1% replacement rate needed to maintain a stable population from one generation to the next.

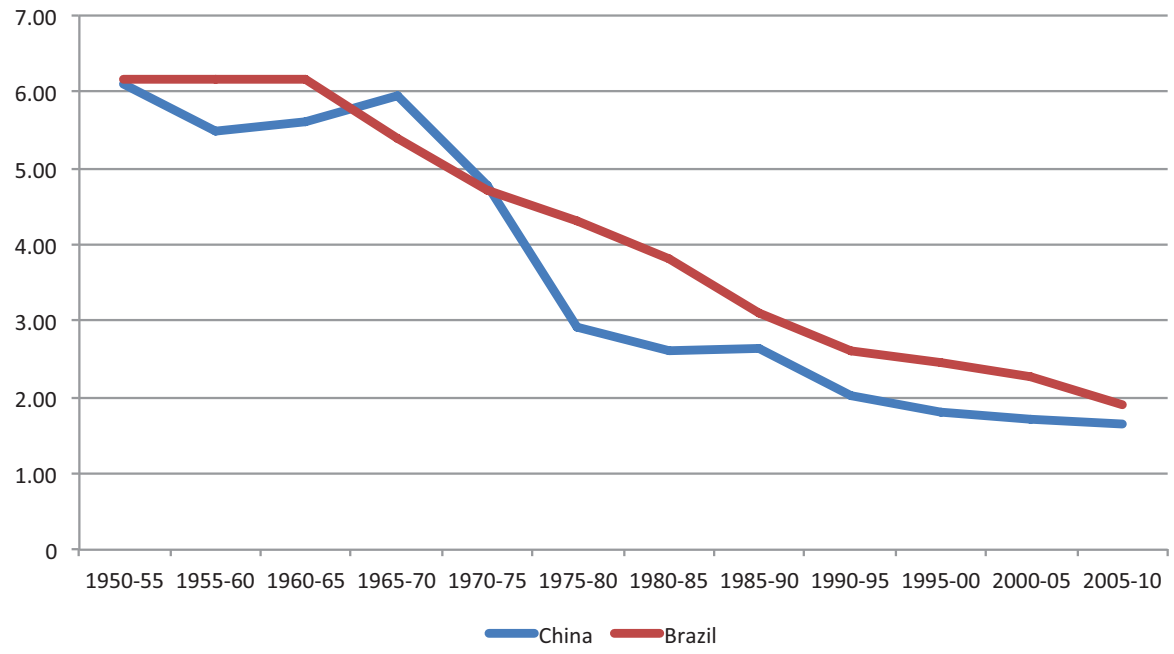


**Figure 2 - Total Fertility Rate, Brazil and China**

Brazil, as a unique case, surprises demographers in its rather uniform decline in fertility rates not only in urbanized centers, but also across Amazonian villages and the vast central farming belt. The notion of "an appealing, affluent, highflying world, whose distinguishing features include the small family" portrayed in many western films and TV shows has, nonetheless, some profound impact on individual choices (Wade, 2012).

The falling fertility rates show the effect of socioeconomic changes, which occur as a result of urbanization, rising female education, entry of women into the market economy and workforce (Doepke and Tertilt, 2009), and wider availability of effective contraception (M. Bailey, 2006). On the other hand, cultural changes that promote independent lifestyles also played a huge role in the changes in demographic situations across Latin America.

In the previous decades, women have entered the workforce at an unprecedented rate. The participation rate of women in the force was 32% in 1990; this figure increased to 53% by the end of 2008. In 2012, there will be more than 110 million women working in Latin America, a demographic change that will give women more financial independence and equip them with increased decision making autonomy. Bloom, Canning et al. (2003 and 2007) argue that the decline in fertility reduces

population growth and increases capital–labor ratio. In the meanwhile, the positive behavior response to female participation in the workforce further increases labor supply per capita.

Many development economists explained the decrease in birthrate in relation to the recent trends in urban migration. In his research, Schultz (2005) confirmed that for many rural families, children are born to help with household duties, crops, and animals. In comparison, raising children in bigger and more cosmopolitan cities creates a financial and time burden to parents (OECD, 2005). Urbanization in Latin America has increased dramatically during the twenty-first century (Cerruti & Bertoncello, 2003). Nowadays, 80% of the region's population lives in cities, making Latin America the most urbanized region of the world (UN Habitat, 2012).

With low fertility rates and low population growth, the next stage in the demographic transition is reached: Population age structure changes dramatically, with a smaller number of children to be supported by those in working age and a rising elderly population (Lee, 2003). Due to a fast drop in fertility rates, it is expected that the age structure in Latin America will change rapidly. In most countries, the population is still young but the median age has been increasing steeply. In 2010, it reached 27.6 years. Uruguay is currently the oldest country in the region, with a median age of 33.7. Its old-age dependency ratio is already 24.7, which is above the European average of 23.7. However, as mentioned earlier, the country is aging slowly, as a consequence of a longer transition period. In Brazil, median age reached 29.1 years in 2010, an increase of 9.86 years with regard to 1950 and comparable to the Europe continent, which had an increase of 10.4 years in the median age in the same period. Some countries have just entered the stage of population aging: Honduras' median age started increasing in the late 1990s and Guatemala, in the 2000s.

## Demographic patterns in Europe, China, and Japan

Many regions of the world are facing drastic long-term changes in the demographic structure of the population, mainly significant and rapid aging. States on the way to socioeconomic development follow a similar path of change in age structure. In some regions, mainly Japan and most of the Western Europe countries, the population-aging problem is especially acute. In the nearest future, China will also be affected, and, later, Latin America too, which is already facing a rapidly aging population in some of its countries.

## Japan

Today, Japan has the oldest population in the world (Takayama, 2010) and, by 2080, its population is predicted to halve. The country has the highest life expectancy in the world, which is 83 years (Yoshikawa, 2012) what in couple with very low fertility rates (now 1.32 children per woman) leads to the extremely fast aging of the population. The current old-age dependency ratio is already very high, with 35.5 elderly for every 100 people of working age, and under the medium scenario projection from the United Nations, it will increase to a staggering 70 by 2050, bringing additional stress to the financing of social security. For the sake of comparison, Germany's old-age dependency ratio is 30 at present, and it is expected to increase to 56 by 2050.

Around 70% of all social security benefits in Japan are distributed among the elderly generation. By 2025, the aggregate cost of social security is predicted to reach approximately 19% of the GDP (Takayama, 2010), with an even bigger proportion of benefits going to the older generation. This situation might lead to social unrest. The younger Japanese will have access to less benefits in terms of social security and, at the same time, will carry a higher financial burden in order to financially secure the aging population. This can seriously hamper not only the economic development of the country, but also its political stability.

## European Union

In European Union countries, a different trend in terms of demographic development is seen. For the EU as a whole, the total fertility rate is projected to rise from 1.59 in 2010 to 1.64 by 2030 and to a further 1.71 by 2060. Currently, the highest fertility rates are found in Ireland, France, Sweden, the United Kingdom, Belgium, Denmark, and Finland. However, even in these countries, the total fertility rate is projected to remain below the natural replacement rate of 2.1 until 2060. Life expectancy is also expected to rise significantly until 2060: for men, by 7.9 years, from 76.7 to 84.6; and for women, by 6.5 years, from 82.5 to 89.1 (European Economy, 2011). Inside the EU, the highest life expectancy growth is projected to happen among newest members, who currently have the lowest life expectancy.

Taking into account all development trends of EU members (including net migration), its total population is projected to rise by 5% by 2040. After this peak, the population will begin to decrease, although by 2060 the population will still be higher than that at present (European Commission, 2011). Nevertheless, there are significant differences in demographic dynamics among the countries in the EU. For example, Ireland, Luxembourg, and Cyprus expect a population growth of more than 40% by 2060; whereas Bulgaria, Latvia, Lithuania, Romania, and Germany will significantly shrink: from -27% in

Bulgaria to -19% in Germany. In most places, the population aged 15–64 will naturally decrease (except for specified ones that grow faster nowadays), whereas the cohort aged 60 years or older will increase. The number of aged 80 + people will almost triple by 2060, from 23.7 million in 2010 to 62.4 million, which, in turn, will lead to an increase in the old-age dependency ratio to 52.5% by 2060.

Germany, the leading economy of the EU, will experience the fastest deterioration in its demographic situation. Its population is already decreasing at the rate of 0.2% a year: In 2011, the number of births fell to a post-war lowest (Adomanis, 2012), and death rates are now higher than birth rates. At present, the median age in the country is 44.9 per year. In 2011, Germany had the smallest percentage of children among all the EU countries (Spiegel, 2011). Experts state that one of the reasons for such low birth rates is the lack of childcare support. The government is undertaking a number of initiatives to change the situation (Spiegel, 2011). It is clear that Germany needs net immigration in order to provide socioeconomic security and to ensure further economic development. In the future, the need for people will only increase.

## China

China, due to its time-wise one-child policy, implemented at the end of the 1970s, and a number of reforms, was able to significantly improve its economic performance. The one-child policy enabled the country to capture the “demographic dividend” and to exceptionally develop its economy, but in the nearest future, this can result in significant socioeconomic complications. At present, the country is aging rapidly: Total fertility rate equals 1.56, and in some places such as Shanghai, one of the richest Chinese cities, fertility rates were as low as 0.6 in 2010. Finally, median age in the country will be 48.7 years in 2050, compared with 34.5 at present, and the population aged 20–24 will almost halve to 63 million people (The Economist, 2012). These trends have dangerous socioeconomic implications for the country, for example, by lowering the speed of economic development and bringing problems in the provision of social benefits. The speed of demographic transformation in China is fast compared with that in other regions of the world: However, it took some European countries around 100 years for more than 65% of their population to double (e.g. France - 115 years, Sweden - 85 years); for China, it will only take 26 years (Population Reference Bureau, 2006).

In the short term, although the size of the population in China will decrease only slightly, the old age burden will increase significantly. Nevertheless, if the current trend continues, by 2060, the population will dip below 1 billion, compared with the 1.34 billion at present. Some of the large Chinese cities, such as Shanghai, will age at an unprecedented rate: It is already estimated that by 2020, one third of the

city's population will be older than 60 years (The Economist, 2012). The country still has the chance to avoid significant demographic problems by revising its demographic policy: The peak of the population will be reached only in 2026. It might be possible to solve the future problems of an asymmetric proportion of the aged to young population by shifting away from the restrictive fertility policy.

Another important feature of the future Chinese population will be a smaller fraction of women to men. This gender imbalance was caused by a number of different reasons, such as the traditional preference of boys to girls in Chinese families. This preference leads to the sex-selective abortion, which in the next 20 years will lead to a 10% to 20% excess of young men compared with young women (Science Daily, 2011). According to some studies, 119 baby boys are born for every 100 girls in China (Lim, 2008). Eventually, this imbalance will only further deteriorate the complicated demographic position of the country and, in the case that the one-child policy is maintained, it will contribute to the aging of the country.

## Latin America

It is hard to determine which region or country Latin America follows closer in its demographic development. One of the reasons is the high level of heterogeneity among the countries of the continent, which are currently at different stages of the demographic transition. Appendix F presents a summary of demographic statistics for Latin America for the year 2040, and Appendix G depicts the medium projection scenario for fertility rates among countries of the region until 2040.

Currently, the most demographically advanced countries of Latin America, Chile, Argentina, Brazil, and Uruguay are closer to European states such as Ireland, Luxembourg, and the United Kingdom, where populations are still increasing, though at a low rate (growth rates below 1% per year with the exception of Ireland). All other countries of Latin America still grow at much higher rates.

China and Japan are aging in a peculiar way and so far, no Latin American country has followed a similar pattern. It is possible that in the future, population growth will be so slow in some countries, for instance Brazil, that development trends will approximate the Japanese trend. One aspect of the demographic transition in several Latin American countries is very similar to what has been experienced in Japan and China: the speed of population aging. In Latin America, aging is taking place at a faster pace than observed in Japan and China. For example, it took 26 years for Japan to double its elderly population, and it will take the same period for China to double. For Chile, it will take 27 years (from

1998 to 2025); for Brazil, 21 years (from 2011 to 2032); and for Colombia, only 20 years (from 2017 to 2037), according to a report by the Population Reference Bureau (2006).

Based on current trends, Ireland displays the most similarities with Latin America in terms of aging. Even with a relatively high fertility of 2.1, which is the highest among all EU countries, and a still-growing population, Ireland is aging at a very fast pace (Gallagher, 2012). Currently, the Irish population's median age is 34.7 years; whereas in Latin America, it is 27.6. In 2040, the median age in Ireland is expected to increase to 40.3 years, and in Latin America, to 37.9.

Although all countries in Latin are still experiencing population growth, in the near future, populations will start shrinking. In order to secure stability and economic growth, countries need to make best use of the demographic dividend before the opportunity window closes. In the next chapter, the question of demographic dividend and how Latin American countries are able to take advantage of it will be analyzed in greater detail.

## Will Latin America capture economic benefits from the youth cohorts as China was able to?

Demographic transformation alters the balance between working-age and inactive age groups and can play a crucial role in the economic development of a country. Debates about the influence of demography on economy started at the end of the eighteenth century with the work by Thomas Malthus. In his view, the rapid increase of a population would eventually lead to starvation and death for the lack of resources of the planet. Since then, researches have proposed a number of theories on the influence of the demographics of a country on its economy and wealth. One of the most recent hypotheses links the age structure of the population to economic progress.

Global demographic trends of the twentieth century were highlighted by reductions in fertility and mortality. Significant drops in child mortality rates coupled with continued high fertility levels, one of the initial stages of demographic transformation, led to rapid population growth—the so-called "baby boom." This phenomenon happened at various points of time in different regions during the twentieth century. Some countries managed to capture significant economic benefits, whereas others did not.

The rising proportion of youth cohorts originally increases the child (and total) dependency ratio. However, with time, society moves to the next stage of demographic change, when fertility rates start

slowing down, due to a combination of improved health, lower child mortality, and higher educational levels. This period of demographic transition, when the age distribution changes, is referred to as *demographic dividend*. A reduced number of dependents (children in this case) combined with a significant surge in the workforce (when baby boomers move into working age) leads to a decrease in the number of consumers and in the necessary investments for meeting the needs of the youngest age groups. At the same time, more resources are released for investments in economic development with an increased number of producers (Ross, 2004). The situation is particularly conducive for socioeconomic development also due to more possibilities for savings and investments in economic growth.

As the youth cohorts join the workforce, the dependency ratio drops further. The young generation thus has the possibility to boost economic growth—until the old-age dependency ratio starts to increase. Economic growth accelerates because of the reduced burdens (decline in the child population ratio) and increased production capacity (increased working age population).

To take advantage of the dividend, countries need to adopt macroeconomic policies that promote investment and employment opportunities, for example, by increasing the labor market's flexibility and promoting a stable social environment for sustained development before the window of opportunity closes. Policymakers also need to encourage savings and confidence in domestic financial markets, improve health standards, and promote lower fertility rates. According to Bloom and Canning (2003), the most important mechanisms that deliver the dividend are labor supply (increase in workforce due to increased participation of women and youth cohorts), savings (boosted because of lowered dependency ratios and higher saving rates by older generations), and human capital, which is the most significant aspect in the long term (Bloom, Canning & Sevilla, 2003).

Countries have two ways of using the current benefits of the demographic dividend: They can either consume it or invest it in human capital and infrastructure, which could help in realizing the full potential of the demographic transition. Increased health standards could contribute to the prolongation of the demographic dividend, by leading to longer work lives, pushing the end of the opportunity window a few years further.

There is no generally accepted view on the duration of the dividend period, but some researchers argue that it finishes when productive age population ratio shifts from growth to decline (Oizumi, 2011). In the

case that countries are not able to capture the benefits of the youth cohorts in the future, they will face even a higher dependency burden.

## The Chinese case

One of the most compelling evidences of a successful use of the demographic dividend is the economic miracle of China. The country rapidly shifted from high to low levels of fertility and mortality. Before 1979, when the famous one-child policy was introduced, the total fertility rate was between 3 and 5 children per woman, depending on the region, in normal times. Two thirds of the country's population was under the age of 30, and the government saw the limitation on population growth as an essential factor for fighting economic stagnation and improving living standards. By 1980, only one year after the introduction of the policy, fertility had dropped to 2.2 births per woman (Bongaarts & Greenhalgh, 1985). This policy that encouraged late marriage is still in force and is supported by a strict system of social rewards and penalties.

In 1979, China also introduced an ambitious economic reform program, moving to a market-oriented system and opening the country for foreign investors. The reforms encouraged the creation of private businesses, liberalized foreign trade, decreased state control over some prices, and significantly increased investments in education and industrial development. As a result, China increased its annual growth rate from around 6% a year before 1979 to more than 13% a few years later. Demographic transformation was estimated to account for between 1/4 and 2/5 of the GDP growth since the middle of the 1970s (Hu, Khan, 1997).

In the middle of the 1990s, employment rates increased significantly due to the growing number of foreign companies seeking cheap labor in China. The under-employed population migrated to coastal and urban areas, further increasing the level of employment. Since China is still able to absorb surplus labor, it still has some years ahead until the benefit finishes, which will happen when full employment is reached (Oizumi, 2011).

Apart from capital accumulation and the availability of labor force, increased worker efficiency was a critical factor for Chinese economic development. Chinese productivity increased at an annual rate of 3.9% during 1979–1994, compared with only 1.1% during 1953–1978 (Hu, Khan, 1997). Reforms implemented by the Chinese government at the end of the 1970s created incentives for businesses, introduced investors and traders, and reduced the level of interventions of state authorities. New economic policies, entry of the first baby boomers (born in 1950–1960) into the workforce, a lower

dependency ratio, and an increase of educational quality led to exceptional economic growth and development. In 2010, China became the second-largest economy in the world after the United States in terms of purchasing power parity (CIA, World Factbook). Its population is now aging at a rapid rate, and soon, China will face an increased dependency burden. However, since there are still some years left before the demographic dividend closes, economic development is expected to continue.

## Latin America

Latin American countries experienced similar (though less dramatic) trends in their demographic development. Identified as a main beneficiary of demographic dividend along with Asia (Mason& Lee, 2004), Latin America has not managed to reach the same level of economic development or to increase the wealth of its population compared with Asian countries. Between 1950 and 1970, Latin America experienced a surge in the child dependency ratio, as a consequence of high fertility levels in previous years combined with decreasing child mortality. The peak in dependency ratio was reached in 1971, at the level of 1.5 consumers (children along with the elderly part of the population) per producer (economically active population). Since then, the ratio has significantly decreased. The bottom for the region as a whole is expected to happen in 2025 at the level of 1.2 consumers per producer (ECLAC, 2008). In the Appendix H, a figure that tracks the development of the dependency ratio for the region of Latin America and Caribbean as a whole is attached.

Between 1975 and 1995, the annual GDP per capita growth was 6.8% in East Asian countries (even higher for China), versus 0.7% in Latin America (Bloom, Canning & Sevilla, 2003). Between 1975 and 2007, living standards in East Asia (excl. Japan) increased by 85%, but by a mere 44% in Latin America (Jackson, Strauss & Howe, 2009). Although the demographic changes have been favorable for economic growth since the mid-1970s, Latin American countries have failed to capture the significant benefits of the youth cohorts, even though labor income has improved by 6% over the past decade, with the highest increase in Nicaragua, El Salvador, and Mexico (ECLAC, 2008).

Chile, one of the most successful countries in the region in terms of economic development, has been able to capture the demographic dividend to some extent. Following its market reforms in the 1980s, Chile managed to achieve steady, strong economic growth. Chile, the first and only OECD member among South American countries (second in Latin America after Mexico), has the smallest income gap with developed countries. The “Chilean miracle” happened due to a combination of wise government policies and positive demographic transformation. The country continues to liberalize its trade policies, becoming one of the world leaders in terms of free trade (Stephens, 2010). Nowadays, the country is

leading among Latin American states in factors such as competitiveness, income per capita, and level of economic freedom. The main reasons were macroeconomic changes that were implemented at the beneficial time of demographic transformation in the country (UNDP, 2008).

The main reasons that Latin American countries are falling to capture the dividend are unfavorable socioeconomic, political, and institutional environments. Many countries in the region have exhibited poor macroeconomic management and maintained restrictive labor laws, which could explain the missing opportunities. Between 1965 and 1989, the region was mainly closed for foreign investors and trade, with only 12% of the region considered as being "open," compared with the Chinese economy that has been open since the late 1970s (Bloom, Canning & Sevilla, 2003). Although many countries followed Chilean economic reform, no other country has so far managed to repeat the Chilean success.

In addition to a lack of economic development, political culture, characterized by high levels of corruption, might have hindered further advancement in economic prosperity. Poor government governance and high government debts have crowded out private savings and hindered investments—the necessary mechanism for capturing demographic dividend.

It has been estimated that after 2025, the window of demographic opportunity for the region as a whole will close with a rapid aging of the population (ECLAC, 2008). The proportion of elderly (older than 65) in the total age structure of Latin America will triple by 2050, which will significantly increase the dependency ratio in most of the countries of Latin America. If in 2005 there were 8.7 adults of the working age for each elder, in 2025, there will be 5.7 adults (and in Brazil, Mexico, and Chile – less than 3) (ECLAC, 2008).

According to the Economic Commission for Latin America and the Caribbean of the United Nations, most of the countries of Latin America, with the exception of the most demographically advanced such as Chile, Argentina, Uruguay, and Costa Rica, are still able to capture the benefits of the youth cohorts (ECLAC, 2008). The key for the governments is to invest in the young generations, to draft anti-corruption legislation, and to attract foreign investments. There are already encouraging trends in areas of education and the general socioeconomic environment. For example, schooling per child requires 40% fewer resources compared with the 1971 level (ECLAC, 2008). Significant progress has been made toward promoting universal primary education. However, in order to receive higher benefits from human capital, experts recommend that countries introduce universal secondary education, and provide easier access to higher education (Jackson, Strauss & Howe, 2009). According to Bloom and Canning, the

possible effect of the demographic dividend is especially strong during peak working years of the population—20–54 (Bloom & Canning, 2006). Looking at the age structure of the Latin American countries, the median age is in the interval between 20 and 30 years, with exceptions of Guatemala (below 20), Uruguay, Chile, and Argentina. Based on this, Latin American countries are in the middle of their potential dividend period.

Countries with the highest levels of HDI with better education levels and longer life expectancy are able to benefit the most in the nearest future, decreasing dependency ratio and significant size of the population. Among those countries are Brazil, Mexico, and Colombia. In order to benefit, most countries need to significantly increase their human capital investments and improve their social and institutional infrastructure. Brazil has the least time until the dependency ratio rises (around 2020); Mexico, around 2030; and Colombia has even more time.

Chile, Argentina, and Uruguay are already in a very advanced stage of their demographic transition, and it is unlikely that they will be able to capture any further significant demographic dividends in the future. Countries in Tier 5, such as Bolivia, Guatemala, and Paraguay, will have more time to use the dividend until approximately the year 2050, according to estimates.

Some scholars make different estimations of the lasting demographic dividend. For instance, P. M. Saad splits the dividend into three phrases. According to his research, in the first phase, the dependency ratio declines but is still on the level of above two-thirds; in the second phase, the dependency ratio is below two-thirds and continues to decrease; and in the final one, the ratio starts to increase but is still situated on the level below two-thirds. After the ratio increases to the level of above two-thirds, the dividend is finished. According to the scientist, the region as a whole is currently in the second stage of the dividend, which is the most profitable one. Saad concludes that all Latin American countries with the exception of Uruguay have time to use the dividend in the future and that the total time during which the dividend is (was) open is different for each state. Saad makes an interesting but disputable statement, according to which Brazil has less time ahead than Chile to use the dividend and Argentina has more time than both these countries (Saad, 2011).

During recent years, the region has significantly increased its openness to trade. If governments are able to create a secure institutional framework and to facilitate business legislation, the amount of foreign investments in the countries will increase. In general, the benefits of demographic dividend can still be realized for most of the countries if policymakers take appropriate actions. In case policymakers do not

adapt their policy, at best, countries will miss an opportunity to seize high economic growth and at worst, the increase in the working-age population will not be matched by increased job opportunities, leading to social problems such as a higher crime level, widening income inequality, and potential political instability.

In recent years, one sees an improvement of the situation in the region with acceleration of economic growth, inflation under control, and a dramatic reduction in the proportion of the population living below the poverty line: almost 1/4 between 2003 and 2007 (Jackson, Strauss & Howe, 2009). However, countries still have structural issues, such as a burdensome business regulatory framework, punitive tax policies, overregulated labor markets, and underinvestment in human capital. All these factors put the future prosperity and competitiveness of the region at risk.

To summarize, even in the most optimistic scenario, it seems implausible that Latin American countries will be able to capture similar benefits from youth cohorts as China did because of the different socioeconomic and institutional environment, as well as culture, initial population size, and political systems. Institutionally and economically strong countries will not have many years before the old-age dependency ratio increases; whereas the least developed countries, which still have medium levels of fertility, seem to be incapable of repeating China's feat.

We conclude that most countries, especially countries from the first Tier, will not have enough time to adopt the reforms and to develop the necessary infrastructure before the window of opportunity closes. Although we remain positive that favorable macroeconomic policies might be implemented and that the region should be able to extract some benefits from the demographic bonus, it is very unlikely that the benefits will be as large as in China.

## Discussion and Conclusion

The purpose of this article was to analyze the past and to predict the future demographic development of Latin America, by comparing it with more developed regions, such as Western Europe and Japan, and to assess whether Latin America will be able to draw large economic benefits from the demographic dividend provided by youth cohorts as China was able to.

To gain a better understanding of the current demographic situation in the region, a clustering exercise was conducted. Based on indexes such as HDI, CGR, and demographic statistics (infants & under 5

mortality rates, total fertility rates, median age, and child and old-age dependency ratio), Latin American countries were clustered into 5 groups.

The analyses of the demographic history of the region showed that all countries are going through the demographic transition, but that different stages of development are found within the region. We find evidence that the region has been very successful in reducing the life expectancy gap to the more developed regions in the world, although some countries are lagging behind. More impressively, Latin America was the region with the most drastic reduction in fertility rates in the past 60 years, going from the highest rates in the 1950s and 1960s (and consequently, fastest population growth), to fertility rates close to developed areas and not far from replacement levels.

In the clusters, we found evidence of a strong correlation between economic and human development and stages of demographic transition. Countries such as Chile, Brazil, and Costa Rica are undergoing a very fast demographic transformation, which is much faster than most European countries experienced. Other countries, such as Bolivia and Honduras, are currently closer to the averages of less developed areas.

In terms of future demographic development, we expect most countries in Latin America to display similar paths as a number of European states. Even countries that currently have considerable population growth will soon see shrinking populations. Although some parallels can be drawn between certain countries of Latin America and China, especially regarding the pace of the transformation, Latin American countries will unlikely face certain problems faced by an East Asian country, such as an overrepresentation of the male gender due to gender-selective abortions. At the same time, remarkable speed of aging is an important feature with which so far only China and Japan were confronted—and will be likely confronted by many Latin American countries in the near future.

Finally, we analyzed the demographic dividend and the impact on Chinese growth over the previous decades, seeking to identify factors that enabled a country to benefit from it. Based on social, political, and institutional differences from the Chinese case, we expect Latin America to not be able to take advantage of the young cohorts, as China was able to. Although some countries are already almost at the end of the opportunity window, some other countries are still able to undertake reforms and to create a more favorable socioeconomic environment from which they could benefit. So, there is still hope for future generations that the region will be able to grasp economic benefits from demographics before it starts facing the burden of a growing elderly population.

For future research, a more detailed country-specific analysis could be conducted, for example, exploring the factors that enabled Chile to take advantage of the demographic dividend so far. Additional studies can be conducted to analyze patterns of divergence in the demographic development between very similar countries, as identified in our cluster analysis.

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# Appendix A – Countries in the Caribbean

**Table 3 – Countries in the Caribbean that were excluded from the main analysis.**

| Caribbean countries | Population | GNI |
|---|---|---|
| Antigua and Barbuda | 0.1 | 1.1 |
| Aruba | 0.1 | - |
| the Bahamas | 0.3 | 7.4 |
| Barbados | 0.3 | 3.5 |
| Caymen Islands | 0.1 | - |
| Cuba | 11.3 | 56.9 |
| Dominica | 0.1 | 0.5 |
| Dominica Republlic | 9.9 | 49.8 |
| Grenada | 0.1 | 0.7 |
| Haita | 10 | 6.7 |
| Jamaica | 2.7 | 13.3 |
| Puerto Rico | 3.7 | 63.3 |
| St kitts and Nevis | 0.1 | 0.6 |
| St Lucia | 0.2 | 1.2 |
| Trinidad and Tobago | 1.3 | 19.9 |
| Caribbean total | 40.3 | 224.9 |
| Latin America and Caribbean total | 582.5 | 4933.1 |
| % of Latin America | 6.9% | 4.6% |

# Appendix B – Demographic statistics

**Table 4 - Demographic features of Latin America and the Caribbean and more and less developed regions in the world. Source: United Nations Department of Economics and Social Affairs / Population Division. World Population Prospects: The 2010 Revision**

| | Latin America and the Caribbean | | | More developed regions | | | Less developed regions | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1950 | 1980 | 2010 | 1950 | 1980 | 2010 | 1950 | 1980 | 2010 |
| **Population** | | | | | | | | | |
| Total population (millions) | 167 | 363 | 590 | 811 | 1,081 | 1,235 | 1,721 | 3,372 | 5,660 |
| Population density (per km2) | 8 | 18 | 29 | 15 | 20 | 23 | 21 | 41 | 68 |
| Median age (years) | 20.1 | 20.1 | 27.6 | 29 | 32 | 39.7 | 21.5 | 20.2 | 25.5 |
| **Dependency Ratio** | | | | | | | | | |
| Child dependency ratio (%) | 108.1 | 111.6 | 66.1 | 63.2 | 53.5 | 36.6 | 98.0 | 108.7 | 68.9 |
| Old-age dependency ratio (%) | 7.6 | 9.9 | 12.3 | 14.0 | 20.3 | 25.9 | 9.0 | 9.0 | 10.4 |
| Total dependency ratio (%) | 115.7 | 121.5 | 78.4 | 77.2 | 73.8 | 62.5 | 107.0 | 117.7 | 79.3 |
| | 1950-55 | 1980-85 | 2010-15 | 1950-55 | 1980-85 | 2010-15 | 1950-55 | 1980-85 | 2010-15 |
| **Population growth** | | | | | | | | | |
| Annual rate of population change (%) | 2.7 | 2.1 | 1.1 | 1.2 | 0.6 | 0.3 | 2.1 | 2.1 | 1.3 |
| Population doubling time (years) | 26 | 33 | 65 | 57 | 120 | - | 33 | 33 | 55 |
| **Mortality** | | | | | | | | | |
| Crude Death per 1,000 inhabitants | 15.6 | 7.8 | 5.9 | 10.3 | 9.7 | 10.2 | 22.6 | 10.2 | 7.8 |
| Infant mortality per 1,000 live births | 127 | 57 | 19 | 60 | 15 | 6 | 151 | 79 | 46 |
| Under five mortality rate per 1,000 live births | 189 | 74 | 24 | 69 | 18 | 8 | 235 | 117 | 66 |
| Adult mortality per 1,000 | 317 | 209 | 135 | 190 | 150 | 114 | 472 | 247 | 172 |
| Life expectancy at birth (years) | 51.3 | 65.2 | 74.7 | 65.9 | 72.9 | 78 | 42.3 | 59.5 | 67.5 |
| Male life expectancy at birth (years) | 49.6 | 62.1 | 71.6 | 63.4 | 69.1 | 74.6 | 41.9 | 58 | 65.6 |
| Female life expectancy at birth (years) | 53.1 | 68.4 | 77.8 | 68.4 | 76.6 | 81.3 | 42.7 | 61.1 | 69.4 |
| **Fertility** | | | | | | | | | |
| Crude birth rate per 1,000 population | 42.7 | 30.7 | 17.8 | 22.4 | 14.5 | 11.4 | 43.5 | 31.8 | 20.8 |
| Total fertility (children per woman) | 5.86 | 3.93 | 2.16 | 2.81 | 1.85 | 1.71 | 6.07 | 4.16 | 2.57 |
| Mean age childbearing | 29.5 | 28.4 | 26.9 | 27.4 | 26.8 | 29.3 | 29.5 | 28.1 | 27.3 |
| **Migration** | | | | | | | | | |
| Net number of migrants (thousands) | 80 | -3,679 | -3,655 | 315 | 5,643 | 12,521 | -315 | -5,643 | -12,521 |
| Net immigration rate (per 1,000) | 0.1 | -1.9 | -1.2 | 0.1 | 1 | 2 | 0 | -0.3 | -0.4 |

## Appendix C – Gains in life expectancy at birth (both sexes) since 1960

| | Country | 1950 | 2010 | Gain |
|---|---|---|---|---|
| Tier 1 | Mexico | 50.7 | 76.2 | 25.5 |
| | Chile | 54.8 | 78.6 | 23.8 |
| | Brazil | 50.9 | 72.2 | 21.3 |
| | Argentina | 62.5 | 75.3 | 12.8 |
| Tier 2 | Costa Rica | 57.3 | 78.9 | 21.6 |
| | Panama | 55.5 | 75.5 | 20.0 |
| | Uruguay | 66.0 | 76.4 | 10.3 |
| Tier 3 | Peru | 43.8 | 73.2 | 29.4 |
| | Ecuador | 48.4 | 75.0 | 26.7 |
| | Colombia | 50.6 | 72.9 | 22.3 |
| | Venezuela | 54.3 | 73.7 | 19.4 |
| Tier 4 | Guyana | 49.2 | 68.7 | 19.5 |
| | Belize | 57.2 | 75.3 | 18.2 |
| | Suriname | 56.0 | 69.6 | 13.7 |
| Tier 5 | Honduras | 41.6 | 72.1 | 30.5 |
| | Nicaragua | 42.0 | 73.0 | 31.0 |
| | Guatemala | 42.5 | 70.3 | 27.7 |
| | Bolivia | 40.4 | 65.6 | 25.1 |
| | El Salvador | 45.1 | 71.4 | 26.4 |
| | Paraguay | 62.6 | 71.7 | 9.1 |
| Benchmarks | Central America | 49.1 | 75.2 | 26.1 |
| | Less developed regions | 42.3 | 66.0 | 23.7 |
| | South America | 52.0 | 73.0 | 21.0 |
| | World | 47.7 | 67.9 | 20.2 |
| | More developed regions | 65.9 | 76.9 | 11.0 |

Figure 3 Life expectancy at birth (both sexes): gains between 1950 and 2010

## Appendix D – Improvements in infant mortality since 1960

| Country | 1950-55 | 1955-60 | 1960-65 | 1965-70 | 1970-75 | 1975-80 | 1980-85 | 1985-90 | 1990-95 | 1995-00 | 2000-05 | 2005-10 | Reduction in the period |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chile | 120 | 118 | 109 | 89 | 69 | 45 | 24 | 18 | 14 | 11 | 8 | 7 | 94% |
| Costa Rica | 94 | 88 | 81 | 68 | 53 | 30 | 19 | 17 | 15 | 12 | 10 | 10 | 89% |
| Nicaragua | 180 | 155 | 133 | 114 | 98 | 90 | 80 | 65 | 48 | 34 | 26 | 21 | 88% |
| Peru | 164 | 152 | 138 | 128 | 111 | 99 | 82 | 68 | 48 | 39 | 30 | 21 | 87% |
| French Guiana | 103 | 89 | 73 | 51 | 46 | 43 | 32 | 26 | 21 | 17 | 15 | 14 | 86% |
| Mexico | 122 | 102 | 88 | 79 | 69 | 57 | 47 | 40 | 33 | 28 | 21 | 17 | 86% |
| El Salvador | 151 | 137 | 123 | 110 | 105 | 95 | 77 | 54 | 40 | 32 | 26 | 22 | 86% |
| Ecuador | 140 | 129 | 119 | 107 | 95 | 82 | 68 | 56 | 44 | 33 | 25 | 21 | 85% |
| Colombia | 123 | 105 | 92 | 82 | 73 | 57 | 43 | 35 | 28 | 24 | 20 | 19 | 85% |
| Venezuela | 107 | 89 | 73 | 60 | 49 | 39 | 34 | 27 | 23 | 21 | 19 | 17 | 84% |
| Honduras | 176 | 158 | 138 | 120 | 104 | 81 | 65 | 53 | 43 | 35 | 32 | 28 | 84% |
| Brazil | 135 | 122 | 109 | 100 | 91 | 79 | 63 | 52 | 43 | 34 | 27 | 23 | 83% |
| Panama | 93 | 75 | 63 | 52 | 44 | 36 | 32 | 30 | 27 | 24 | 21 | 18 | 80% |
| Belize | 88 | 78 | 69 | 60 | 52 | 45 | 34 | 31 | 30 | 25 | 20 | 17 | 80% |
| Argentina | 66 | 60 | 60 | 57 | 48 | 39 | 32 | 27 | 24 | 22 | 15 | 13 | 80% |
| Guatemala | 141 | 134 | 127 | 115 | 102 | 91 | 79 | 67 | 55 | 46 | 39 | 30 | 79% |
| Uruguay | 57 | 53 | 48 | 47 | 46 | 42 | 33 | 23 | 20 | 16 | 14 | 13 | 77% |
| Suriname | 89 | 76 | 63 | 55 | 49 | 44 | 42 | 39 | 34 | 29 | 24 | 22 | 76% |
| Bolivia | 176 | 170 | 164 | 157 | 151 | 131 | 109 | 90 | 75 | 67 | 56 | 46 | 74% |
| Guyana | 118 | 107 | 98 | 92 | 83 | 77 | 73 | 68 | 63 | 56 | 49 | 42 | 65% |
| Paraguay | 73 | 70 | 62 | 59 | 53 | 51 | 49 | 47 | 43 | 39 | 36 | 32 | 56% |
| Central America | 129 | 110 | 96 | 86 | 75 | 64 | 53 | 44 | 36 | 30 | 24 | 19 | 85% |
| South America | 127 | 115 | 104 | 94 | 84 | 71 | 57 | 47 | 38 | 31 | 25 | 21 | 83% |
| World | 133 | 122 | 114 | 94 | 86 | 80 | 71 | 64 | 60 | 56 | 51 | 46 | 66% |
| More developed regions | 60 | 43 | 33 | 26 | 22 | 18 | 15 | 13 | 11 | 9 | 7 | 6 | 89% |
| Less developed regions | 151 | 140 | 130 | 105 | 96 | 89 | 79 | 71 | 66 | 62 | 56 | 50 | 67% |

**Figure 4 – Infant mortality rate (1q0) per 1,000 live births for the Latin American region. Countries are ranked based on the reduction achieved in the past 60 years.**

## Appendix E – Fertility Rates in Latin America

| Country | 1950-55 | 1955-60 | 1960-65 | 1965-70 | 1970-75 | 1975-80 | 1980-85 | 1985-90 | 1990-95 | 1995-00 | 2000-05 | 2005-10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Uruguay | 2.73 | 2.83 | 2.90 | 2.80 | 3.00 | 2.89 | 2.57 | 2.53 | 2.49 | 2.30 | 2.20 | 2.12 |
| Argentina | 3.15 | 3.13 | 3.09 | 3.05 | 3.15 | 3.44 | 3.15 | 3.05 | 2.90 | 2.63 | 2.35 | 2.25 |
| French Guiana | 5.00 | 4.92 | 5.02 | 5.00 | 4.18 | 3.30 | 3.58 | 3.73 | 4.05 | 3.93 | 3.68 | 3.27 |
| Guatemala | 7.00 | 6.60 | 6.50 | 6.30 | 6.20 | 6.20 | 6.10 | 5.70 | 5.45 | 5.00 | 4.60 | 4.15 |
| Bolivia | 6.75 | 6.75 | 6.63 | 6.56 | 6.50 | 5.80 | 5.30 | 5.00 | 4.80 | 4.32 | 3.96 | 3.50 |
| Paraguay | 6.50 | 6.50 | 6.45 | 6.15 | 5.35 | 5.20 | 5.20 | 4.77 | 4.31 | 3.88 | 3.48 | 3.08 |
| Panama | 5.68 | 5.89 | 5.92 | 5.62 | 4.94 | 4.05 | 3.52 | 3.20 | 2.87 | 2.79 | 2.70 | 2.56 |
| Belize | 6.65 | 6.55 | 6.45 | 6.35 | 6.25 | 6.20 | 5.40 | 4.70 | 4.35 | 3.85 | 3.35 | 2.94 |
| Honduras | 7.50 | 7.50 | 7.42 | 7.42 | 7.05 | 6.60 | 6.00 | 5.37 | 4.92 | 4.30 | 3.72 | 3.31 |
| Venezuela | 6.46 | 6.46 | 6.66 | 5.90 | 4.94 | 4.47 | 3.96 | 3.65 | 3.25 | 2.94 | 2.72 | 2.55 |
| Ecuador | 6.70 | 6.70 | 6.70 | 6.50 | 6.00 | 5.40 | 4.70 | 4.00 | 3.40 | 3.10 | 2.82 | 2.58 |
| Chile | 4.95 | 5.49 | 5.44 | 4.44 | 3.63 | 2.80 | 2.67 | 2.65 | 2.55 | 2.21 | 2.00 | 1.90 |
| Nicaragua | 7.20 | 7.50 | 7.10 | 6.95 | 6.79 | 6.35 | 5.85 | 5.00 | 4.50 | 3.60 | 3.00 | 2.76 |
| Peru | 6.85 | 6.85 | 6.85 | 6.56 | 6.00 | 5.38 | 4.65 | 4.10 | 3.57 | 3.10 | 2.80 | 2.60 |
| El Salvador | 6.30 | 6.60 | 6.76 | 6.43 | 5.95 | 5.46 | 4.80 | 4.20 | 3.73 | 3.30 | 2.60 | 2.35 |
| Suriname | 6.56 | 6.56 | 6.56 | 5.95 | 5.29 | 4.20 | 3.70 | 3.00 | 2.60 | 2.80 | 2.60 | 2.42 |
| Colombia | 6.76 | 6.76 | 6.76 | 6.18 | 5.00 | 4.34 | 3.68 | 3.24 | 3.00 | 2.75 | 2.55 | 2.45 |
| Mexico | 6.70 | 6.80 | 6.75 | 6.75 | 6.50 | 5.25 | 4.25 | 3.63 | 3.19 | 2.67 | 2.55 | 2.41 |
| Guyana | 6.68 | 6.77 | 6.15 | 6.11 | 4.90 | 3.94 | 3.26 | 2.70 | 2.55 | 2.50 | 2.43 | 2.33 |
| Brazil | 6.15 | 6.15 | 6.15 | 5.38 | 4.72 | 4.31 | 3.80 | 3.10 | 2.60 | 2.45 | 2.25 | 1.90 |
| Costa Rica | 6.72 | 7.11 | 7.23 | 5.80 | 4.35 | 3.78 | 3.53 | 3.37 | 2.95 | 2.58 | 2.25 | 1.92 |
| Central America | 6.73 | 6.81 | 6.76 | 6.68 | 6.38 | 5.36 | 4.50 | 3.90 | 3.47 | 2.96 | 2.77 | 2.60 |
| South America | 5.67 | 5.72 | 5.75 | 5.21 | 4.64 | 4.26 | 3.79 | 3.28 | 2.88 | 2.65 | 2.43 | 2.18 |
| World | 4.95 | 4.89 | 4.91 | 4.85 | 4.45 | 3.84 | 3.59 | 3.39 | 3.04 | 2.79 | 2.62 | 2.52 |
| More developed regions | 2.81 | 2.78 | 2.66 | 2.36 | 2.16 | 1.93 | 1.85 | 1.81 | 1.66 | 1.56 | 1.58 | 1.66 |
| Less developed regions | 6.07 | 5.94 | 5.97 | 5.94 | 5.37 | 4.54 | 4.16 | 3.85 | 3.39 | 3.06 | 2.82 | 2.68 |

**Figure 5 – Fertility rates in Latin America, from 1950 until 2010. Countries are ranked based on reduction observed in the period, from lowest to highest.**

# Appendix F- Expected demographic development in Latin America

**Table 5 - Selected demographic statistics for Latin America and the Caribbean. The figures in 2040 are based on the medium scenario projections**

| | Latin America and the Caribbean | | |
|---|---|---|---|
| | **1980** | **2010** | **2040** |
| **Population** | | | |
| Total population (millions) | 363 | 590 | 735 |
| Population density (per km2) | 18 | 29 | 36 |
| Median age (years) | 20.1 | 27.6 | 37.9 |
| **Dependency Ratio** | | | |
| Child dependency ratio (%) | 111.6 | 66.1 | 43.2 |
| Old-age dependency ratio (%) | 9.9 | 12.3 | 26.3 |
| Total dependency ratio (%) | 121.5 | 78.4 | 69.5 |
| | **1980-85** | **2010-15** | **2040-05** |
| **Population growth** | | | |
| Annual rate of population change (%) | 2.1 | 1.1 | 0.3 |
| Population doubling time (years) | 33 | 65 | - |
| **Mortality** | | | |
| Life expectancy at birth (years) | 65.2 | 74.7 | 79.3 |
| **Fertility** | | | |
| Total fertility (children per woman) | 3.93 | 2.16 | 1.79 |
| **Migration** | | | |
| Net number of migrants (thousands) | -3,679 | -3,655 | -2,180 |
| Net immigration rate (per 1,000) | -1.9 | -1.2 | -0.6 |

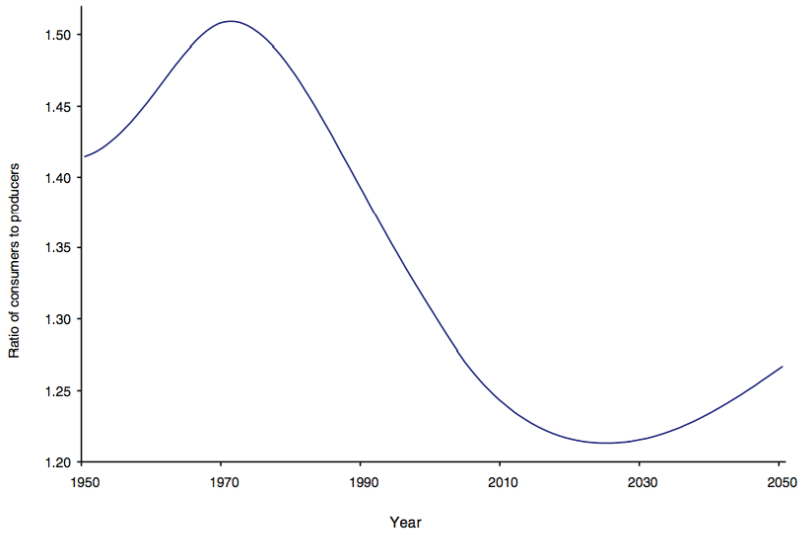
## Appendix G – Development of fertility rates in Latin America until 2040 (Medium scenario projection)

| Country | 2010-2015 | 2015-2020 | 2020-2025 | 2025-2030 | 2030-2035 | 2035-2040 | 2040-2045 |
|---|---|---|---|---|---|---|---|
| Brazil | 1.80 | 1.72 | 1.66 | 1.62 | 1.61 | 1.61 | 1.63 |
| Costa Rica | 1.81 | 1.72 | 1.65 | 1.61 | 1.60 | 1.61 | 1.64 |
| Chile | 1.83 | 1.78 | 1.74 | 1.71 | 1.71 | 1.71 | 1.72 |
| Uruguay | 2.04 | 1.98 | 1.93 | 1.89 | 1.86 | 1.85 | 1.84 |
| Guyana | 2.19 | 2.07 | 1.98 | 1.90 | 1.84 | 1.81 | 1.79 |
| Argentina | 2.17 | 2.10 | 2.03 | 1.97 | 1.93 | 1.89 | 1.87 |
| El Salvador | 2.17 | 2.03 | 1.92 | 1.83 | 1.76 | 1.71 | 1.68 |
| Mexico | 2.23 | 2.07 | 1.94 | 1.84 | 1.77 | 1.72 | 1.70 |
| Suriname | 2.27 | 2.14 | 2.03 | 1.95 | 1.88 | 1.84 | 1.81 |
| Colombia | 2.29 | 2.16 | 2.04 | 1.95 | 1.87 | 1.82 | 1.79 |
| Panama | 2.41 | 2.28 | 2.17 | 2.08 | 2.00 | 1.94 | 1.90 |
| Venezuela | 2.39 | 2.26 | 2.14 | 2.04 | 1.96 | 1.90 | 1.85 |
| Ecuador | 2.39 | 2.24 | 2.11 | 2.00 | 1.91 | 1.84 | 1.79 |
| Peru | 2.41 | 2.26 | 2.13 | 2.02 | 1.92 | 1.85 | 1.80 |
| Nicaragua | 2.50 | 2.30 | 2.15 | 2.03 | 1.92 | 1.84 | 1.78 |
| Belize | 2.68 | 2.48 | 2.31 | 2.18 | 2.07 | 1.97 | 1.90 |
| Paraguay | 2.86 | 2.67 | 2.51 | 2.38 | 2.27 | 2.17 | 2.09 |
| French Guiana | 3.14 | 3.02 | 2.91 | 2.81 | 2.71 | 2.62 | 2.54 |
| Honduras | 3.00 | 2.75 | 2.55 | 2.38 | 2.24 | 2.13 | 2.03 |
| Bolivia | 3.23 | 3.00 | 2.80 | 2.64 | 2.50 | 2.38 | 2.27 |
| **WORLD** | 2.45 | 2.39 | 2.33 | 2.29 | 2.25 | 2.22 | 2.19 |
| More developed regions | 1.71 | 1.75 | 1.80 | 1.86 | 1.90 | 1.93 | 1.95 |
| Less developed regions | 2.57 | 2.48 | 2.40 | 2.35 | 2.30 | 2.26 | 2.22 |

**Figure 6 – Estimates of total fertility rate (children per woman) in Latin America (medium scenario)**

## Appendix H - Development of the dependency ratio – Latin America and the Caribbean

**LATIN AMERICA AND THE CARIBBEAN (SELECTED COUNTRIES AND TERRITORIES): ECONOMIC DEPENDENCY RATIO, 1950-2050**




**Source**: Latin American and Caribbean Demographic Centre (CELADE) – Population Division of ECLAC, estimates and projections for Latin American and Caribbean populations, 2007 and economic data from the Economic Commission for Latin America and the Caribbean/International Development Research Centre (ECLAC/IDRC) project on Intergenerational Transfers, Population Aging and Social Protection in Latin America and the Caribbean.

**Project Paper 6**


Demography meets

China, Japan, and South Korea

# Tackling the low fertility and the increasing longevity phenomenon

submitted by

Elie Challita, Nenko Gachev, Iana Vasileva

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# Executive Summary

A popular catchphrase among politicians and the media is that the 21st century is the Asian century very much like the 20th century was the American century. China's highly publicized economic and political rise is certainly a validation of the plausible likelihood of such an assertion. However, Asia's rise is by no means a given. The path ahead is not easy for the Asian countries as they face many challenges that would require wise and strategic actions. Our study examines but one of these challenges—the demographic challenge—for Japan, China, and South Korea (JCSK).

We first set out to explain the validity and rationale behind clustering these three Asian countries together. Second, we trace back the demographic evolutions of JCSK since the 1950s, and study the similarities and differences of these evolutions. Third, as a way to explain the evolutionary path each of these three countries has undertaken, we compare governance, health, education, and economic indicators that are prevalent in JCSK. Fourth, we explore how the population structures in JCSK are forecasted to develop, and what are the geopolitical, social, and economic implications of such a change. Finally, we conclude with the implications of these population dynamics on Europe.

The discoveries we made further strengthened our conviction that the demographic development in JCSK is a topic of international relevance and needs to be extensively discussed from the scientific community. The conclusions we made underlined the importance of the researched demographic issues in the light of the changing economic environment in the East Asian region. The three countries have to cope with a number of challenges such as aging society, diminishing workforce, increased proportion of elderly in the population, and others. We stressed the significance of the political measures to be taken so that those demographic issues are resolved or at least their impact is reduced to minimum. Considering the scale of the challenges, we believe that in the near future, the implementation of those measures must be a prime task for the policy makers in the three countries.

# 1 Introduction

Japan, China, and South Korea (JCSK) have undergone dramatic changes since the beginning of the second part of the last century. They have witnessed many economic, social, and geopolitical developments that have propelled them on the global scene. Citing a few examples, South Korea has managed to transition into a developed country; Japan has managed to regain much of its pre-World War II (WWII) political and economic might; and China is by many accounts currently experiencing an economic boom with the second

largest GDP and a growing political and economic weight internationally. However, a looming problem, the aging of the population, is threatening the sustainability of these developments for all these three countries, albeit to a different extent and with a different time scale. One thing is clear, all scenarios leading to 2030 show that the populations of JCSK are aging, and aging fast.

In this study, the main focus is put on the issues arising with the current demographic development. To evaluate those issues in their full complexity, the demographic picture of the region is explored from different time perspectives, and the three countries are compared in terms of important demographic indicators. The developed plausible future scenarios, although relying on a number of assumptions, provide a useful framework for proposing recommendations aimed at solving the demographic problems of the East Asian region. The study applies a cross-border approach aimed at integrating the interdependency of the three countries into the demographic analysis. In this way, it also stays in line with the ongoing globalization processes and takes into account their eventual effects with respect to the considered topic.

# 2 China, Japan, and South Korea as a Cluster

From historical perspective, the geographical proximity of JCSK resulted in extensive commercial exchange between those countries. Despite the current territorial disputes, the three countries have a recent history of strong economic interdependency (Starmass International, 2007; Korean International Trade Association, 2012; Yoon and Yeo, 2007). This interdependency suggests a certain correlation between the performances of the three economies. All three countries are characterized by export-oriented economies, which make them vulnerable to external shocks and global crises. Such crises might have significant effect on the population's welfare and its savings. For example, the Japanese pension funds alone have lost 17.1% of their capital in just a year during the peak of the recent global financial crisis (Obayashi and Chikafumi, 2009).

The three countries had also influenced each other culturally through the years. Evident for this is the fact that all of them are predominantly Buddhist, and the rules under which their societies function are dominated by the conservative philosophy of Confucianism. Although traditionally the Confucian principles were deeply involved in the three societies, they all started being exposed to significant Western influence at a certain moment of their modern history. The result of this was a unique cultural mixture, which can be seen only in this part of the world and which, to a large extend, determines the way of life of the people of JCSK. The studies trying to evaluate the exact effect of this historical development have mixed opinions

on the question of whether those cultural influences have significant impact on the demographical trends in the three countries (Ji-Whan, 2010; Atoh, 2008).

# 3 Demographic evolution of JCSK

The three countries' demographic evolution can be explained by the demographic transition model. In its classical form, the model has four stages that describe how a country`s population changes over time and how it enters an industrialized and modern economic system. JCSK have completed their demographic transition and have entered a post-transitional society. Currently, JCSK have demographics that are characterized by low fertility and low mortality. Throughout the transition, the mortality rates dropped faster than the fertility rates, and as a consequence the countries' population rose. The stronger labor force contributed to economic growth. This demographic shift initiates what is called the demographic dividend. China has been enjoying its demographic dividend since mid-1960s, and empiric results show that this has contributed significantly to the economic growth of the country. South Korea's demographic transition started in the early 20th century with the introduction of Western medical and health systems. As for Japan, post WWII, population began to rise steadily, and from 1950 to 1970, it enjoyed a real "demographic bonus."

Demographically, JCSK experienced similar post-war baby booms and declining birth rates. The following subsections give an overview of each country's demographic development since 1950.

## 3.1 Japan

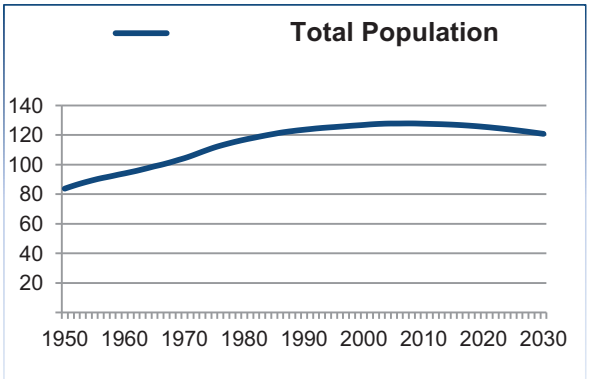


Figure 1 - Japan's total population (Source: USCensus (2012

The Central Intelligence Agency (CIA) (US) estimates Japan's total population to be 127,368,088 (July 2012 est.). CIA ranks it as the 10th most populated country in the world. US Census Bureau International Data Base shows that the population of Japan peaked in 2008, and now it is in the stage of long-term decline. In 2005, Japan experienced the first negative population growth since 1945. The demographic evolution of Japan since 1950 has been marked by rapid aging of the population. Between 1950 and 2000, Japan aged faster than any other developed country in the world because of rapid demographic change caused by declining fertility rates and increase in survivorship. Because of the dramatic drop in the total fertility rate (TFR), Japan completed its first demographic transition by the 1950s. The second demographic transition

began in the late 1970s. By 1989, the TFR has dropped to 1,57. The government introduced various pro-natal programs, but unfortunately their efforts were frugal. The life expectancy of Japan is one of the highest in the world (Suzuki, 2010).

Figure 2 shows how the age structure of Japan has changed. The proportion of elderly people (age over 65) has accelerated rapidly. In 1950, the population's structure resembled the classic pyramid, where every younger age cohort represents a larger portion of the total population. In 2005, this form can no longer be observed, rather the age cohorts are more evenly distributed.


Figure 2 - Japan's population structure

## 3.2 China

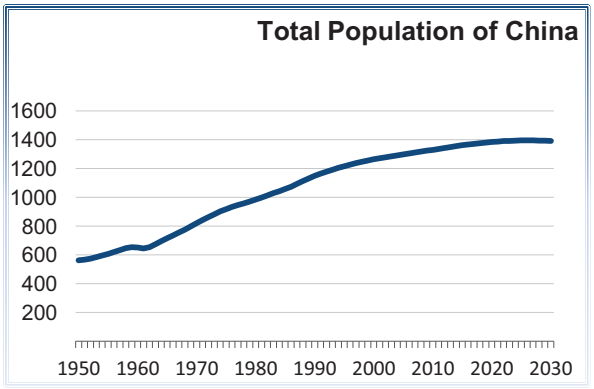


Figure 3 - China's total population (Source: U.S. Census (2012), own design)

China's population in the years after WWII was characterized by relatively high fertility and mortality rates. In 1950, it had life expectancy of 46 years for women and 42 for men, which was far less than the figures for the developed countries at the time. However, the period could hardly be described as a typical Stage 1 of the Demographic Transition Model, because in that time, China already had significant population growth rate of over 1%. The reason for this was that, while the fertility rates were increasing, the life expectancy, despite being comparatively low for the period, was increasing as well. Although reliable statistical data is missing, many researchers cite evidences for ongoing improvement in Chinese citizens' health and life expectancy since the beginning of the 20th century (Banister, 1987; Jamison et al., 1984). The main driver of the increase of life expectancy up to 1950 was the medical science advancement of the time, which was widely popularized in China. More factors supporting this positive development were later added by the Communist Party in China, which provided health care for the poorer parts of the society and brought China on the path of economic growth (Feng, 2011). Those conditions set the beginning of a typical 2nd stage

of population dynamics, with rapidly increasing life expectancy and decreasing mortality rates. Although from that early point the fertility rates were continuously decreasing, the constant improvement of the population's health led to remarkable population growth.

China's population was increasing at the highest pace at the period between 1950 and 1969, when the averaged growth rate reached 1.95% annually. This steady increase was disrupted in the late 1950s by the major political maneuver "The Great Leap Forward" aiming at the industrialization of China, financed by savings from the exported agricultural production of the period. The policy turned out to be disastrous for the country as tens of millions of people died from hunger, while the economic benefits it brought were negligible. However, the Chinese population managed to recover quickly from this shock, and after the end of the famine, they got back to the previous growth rates.

A major turn point in the demographic development of China was the introducing of the one-child policy in 1979. The latter was preceded by weaker political measures for decreasing fertility rates in the 1970s, which contributed to smoother implementation of the one-child policy. The main rationale behind the implementation of the one-child policy was avoiding overpopulation, which was taught to increase the risks of diseases and hunger. In the 20 years before the implementation of the policy, the grain outputs were growing in a much slower pace than the population (US Department of Agriculture, 2012). At this period, the rapid population growth was seen among the Chinese scientific and political circles as a main obstacle in front of the increase of the population's living standard (Freenhaigh, 2003).

One of the major demographic challenges for Chinese policy makers today is the high gender imbalance ratio at birth. This ratio has risen up to 1.20 and more in the recent years (Feng, 2011), compared to a world average of 1.07 (CIA Factbook, 2012). Such ratio is likely to result in frustration among the large number of men who would be unable to find a living partner in future. Empirical research suggests that there is a close correlation between sex imbalance and the one-child policy (Li et al., 2011). Chinese families have distinctive preferences for at least one masculine child in the family, which together with the development of the gender-selection technology leads to many occurrences of sex-selective abortions within the families falling under the one-child policy.

Currently China is enjoying its demographic dividend following its demographic transition, with workforce amounting to 73.6% (CIA Factbook, 2012) of its total population. This results in high economic productivity, which brings economic growth and prospect for increase in the living standard. Chinese population is also in the stage of wide-spread urbanization.

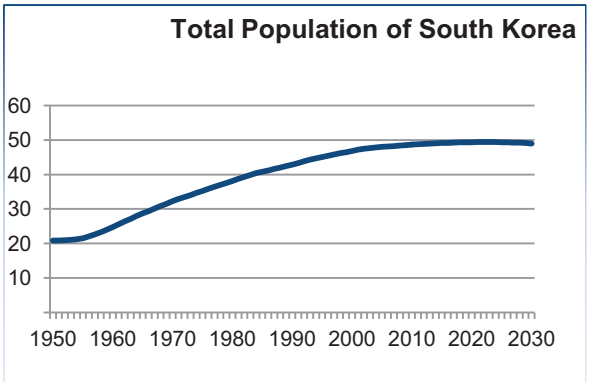


Figure 4 – South Korea's total population (Source: U.S. Census (2012), own design)

## 3.3 South Korea

The after-WWII period in South Korea was marked with yet another bloody event, namely the Korean War that eventually separated Korea into two countries. The end of the war marked the beginning of a typical post-war baby-boom period with population growth rates constantly increasing in the 1950–1960 period and reaching 3.35% annually at its end. The growth rates were also supported by immigration waves from the North following the Korean War. From this point until now, the population growth rates were steadily declining, although always remaining positive. In the time period between 1950 and 2012, the South Korean population increased from approximately 20 to 50 million citizens.

To understand the reasons behind the demographic development of South Korea, one needs to be familiar with the economic background of the period. South Korea exited WWII with devastated economy. After 30 years of Japanese colonial rule, the local economy had developed strong dependency to the Japanese capitals. After the Japanese government was expelled, the Korean economy stagnated. The industrial output of the country in 1953 was estimated by scholars to have been not much higher than one third of the output in 1940 (Frank et al., 1975). The period from 1953 to 1960 was a period of stabilization, when foreign aid helped Korean economy recover from the war period. The student revolution from 1960 and the military coup from 1961 were going to be determinant for the future economic development of the country. Park Chung-hee, who was going to rule the country for the next 20 years had authoritarian political views and favored the strong governmental regulation of the economy. Reforms were executed in accordance to 5-year plans (similar to China), and Park was implementing a policy of growth absolutism, giving substantial power to large enterprises in the country to foster GDP growth. He was very successful in this undertaking as Korean GDP increased 28-fold during his rule (World Bank, 2012). The favorable economic conditions certainly did play a role in the population increase, with life expectancy at birth rising from 54 to 65 years during the period.

The second five-year plan covering the period 1967–1971 marked the beginning of active implementation of policies aiming at control of the population growth. With its focus on economic self-sufficiency, the plan aimed at decreasing the fertility rates and increasing the employment opportunities with the ultimate goal of improving the living standard of the

population (Frank et al., 1975). In comparison to China, the family planning policies were focused on incentives instead of on penalties. These included lower tax rates and higher priority for public housing for families with fewer children, lower university tuition fees for those children, and others. It is questionable to what extent did these measures contribute for the declining population growth rates, but the fact is that following their implementation, both the TFR and the crude birth rate were almost steadily decreasing until ever since (World bank, 2012). The fertility rates were also believed to be lowered by decreases in child mortality (Friedlander & Silver, 1967). Improved availability and quality of health services in the period did in fact decrease the child mortality rates.

The growth absolutism of South Korea was criticized by scholars for its lack of adequate social policies (Yun, 2010). Indeed, it is considered a far-rightist policy fully focused at economic growth and less concerned about income distribution. The first National Pension Law covering the majority of the population was implemented in 1973, partly with the goal to reduce preferences of the population for male offspring. It was believed that a male child would be able to provide care for his parents when they are not in condition to work anymore. Thus, the lack of pension system is likely to induce gender imbalance, which was evident in the South Korean population in its recent history (World Bank, 2012). Insufficient levels of social security may also serve as an explanation for the high involvement of elderly people in the workforce of the country. Labor force participation of older males in South Korea tends to be high in comparison to other developed countries both from historical and from contemporary perspective.

# 4 Important Demographic Indicators

Having outlined the path of demographic evolution of JCSK, we set out to explore important demographic indicators used in describing the age structure of a population. Indicators such as TFR, mortality, life expectancy, and old-age dependency ratio are vital measures that will help us validate our statement that the populations of JCSK are aging and draw the similarities and differences among the three countries.

## 4.1 Total Fertility Rate

TFR, which is a measure of births per woman, is a good indicator of the potential for population change in a country (CIA). The figure below shows the evolution of the fertility rate in JCSK over the period 1950–2010. Japan experienced a precipitous decline in fertility during the decade following the post-war baby boom of 1947–1949. China's TFR has been declining as well since the period 1950–1955 when the TFR was 6,11 births per woman.

South Korea followed the declining trend after 1955–1960 when TFR was 6,33 (see Figure 5).

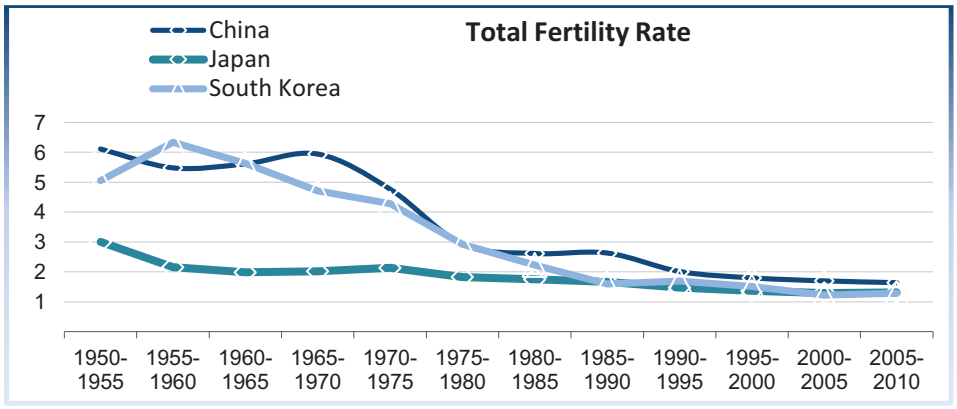


Figure 5 - Total fertility rate of JCSK(Source for underlying data: United Nations, www.esa.un.org, 2010, own design)

A rate of two children per woman is considered the replacement rate for a population, resulting in relative stability in terms of total numbers. Rates below two children indicate populations decreasing in size and growing older (Atoh et al.,2004). JCSK have TFR below replacement rate. Table 1 indicates the beginning of sub-replacement TFRs.

| Country | Period when the total fertility rate falls below 2.1 |
|---|---|
| Japan | 1960–1965 |
| China | 1990–1995 |
| South Korea | 1985–1990 |

Table 1: Beginning of sub-replacement fertility period (Source: JCER (2007))

The decline in TFR is driven by the aging of fertility. This occurred because the average age at child bearing, age at first birth, and share of total fertility contributed by older women are increasing. However, JCSK differ by age patterns of fertility. China has the biggest share of young mothers contributing to TFR, followed by South Korea and then Japan, which has old fertility schedules. The two other factors that have been considered as drivers for fertility decline are changes in marriage behavior and changes in marital fertility. Postponement of marriage brought up fertility decline below replacement level. Further, in the post-war years, JCSK governments intervened to influence the fertility trends by introducing family planning programs. Another important direct factor for reducing the fertility rate is women's emancipation (Atoh et al.,2004).

## 4.2 Mortality

Since 1950, the mortality measured by crude death rate declined significantly for JCSK. The crude death rate shows the average annual number of deaths during a year per 1000

population at midyear. Although CDR is a rough indicator it is accurate in estimating the effect of current mortality on population growth (CIA). CDR is affected by age distribution. Since 1990, Japan is showing increase in CDR, reaching 9 in the period 2005–2010. This is because the population is aging. Japan is a net-mortality nation, that is, more deaths are registered than births. This causes a great decline in the population and also has an effect on the number of people in a working age (Eberstadt, 2012).

China has a constant CDR of 7 since 1975. South Korea has the lowest mortality rate of 5 as measured by the United Nations 2010. Despite the fact that South Korea's population is aging rapidly, the infant mortality has been significantly reduced in the last 20 years, offsetting the negative effects of aging so far (see Figure 7).

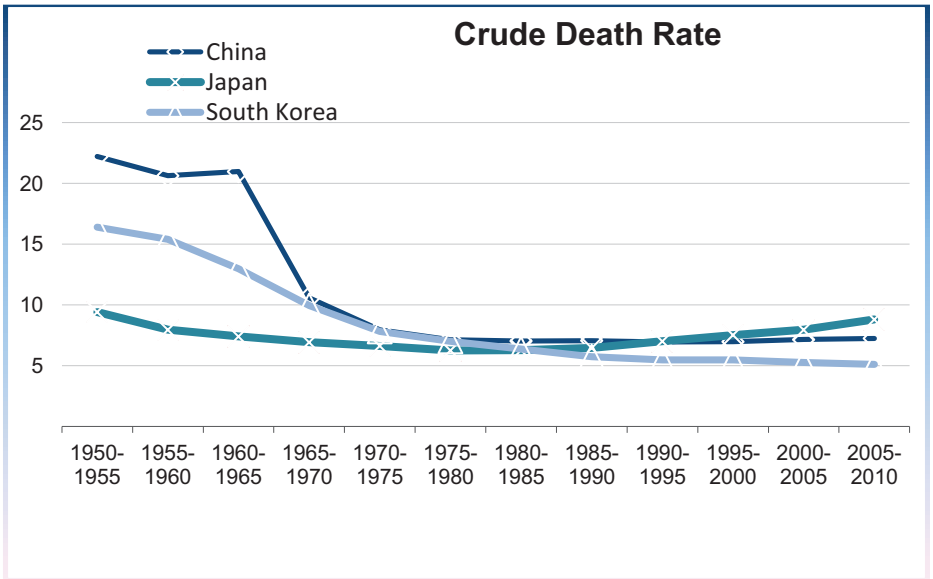


Figure 6 - Crude death rate of JCSK(Source for underlying data: United Nations, www.esa.un.org, 2010, own design)

## 4.3 Life Expectancy and Aging of Population

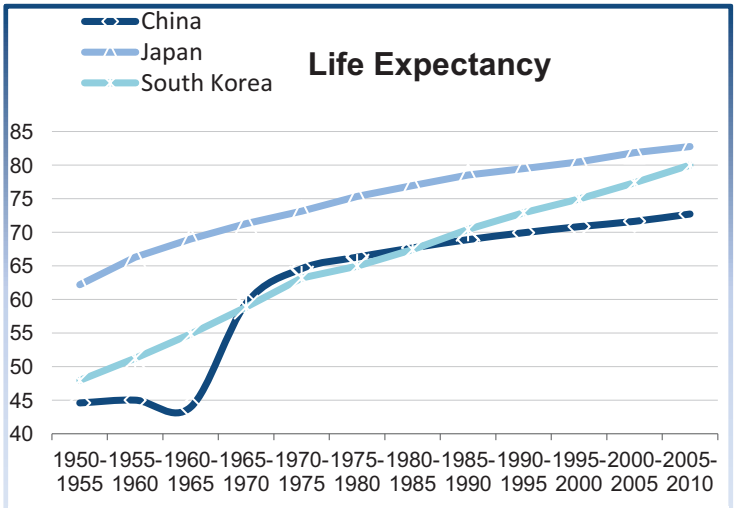


Figure 7 - Life expectancy of JCSK(United Nations, 2010 - own design)

The population growths JCSK have been experiencing are partly caused by the increased longevity of people. The figure below shows how life expectancy increased over the period 1950–2010 (see Figure 7). When combined with declining birthrates, an increasing life expectancy leads to an aging population. JCSK are all marked by sub-replacement fertility rates,

low mortality rates, and high life expectancies (see Table 2 for last life-expectancy estimates). These indicators for an aging population prompt negative forecasts that predict the end of the "Asian era." However, if proper counter measures are to be undertaken, the negative effects of the demographic change could be mitigated. Examples are as follows: with respect to the work force, a better utilization of the women and the aged and political awareness so that the burden of aging is shared fairly among generations (Komine&Kabi, 2009).

The socio-economic consequence of population aging below replacement fertility rates is change in the role of "those who support" and "those who are supported." This is well illustrated by the old-age dependency ratio. It is measured as the number of elderly people as a share of those of working age ( See Figure 8).

| Country | Life Expectancy |
|---|---|
| Japan | 83.91 |
| China | 74.84 |
| South Korea | 79.30 |

Table 2: Current Life Expectancy Source: CIA (2012)

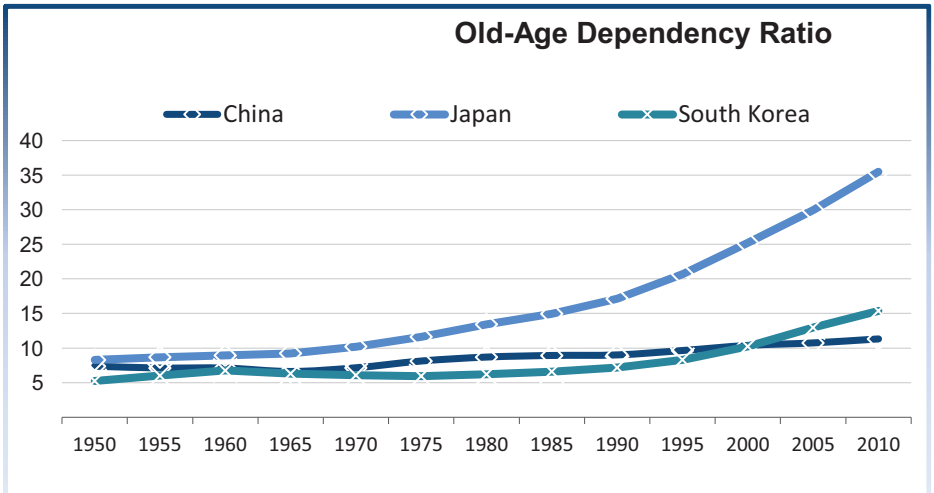


Figure 8 - Old-age dependency ratio of JCSK(Source for underlying data: United Nations, www.esa.un.org, 2010, own design)

## 4.4 Institutional Comparison: Governance, Health, Economy, and Education

The similarities in the macroeconomic factors of the three biggest East Asian economies are to a large extent a prerequisite for their comparable demographic evolutions. Japan and South Korea have democratically elected governments, whereas China is ruled by the totalitarian Communist party. However, JCSK score low on the Political Instability Index (The Economist Intelligence Unit, 2012), taking correspondingly 150th, 124th, and 117th place from 165 countries. This political stability allows the local governments to implement

unpopular but needed policies for control of the population (China) or for increased contributions of the working population in the state pension funds (Japan).

One of the ways to maintain high economic productivity in the conditions of a rapidly aging society is vitalizing the elderly and thus allowing them to be gainfully employed at a higher age. In the last 15 years, the three governments were constantly increasing their health expenditures as percentage of GDP (The World Bank, 2012), which serves as a clear indicator for their commitment of improving the health of their populations and their elderly in particular. The efforts of the Japanese and South Korean people are consistent with those policies as the percentage of people who reach pension age but decide to stay employed is increasing every year. In China, the level of labor force participation for older people is not that high, but this might be attributed to the relatively lower life expectancy in comparison to the other two countries and China's earlier stage of demographic evolution.

The three countries have recent history of high economic growth, and while Japan entered a phase of stagnation in the early nineties often referred to as "the lost decade," China and South Korea are still on the path of growth. This development has different policy implications for the different countries. While China and South Korea are struggling to maintain their growth figures (Thampapillai et al., 2007; Noland, 2011), government and businesses in Japan are starting to focus more on sustainability than on economic growth (Matanle et al., 2010).

The educational systems of the three countries were developing in line with their economic success. China has reformed its higher education system trying to reshape it from a Soviet-type system producing narrowly specialized graduates into a Western-type system, caring for the development of talented students in various directions (Zhao & Zhu, 2010). The most prominent reforms in the Japanese education system came in the decade between 1990 and 2000 and were aimed at liberalization and decentralization of the state universities, which was meant to allow them to follow more closely the market principles. To some degree, the reform was also an attempt to implement Western educational standards in the Japanese system (Poole, 2003). The South Korean educational system is also in phase of internationalization (Kim, 2005). These processes seem inevitable in the light of the current globalization, but also capture the ambition of the East Asian countries to try to win a share from the global educational market.

# 5 Population forecast: a look into 2030

Looking into 2030, all the scenarios developed by scholars and experts point to a fast expansion of the global population. This global expansion, however, is projected to take

shape differently across countries with different challenges and opportunities. On the one hand, in most countries the population is aging. This will bring about major challenges to the welfare systems, it will threaten the competitive advantage of many of the Western countries as their portion of the workforce will diminish, and it will question the validity of the international institutions going forward. On the other hand, in other parts of the world, India as a prime example, the development of the population will bring out many opportunities to tap into and unlock the potential of a vast and young workforce that could catapult the said country into a regional or international power.

## 5.1 Japan

The fact that the population is aging takes center stage in the case of Japan. The country has been struggling for the past decades with the realization that the population is not only getting older but shrinking at the same time. Indeed, "owing to low fertility, high life expectancy, and trifling immigration, Japan will be significantly older and smaller in 2030 than today'' (Yoshihara, 2012). In his article, Toshi Yoshihara predicts that the population will average a loss of over 660,000 Japanese citizens per year and the working-age population will shrink by 17% from 81 million to 67 million. The median age of the population will rise from 45 to 50, while about a third of the population will be over 65 years old by 2030.

This fast and unprecedented rate of decline and aging has severe strategic implication for Japan with regards to the future of its geopolitical relevance, its social fabric, and economic growth and might. First, the diminishing workforce will almost certainly limit the prospects of a sustainable and healthy economic growth. Moreover, the extremely fast rate of aging will surely impose a proportionally high burden on economic resources as a large part of economic resources will be allocated to taking care of the growing portion of elderly citizens. Second, the aging and shrinkage of the population could have worrisome implication for Japan's geopolitical might and national security. In fact, if the population continues to get older and smaller, "Tokyo will be increasingly hard pressed to fulfill basic military obligations" (Yoshihara, 2012). This would signal a widening gap between the strategic posture of the country and its resources. At a time when China and North Korea are rising in the region along with brewing conflicts and friction, Japan's manpower ceiling is stifling its security and geopolitical ambitions.

Japan is definitely coming to grips with the severity of the problem. The leadership should tackle the demographic problem heads on and as soon as possible. The question of how Japan will sustain economic growth, the social structures, and luxurious social welfare systems has definitely been a hot topic in the country, and the answer to this question relies

heavily on the bold initiatives that the government has and will put in place and the speed with which the issue is handled before it becomes unmanageable.

## 5.2 China

Over the past few decades, China has been enjoying one of the fastest economic booms in modern history. Millions of people have risen above the poverty line; standards of living have dramatically improved in major parts of the country; the country has established itself as a global economic leader with the second largest nominal GDP in the world.

However, some experts believe that "China stands on the threshold of a stunning demographic transformation with profound implications for its future prosperity and stability" (Jackson, 2012). The population structure that has for the past three decades helped China achieve such economic success is expected to change abruptly in 2015. Richard Jackson, in his essay "China and the Challenge of Premature Aging", predicts that beginning 2015, the demographic climate will change abruptly. The elderly share of the population, now just 8%, will double to 16% by 2030, and then triple to 24% by 2050—making China an older country than the United States.

"China is aging at an incredible speed: to increase the 65+ population from 7% to 14%: It took China only 27 years (1948–1975) for what took France 115 years (1865–1980)" (Dr. Med. Hans Groth, 2012). Such a simple and fundamental observation has significant implications for the future of the country. As China ages, a rising share of economic benefits will have to be transferred from the workforce to supporting the elderly; In 2010, there were 7.8 Chinese working-age adults available to support each elder. That ratio is due to fall to 3.8 by 2030 and to 2.4 by 2050 (UN population division, 2009).

So far, Richard Jackson argues, China's GDP growth has been maintained by shifting millions of underemployed workers each year from the rural sector into full-time, low-skilled manufacturing jobs that are integrated with the global economy. Building on this fundamental observation, the recipe for growth is not sustainable, especially in a world where China is looking to move up the value added of the global chain and start offering knowledge-based service that will be the major economic profit pool.

Furthermore, as the population ages and the economic growth is slowing down, the political regime's legitimacy could be threatened. Indeed, the rise in power of China has thus far happened in a somewhat peaceful manner as discontent with the regime has been in large parts subdued by the economic growth and the new found rise in income bringing thousands of people above the poverty line. However, "by 2020s, when China's age wave arrives in full

force, demographic trends may be weakening the twin pillars of the current regime's legitimacy—rapidly rising living standards and social stability" (Jackson, 2012).

Some experts, on the other hand, have rejected the idea that China is headed towards an economic and political decline. They argue that evidence is readily available to support the argument that China's trajectory is positive and that talks of decline are still premature. (DabbsSciubba, 2012). The author then goes on to present arguments to support her claims. First, even though China is aging, the leadership has made few investments in welfare, making the cost of aging very low. Second, the political fabric in the country allows for long-term planning, which would, according to the author Jennifer DabbsSciubba, allow the leadership to handle the challenges of the aging process more aptly then the Western world, especially the United States.

Irrespective of whether the aging of the Chinese population would lead to the decline of China in the future, it is uncontested that the phenomenon will have significant effects on the geopolitical, economic, and social fabrics of the country if left unattended. Indeed, China, and particularly the regime, will have to pay a special attention to tackle head on the side effects of an aging population: the government needs to develop the welfare system, to invest more in education, to adjust its retirement age to higher life expectancy and growing labor scarcity, and so on.

## 5.3 South Korea

South Korea is a developed and one of the wealthiest countries. The country was the first OECD to recover from the recent global economic crisis that stemmed from the fall of Lehman Brothers in 2008 (The Korea Herald, 2012), and "it currently projects an annual growth rate of nearly 6%" (Savage, 2012).

However, according to OECD in 2011, South Korea is one of the rapidly aging countries in the world driven by the rapid increases in life expectancy and continuous decrease in fertility rates. Figures from 2005 and 2006 reflect the extent to which this aging process is affecting South Korea's population: the number of people aged 65 and above, at 4.4 million in 2006, made up an alarming 9.2% of the population; moreover, the fertility rate stood at 1.08 in 2005 down from 1.16 in 2004, which when compared to Japan's 1.26 figure in 2005 reflects South Korea's problem with aging (Hodgson, 2007).

This aging phenomenon will have significant economic, social, and geopolitical effects on South Korea and would require strong initiatives to tackle the inherent and, in most cases, unique problems that the country is facing. First and foremost, aging is leading to a rapid shrinking of the workforce, which in turn is jeopardizing the country's economic growth and

competitiveness on the global scene. As Hodgson argues in her article featured in Euromonitor International: “Young people add innovation and know-how of advance technology, while older workers would need to be retrained” and “an aging population can also lead to a lack of skilled workers.” Second, the growing percentage of people aged 65 and above will put a strain on the pension system, as fewer people in the workforce have to finance the rising number of pensioners. According to OECD, the elderly dependency ratio is expected to jump to 69.4% in 2050 from 10% in 2000, the fastest growth rate in the world. Third, the aging of the population has led many leaders and experts in South Korea to consider the value of a reunification with North Korea. Nicholas Eberstadt and Judith Banister argue in their paper “Divided Korea: Demographic and Socioeconomic Issues for Reunification” (Eberstadt& Banister, 1992) that although a united Korea would be a country with below replacement fertility, generally defined as 2 children per woman, its population would still be growing due to a “demographic momentum.” South Korea needs to tackle this problem head on. The country needs first to tackle this problem internally by reversing the effects of the anti-natal policy that the country adopted for several decades and encourage families to have more children. Second, politicians should keep investing in education and high-tech to offset the lack of workforce. Third, the country should invest more in the welfare system and in part-time jobs. Finally, the country should revise its migration policy and attract much more talent from all over the world.

## 5.4 Implications for Europe

The population in JCSK is aging. The aging trend witnessed in these countries is definitely not unique but shared by most parts of the world, especially in the developed world. In fact, many countries in Europe, rightfully called the “old continent,” have and will undoubtedly struggle with the demographic challenge over the next decades; “Its implications for socioeconomic systems, such as public pensions programs, health care or kinship structures, may be considerable” (Eurostat, 2012). Moreover, as the population in Europe shrinks and gets older, Europe faces the challenges of remaining economically and politically competitive on the global scene. Nowadays, Europe is able to stay relevant due to technological innovations and a still manageable gap between supply and demand for the workforce. However, a study done by McKinsey shows that if the problem is not tackled with full force and with bold initiatives, there will be a drop of 24 million in the active workforce by 2036. Coming to the relevant question of this study, the implications of the population dynamics of JCSK on Europe will greatly be shaped by the effectiveness and efficiency of the initiatives these countries put in place to deal with the aging of their population and how Europe will try to cope with its own aging problems. First, Europe can learn from Japan regarding the effectiveness of some of the initiatives. In fact, Japan is the “oldest” country in

the world and Europe is soon catching on. For this reason, countries such as Switzerland and Germany, which are not far behind Japan in terms of population structure, can figure out what is working for Japan and what is not and try to adapt it to their own situation. Moreover, as the people are aging in these three countries, their consumption behavior will inevitably change. This aging of consumers has significant implications for companies from Europe trying to tap into the huge revenue pool in China, for example, as they would have to adapt their offerings to cater to an older consumer base with regard to taste, consumption patterns, and simply how they engage the consumer. Last but not least, the changing population structure in these three Asian countries could lead the politicians there to open up their borders and to change their migration policies to attract more workers and even bring back their diaspora, which would affect Europe significantly as the continent is trying to attract many younger foreigners to fill the gaps in the workforce.

# 6 Conclusion

Our exploratory journey into the demographic evolutions of JCSK clearly shows that the populations of the three Asian countries are aging, albeit at different rates. The problem is much more prominent in Japan as its shrinking population is the "oldest" in the world. China and South Korea, however, face thus far a much more manageable problem since their populations are still growing and the peak is not expected until 12–15 years (USCensus, 2012). Moreover, the population age structure of these three countries is rapidly changing, with a higher percentage of people over 65 and a shrinking workforce. It is projected that the elderly people are going to put a huge burden on the younger generations and that the economic growth is going to be threatened by the lack of a qualified workforce. It is, therefore, crucial that the governments in JCSK tackle the demographic challenges with aggressive and bold initiatives such as addressing the issues of decreasing fertility and increasing longevity, changing the migration policies, and heavily investing in education and technology.

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**Project Paper 7**


Demography Meets Indonesia

# How to capture its hidden potential

submitted by

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## Executive Summary

Indonesia is a diverse and dynamic nation that lies at the heart of South East Asia. It contains the world's fourth-largest population, as well as a rapidly evolving economy that is set to be the world's fifth-largest economy by 2030, according to the International Monetary Fund.

As Indonesia undergoes a demographic transition due to changes in the population age structure, the nation is fast approaching its demographic window of opportunity. During this period, the dependency ratio will reach its minimum level as the working-age population increases relative to the rest of the population. This is because of declining fertility rates and a hitherto relatively small portion of the elderly.

In order to determine how to maximize this advantage, we first analyze the demographic evolution that has taken shape in Indonesia since the 1970s, and forecast future trends up to the year 2050. By looking at factors such as population aging, family planning, religious influences, and urbanization, we can present an overview of the future demographic situation in Indonesia that will then enable us to detect the demographic window of opportunity.

We will also explore areas such as the economy, government structure, society, and environment, and, in doing so, will gain a holistic portrayal of various aspects of Indonesia. This will enable us to make recommendations regarding the courses of action that the country can take to solidify its economic development and to reap the maximum benefits possible. We will move on to identify potential challenges that Indonesia may face, as well as the shifts in global order which will occur as a result of Indonesia's increasingly dominant position in world affairs. Finally, we will make suggestions as to which industries could emerge as winners in this demographic evolution and prevail as successful investment opportunities.

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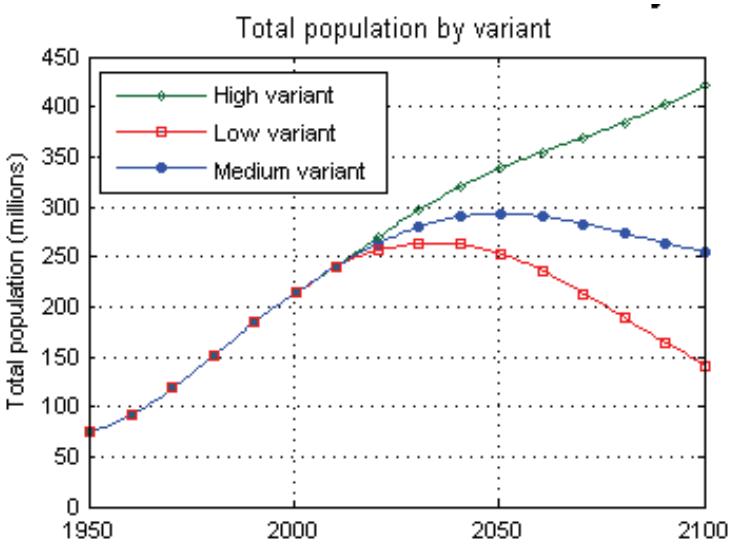
## 1. Introduction

Indonesia is a dynamic country that has two main reasons for further studies: first, its role in the world as the fourth-largest nation in terms of population; and second, its unique central location in a dynamic South East Asian region. Its administration has improved its decision-making process over the past 40 years, and this is evident in how well it has steered the country through the recent global financial crises. The economy has always been and continues to be driven by strong domestic demand, and more recently, there has been a surge in spending after presidential election results were announced in July 2009. The major demographic challenge that Indonesia will face in the short term is how to create enough jobs in order to ensure that the 2.5 million Indonesians entering the job market will have sufficient employment opportunities (Euromonitor 1, 2010).

## 2. Demographic Evolution and Trends

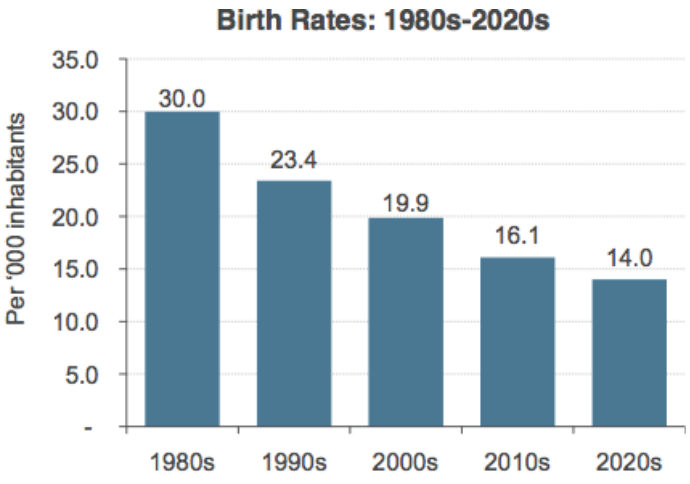
### *2.1 Population*



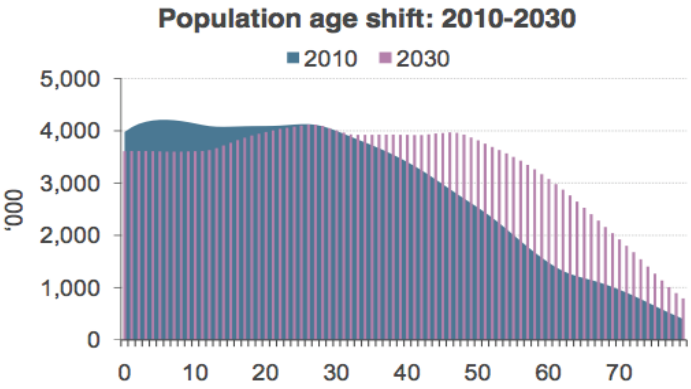

Indonesia's population currently stands at 242.3 million (World Bank, 2012), making it the world's fourth-most populous nation. This represents close to a doubling (92.7% increase) of the population since 1970 when the population was only 114 million (World Bank, 2012). The population growth rate has slowed down over the past decade and will continue to do so, decreasing from the current rate of 1.49% per annum to 0.66% during 2020–2030 (Euromonitor 1, 2010). The total population is expected to increase to more than 270 million by 2030 (World Bank, 2012), and will peak at approximately 288 million around the year 2050 (Euromonitor 1, 2010), assuming a medium variant scenario. This growth will be primarily driven by an

increase in the population aged 46 and older, as Indonesia experiences an aging population.

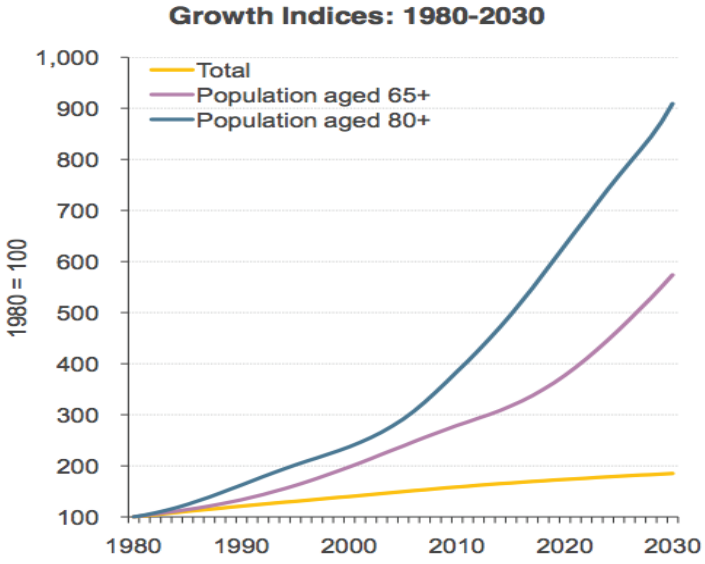
*2.2 Births, Deaths, and Aging*




The birth rate in Indonesia has fallen by about 50% since 1980, and will continue to decline, albeit more gradually. Although the death rate has also been decreasing since 1980, it will instead start increasing as the population ages and deals with various health issues such as lung problems due to smoking.

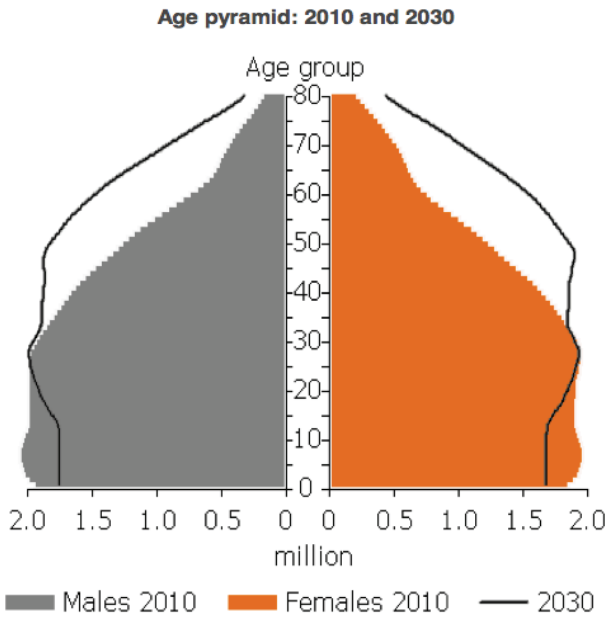



As of 2012, the median age of the population stands at 29 years, which represents an increase of almost 10 years since 1980 (Euromonitor 1, 2010). Indonesia will continue to witness an aging population shift during 2010–2030, as the number of people older than 46 years increases almost 80%; whereas those under 20 decreases by 10.3% (Euromonitor 1, 2010). This will be driven in most part by decreasing fertility, as well as by other minor factors such as increased life expectancy. The result of this is that the median age will increase from 28.2



years to 35.4 years over the next two decades (Euromonitor 1, 2010); to put this into perspective, Euromonitor summed this up quantitatively by specifying that “in 2030 there will be nearly 2 people aged 0-14 to every person aged 65+, compared to a ratio of 12:1 in 1980” (Euromonitor 1, 2010).

*2.3 Diversity: Men, Women, and Ethnicity*




Although the median age for both men and women is increasing, the trend is toward an increasing portion of men in the under 43 segment; whereas there will be more women than men in the over 43 cohort. This widening gap is magnified by the fact that women outlive men, particularly in Indonesia, where women lead healthier lifestyles than their male counterparts.

With regard to ethnicity, Indonesia is home to an extremely diverse group of more than 300 ethnic groups who speak more than 700 local languages (Euromonitor 1, 2010). Although shifts in ethnic groupings is happening at a very slow rate, the major trend is toward a decreasing number of Javanese, combined with an increase in the population of ethnic Sudanese, who have higher birth rates than the national average. The implications of this are a higher proportion of the population in West Java, where the majority of the ethnic Sudanese are located and where the people are mostly involved in agriculture and are predominantly Muslim.

*2.4 Religion*

Indonesia is the most populous Islamic nation in the world (Groth & Sousa-Poza, 2012, p. 6), with 87% of inhabitants following one sect of the fragmented Muslim faith (Groth & Sousa-Poza, 2012, p. 196). This complex religious element also factors into the country’s demographic influences, especially as religious leaders still exert a strong influence on society, and citizens tend to relate Islamic values with their national identity.

Muslims are encouraged to marry and bear children at a younger age, thus increasing the total fertility rate and potentially reversing the decline in population growth and fertility control that the government has been trying to implement. In addition, women are still not treated on an equal level as men in Muslim societies, with less education and fewer work opportunities. This is evidenced by Indonesia's 87th rank out of 134 countries in The Global Gender Gap Report 2010, which measures gender equality.

Family planning in Indonesia has dramatically reduced fertility rates—efforts by the National Family Planning Coordination Board (BKKBN) have been effective at promoting birth control even in rural and isolated regions. If we were to extrapolate these trends over the next few decades, we would assume that fertility rates would soon decline below replacement level. However, this oversimplification would negate the impact of other influences such as those related to religion: Since Islamic parties have increased their political dominance, they have started criticizing the BKKBN's efforts to condone late marriage and two-children families. This pressure has been further amplified by media efforts to portray youthful marriage as a modern Muslim choice, as well as activities by Islamic groups such as university groups.

Evidence of the effects of these religious influences is putting existing fertility estimations into question, as there has been a recent reversal in the trends of increasing the average age of marriage as well as the declining fertility rates: The total fertility rate has increased from 2.3 children to 2.4 children between 2005 and 2010 (Groth & Sousa-Poza, 2012, p. 7). Nonetheless, we cannot conclude that these reversals are permanent, especially considering declining fertility rates in most Muslim populations worldwide.

*2.5 Family Planning*

The number of children per family is dependent on the success of the decentralization program, as well as other socioeconomic pressures. Decentralization and the resulting effect where power is delegated to local authorities has been said to reduce contraceptive availability (Groth & Sousa-Poza, 2012, p. 202), yet indicators have actually been pointing toward increased use of contraception.

The family planning program has been one of the most significant recent initiatives in Indonesia. The BKKBN successfully reduced fertility rates over the past 40 years from

an average of 5.6 births per woman in 1970 to 2.4 in 2010 (Groth & Sousa-Poza, 2012, p. 199), making it one of the major success stories of the Indonesian government.

Until recently, the Indonesian government subsidized almost 100% of family planning programs. However, at the turn of the millennium, a trend started to emerge as family planning services were increasingly provided by the private sector. The government made a concerted attempt to advocate and publicize private family planning and accordingly reduced free or reduced-cost public services. This was a turning point for the country, as a dramatic increase in the degree of contraceptive usage ensued as a direct consequence of this decision to privatize family planning.

Points of achievement for the Family Planning Program:

- The Contraceptive Prevalence Rate (CPR) has increased by 200% in less than 30 years. It is now at 60% of the Indonesian population (United Nations Population Division, 2003).
- The total fertility rate has decreased from 5.6 births per woman in 1968 to 2.4 births per woman in 2002 (Republic of Indonesia Ministry of Health, 2003).
- Between 1997 and 2003, the use of government sources decreased from 43% to 28%; whereas the use of private medical sources increased from 42% to 63% (Republic of Indonesia Ministry of Health, 2003).
- Use of non-medically approved sources (village delivery posts, traditional attendants) dropped from 15% in 1997 to 8% in 2003 (Republic of Indonesia Ministry of Health, 2003).

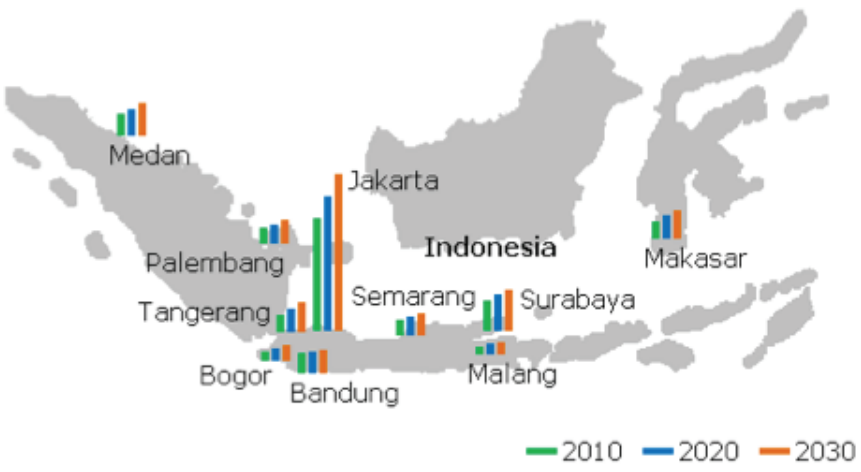
Still a Work in Progress:

- *Unmet Demand:* As of 2012, the demand for family planning is approximately 70% of the population, out of which only 88% is satisfied. If all demands could be met, the CPR would increase from 8% to 68% (Republic of Indonesia Ministry of Health, 2003).
- *Improvement in rural and desolate areas:* This is not an easily solved problem, as the main complications are caused by poor transportation infrastructure and lack of reliable communication facilities. There is also a religious and ethnic gap

between many of these communities, and filling this gap will need significant investment in cultural awareness and education programs.

*2.6 Urbanization*

Indonesia is now an urban country with more than 50% of the population located in urban areas (World Bank, 2012). As with many developing countries, Indonesia will continue to undergo urbanization in the next two decades, as people relocate from rural areas to cities. Its urban population is expected to see a 50% increase, with the fastest-growing cities being Makasar and Tangerang (World Bank, 2012). Both cities are developing industrial hubs that are seeing a lot of international investment. Jakarta will also see a swelling number of residents, which will reach 11 million by 2020, up from 9.6 million in 2010, unless action is taken to control population growth.

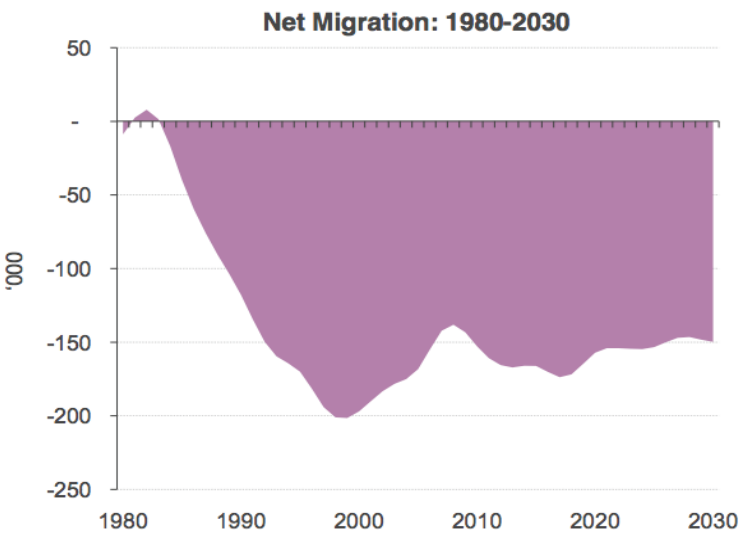



In looking at urbanization, we can also see that Indonesia's urban growth rate has been increasing, from about 5% in the 1970s to 2% by 2025; whereas the growth rate of the rural population has been almost zero over the past two decades (McNicoll, 1997). This is mainly due to a decreasing rural population in Java, which counterbalances increasing rural populations in other areas.

The different provinces in Indonesia have distinct population densities that are in large part set by existing patterns: Java is, by far, the most populated region, yet its share of the total population has been declining, due to regional differences in fertility rates, as well as net outflow of migration (McNicoll, 1997). It is interesting to note that Indonesia's economic geography reveals much about the structure of the future economy: Non-agricultural employment will occur mostly in the urban industrial areas outside the main

Javanese cities such as Jakarta and Surabaya, whereas more backward agricultural regions will be located in Eastern Indonesia.

*2.7International Migration*




Indonesia experiences a heavy net outflow of migration, which is a trend that started in around 1985, with most laborers choosing Malaysia as their destination for emigration. This trend has gained significant momentum over the past two decades, and the net outflow of workers between 2010 and 2030 is expected to be between 150,000 and 174,000 (Euromonitor 1, 2010): Although this number will remain quite steady over the period, the trend is that more skilled Indonesians will choose to migrate permanently to developed countries, a phenomenon commonly referred to as *brain drain* (Cervantes & Guellec, 2001). This is different from the current prevalence of unskilled emigrants moving to nearby countries to work as domestic helpers. Another pertinent fact is that Indonesians who emigrate tend to send a substantial portion of their salaries back home, to support their families' consumption and education.

*2.8 Economy*

*2.8.1 Overview and Macroeconomic Environment:*

Indonesia's economy has been growing gradually over the past years, and is also becoming more balanced, with investment and private consumption as the driving factors behind this growth, rather than exports. This decreasing dependence on exports alongside its large domestic market has contributed to its success and has enabled it to weather global economic shocks such as the 2008 recession well. The economy is

generally promising, with a GDP of $8.4 billion (World Bank, 2012), an inflation at 5.4% (Euromonitor 2, 2012), an average savings of 5.6% of disposable income (Euromonitor 2, 2012), a relatively low debt-to-GDP ratio, controlled inflation, and heavy anticipated government investment in the country.

The future also looks promising, due to the country's abundant natural resources, strategic geographical location, young population, and a large proportion of the population moving into the middle class. By 2030, the middle class is expected to account for 80% of the total population (Euromonitor 2, 2012) as disposable income per capita increases, which, in turn, will boost consumption expenditure per capita. One compounding factor to the success of this consumer-based economy is that 37% of the population is aged between 15 and 29 years, and constitute a group of avid consumers (Euromonitor 3, 2011).

*2.8.2 Composition:*

The economy is based primarily on the agricultural sector, which employs 38.1% of the workforce (Euromonitor 2, 2012). It has rich natural commodity-based resources and a large quantity of farmland, making it successful in mining and agriculture: It is currently the world's primary producer of palm oil, and the third-largest producer of rice. The manufacturing sector employs 12% of the workforce, yet it contributes to 24% of GDP (Euromonitor 2, 2012), especially with the recent surge in foreign investments in the Indonesian industry. The service sector, on the other hand, contributes 38.2% to GDP, yet it has much room for improvement, especially with regard to the tourism and banking industry. Currently, only 20% of Indonesians have a banking account in a formal banking institution, and the amount of banking loans is less than 30% of GDP (Euromonitor 2, 2012).

*2.8.3 Infrastructure:*

One impetus to an even stronger economy is the substandard quality of infrastructure in Indonesia. This means that businesses incur much higher transport, warehousing, and distribution costs in comparison with their Asian counterparts. The insufficient supply and quality of transport, energy, and telecommunications infrastructures is also constraining growth, as it limits the nation's output capacity. Therefore, the government needs to

invest heavily in order to meet the demand for infrastructure as the economy expands, and should also ensure that they invest in maintaining existing infrastructure.

*2.8.4 Institutions:*

The quality of a country's institutions is a strong determinant of competitiveness and sustainable growth, as it is related to how efficiently a society's stakeholders are able to interact and conduct business. Over the past few years, Indonesia's public institutions have become more efficient and transparent, yet there is still much room for improvement. Democratization and decentralization has led to weaker accountability structures and government ineffectiveness: There is heavy bureaucracy and a lack of transparency in policymaking, which is detrimental to the general business environment. Moreover, there is rampant corruption at all levels despite efforts to curb this.

*2.8.5 Technological Adoption and Capacity for Innovation:*

Indonesia has a relatively low uptake of information and technology, as well as a lack of innovation capacity. This is illustrated by the huge potential productivity gains that could be achieved by becoming more modernized. Improved information and telecommunications technologies (ICT) usage facilitates communication, leading to lower transaction costs and improved access to services and business opportunities. Unfortunately, Indonesia lags in technological readiness, with fewer than 10 Internet users per 100 citizens (Geiger, 2011), and only 5.7% of firms using the Internet to communicate with suppliers and clients (World Bank 2, 2011).

*2.8.6 International Trade:*

Indonesia is not very active in international trade, primarily due to its focus on fulfilling the existing strong domestic demand. On the one hand, this lack of dependence on exports insulates the nation from global economic shocks, yet on the other hand, it demonstrates that the economy has much room for improvement in this area. Indonesian exports currently account for approximately 25% of GDP (Euromonitor 2, 2012), primarily to Japan, China, and the European Union, and mostly in the form of commodities (36.4% of exports) and agricultural products (21.1% of exports) (Geiger, 2011).

Developed export markets are important in this era of globalization in order to increase the distribution of products and services, as well as to allow for even greater economies of scale. However, the World Bank estimates that only 4.1% of Indonesian firms export products, and there are insufficient efforts to attract foreign investors, which would generate positive spillover effects such as capital investment, technology, and knowledge transfer.

*2.8.7 Labor Market:*

Most Indonesians are employed in the informal sector, where wages and job security are low. Unemployment currently stands at 6.6% as of 2011 (Euromonitor 2, 2012), yet there is a major shortage of skilled workers. Although employment rates are stable, it is also necessary to consider the quality of employment and efficiency: It is not a healthy sign if workers are taking on jobs that are less value added with poorer conditions or security. Furthermore, Indonesia consists mostly of small businesses, which employ 97% of the workforce, yet produce only 57% of value-added (Euromonitor 1, 2010), thereby highlighting the abundant room for improvement in business efficiency.

As fewer entrants come into the labor workforce due to declining fertility, there will be a supply constraint of laborers, especially considering the strong economic growth that is expected to continue. This should, in turn, create upward pressure on wages, though it is possible that labor supply will also change, for example, through higher participation of women. These trends are already becoming apparent, as employment gains have been strong among female workers, as well as among young and rural workers (Geiger, 2011).

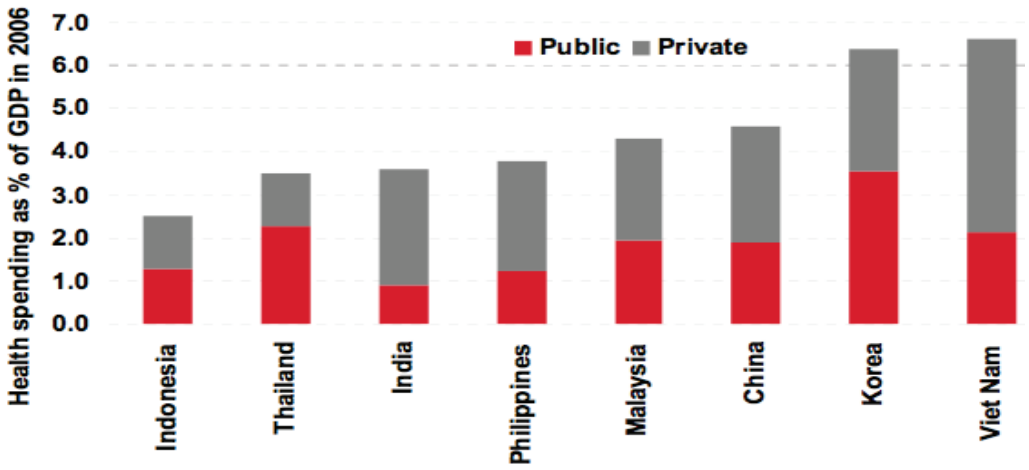
*2.9 Education*

Education is highly prioritized by the Indonesian government, the result of which is a high primary enrolment rate of about 95%and an impressive literacy rate of 90% (Geiger, 2011). Nonetheless, Indonesia ranks lower in terms of secondary and tertiary education, although this trend is improving—gross secondary enrolment has risen from 60% to 80% between 2003 and 2009, and the university enrolment has increased from 16% to 21.3% over this same period (Geiger, 2011).

Education is becoming increasingly important, as a lack of it would constrict business development: Workers without formal education often find it difficult to adapt to technology and new processes. This will be an impediment for firms looking to move up the value chain beyond simple production processes, and also for workers themselves, who will have trouble finding well-paid employment. The Asian Development Bank estimates that skill development is the most critical prerequisite for realizing the vast human and economic potential of the Asian region. Sustainable prosperity is indeed based on a skilled and productive workforce, which generates higher incomes and value-added. This then translates to long-term expenditure, savings, and investment.

*2.10 Healthcare*

Health indicators in Indonesia have improved markedly: Life expectancy has increased from 52 years in 1980 to 70 years in 2009 (World Bank 1, 2009), whereas infant mortality rates have dropped over this period from 10% to a still relatively high 3%. Furthermore, the healthcare system has developed rapidly over the past 40 years, and at present, nearly all Indonesians have access to basic healthcare. In 2004, the National Social Security System implemented a mandatory health insurance scheme that aims at providing universal health insurance coverage for all residents by 2020 (Geiger, 2011).




That being said, the general picture of health, particularly in rural regions, in Indonesia is still poor, and is systematically worse than the East Asia and Pacific regional average (Geiger, 2011). Indonesia's health spending is low compared with its neighbors, and it ranks poorly on outcomes such as maternal mortality, infant mortality, communicable disease incidence (particularly malaria and tuberculosis), and malnutrition.

*2.11 Government*

Indonesia is currently ruled by a coalition led by the Democratic Party, and is presided by Army General SusiloBambangYudhoyono. Since the 1990s, the administration has made exerted attempts to decentralize its entire governance structure. In particular, municipal and fiscal decision-making powers are being released to local districts, leading to weaker accountability structures, as roles and responsibilities between the various levels of government remain unclear in many areas of government activity. Nonetheless, as a direct result of this communal and local involvement, Indonesian citizens (in particular the under-25 generation) have been utilizing their newfound emancipation: Indonesian citizens are finally able to claim their rights to basic liberties, which before this decentralization, has always been thwarted by a dictator-esque administration.

The government's energetic decentralization plan, however, creates complex issues that need to be combated. There is government ineffectiveness in policy planning and implementation due to poor structures and lack of civil servants, and regional governing bodies are having difficulties in coordinating their policies with those of Jakarta. Dual problems of corruption at the district level as well as failure of local municipalities to correspond with one another lead to inefficient usage of funds. This means that poverty is still a major problem in Indonesia with more than 15% of the population still living in poverty (as of 2008) (Euromonitor 2, 2012).

*2.12 Society*

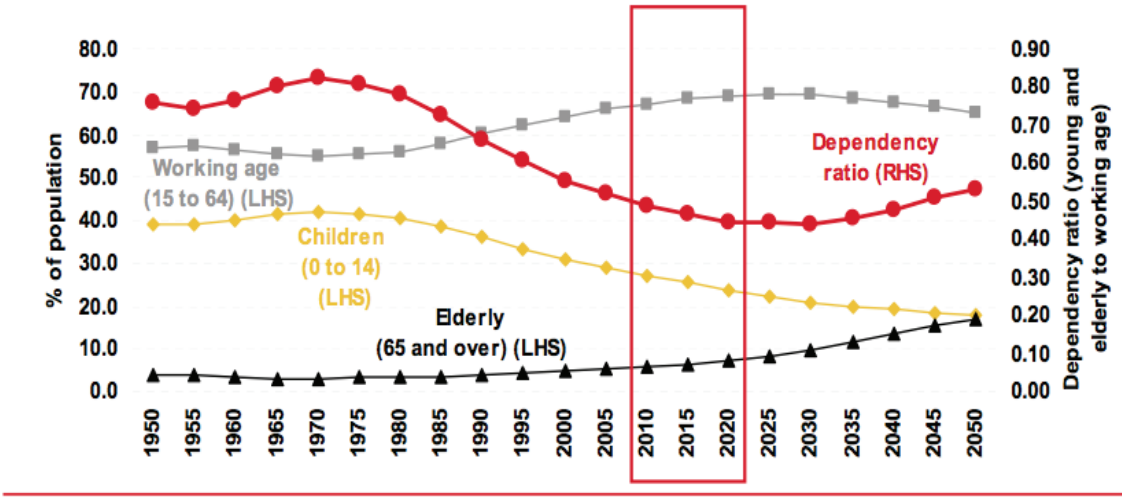
Higher economic growth needs to be shared in order for all members of society to benefit. However, Indonesia is seeing worsening income inequalities, and is still a poor performer in terms of human development outcomes, due to geographic and income-related inequalities, with poor quality of health, water, sanitation, and education at the local level. It has more than 40 million people still living in poverty (Euromonitor 2, 2012), and 13% of the population and 18% of children suffer from undernourishment as of 2007 (Food Security Portal, 2012). One promising outlook is that analyses have shown that in high fertility societies, fertility reduction is a powerful tool for poverty reduction, with a 10% reduction in child population contributing to a 7.2% reduction in the level of poverty (Mason & Lee, 2004). Nevertheless, it is particularly important to provide a solid design for social welfare, because inflation can be expected to accompany strong economic growth in the future, which could exacerbate poverty problems.

*2.13 Environmental*

Environmental changes typically go hand in hand with population changes. Although indicators such as carbon dioxide emissions per capita are generally relatively favorable at almost thrice than that of other developing economies in East Asia and Pacific (World Bank, 2012), they are, nonetheless, on the rise. There are other anticipated problems; for example, the population density of Java now means that cities such as Jakarta are experiencing heavy traffic congestion, problems with water and power supply, waste disposal difficulties, and pollution. Increased consumption as a result of higher disposable incomes will also cause more consumption of durables, recreational activities, private vehicle ownership, and so forth, which would, in turn, put strains on the environment and ecosystems.

**3 Demographic Window of Opportunity**

Indonesia is set to continue to profit from a demographic dividend in the next two decades as the working age population increases relative to the rest of the population. The International Monetary Foundation predicts that Indonesia will be the world's fifth-largest economy by 2030. This demographic window of opportunity has arisen, as the combined effects of declining fertility rates and a hitherto still relatively small portion of the elderly drive the dependency ratio down. The dependency ratio has been gradually decreasing from more than 0.8 in 1970 to approximately 0.5 in 2011 (World Bank 1, 2009), and will continue to do so until around 2025. However, after this point, the demographic window will close, as the fraction of the elderly increases to 10% by 2030 (World Bank 1, 2009). This demonstrates how vital the next decade will be in shaping Indonesia's long-term development and sustainability.




Sources: Demographic projections from BPS and UN Statistics.

Declining birth rates will be a basis on which Indonesia can increase productivity and develop economic growth: Income per capita grows as fertility rates decline, meaning more funds are available to be channeled into improving the quality of human capital. Furthermore, the lower number of children could give women more opportunities to enter the labor market and increase household savings. These factors will contribute to a more productive population, which can accumulate growth and economic development to be used for the melioration of the country's future through savings.

Indonesia's primary demographic opportunity in the future stems from a huge increase in its pool of potential workers. Over the period 2010–2030, Indonesia will see a 20% increase, equivalent to 32 million people, in the working-age category of 15–64 (World Bank 1, 2009). A vast majority of the population will also be moving into the consumerist middle class over this period. In anticipation of the decades ahead, we can analyze where future opportunities and challenges lie, and actions that can be taken to maximize the demographic dividend, before the demographic window of opportunity closes in the next decade.

**4. Courses of Action "How to Unlock the Hidden Potential"**

In order for Indonesia to maximize its demographic dividend, it should address the following issues:

*4.1 Business Environment:*

Reforms are required in order to boost Indonesia's productivity and competitiveness. These could emerge from areas such as further investment in human capital, labor market reforms, development of manufacturing and service-based industries, and reduction in the cost of doing business. For example, the Indonesian government could make it easier to start a new business: Although there are currently many small businesses, it takes twice the world average to start a business in Indonesia, and regulations are very strict (Euromonitor 2, 2012). It is also imperative that they try to curb the prevalent corruption, as it is still perceived to be a very high obstacle. By reducing regulations and making the business environment more streamlined, they could improve efficiencies within existing business operations, as well as attract new entrants, such as increased foreign direct investment.

The government could further improve the business environment by developing the banking industry via improved access to credit through increased protection of lenders and borrowers as well as improved regulation of the banking industry in accordance with international standards.

Indonesia should also try to promote an environment that is conducive to modernization and innovation, which will become increasingly important in the future, when adopting existing technologies is no longer sufficient. In order to do so, they should invest in research and development, high-quality research institutions, and endorse protection of intellectual property rights.

With regard to international trade, Indonesia could increase its competitiveness by reducing its obstacles to trade, which are high tariffs, poor transport infrastructure, and inefficient customs administration. The 2010 edition of Enabling Trade Index showed Indonesia to have lack of efficiency and transparency when it comes to border administration. This problem is amplified by the need to upgrade transport and communication infrastructures to boost the competitiveness of exporters and prevent foreign players from being deterred from entering Indonesia's markets.

The government could also take action to stimulate the trade environment, for instance, through intensified cooperation with ASEAN nations, which would present opportunities for streamlined regional supply chains as well as new distribution channels. Their recent entry into the ASEAN-China Free Trade Agreement (ACFTA), which is the largest trade area by population (Geiger, 2011), will hopefully boost trade and offer new opportunities,

thanks to reduced tariffs. Indonesian officials are also expected to finalize trade agreements with Pakistan and Australia by the end of 2014. This represents meaningful attempts by the Indonesian government to improve its presence in the global market. In particular, the benefits of the trade agreement with Australia are expected to be extremely valuable for both nations. This is because the agreement is actually classified as an Economic Partnership Agreement (EPA) whose benefits extend beyond those usually associated with a regular free-trade agreement.

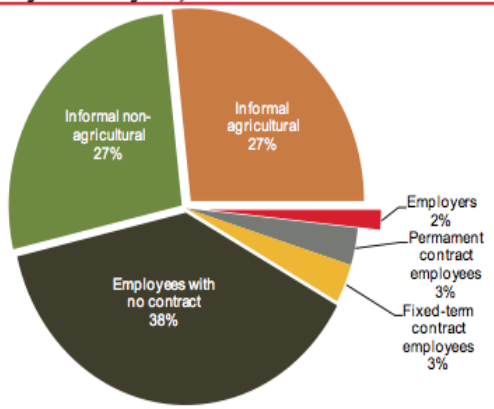
*4.2 Infrastructure*

Addressing the poor infrastructure is one of Indonesia's most pressing concerns, as it is currently a major hindrance to accelerated economic progress. Significant investment needs to be made with regard to transport, telecommunications, water, and electricity infrastructure in order to reduce the high cost of doing business and to support other socioeconomic development projects. For example, building the telecommunications infrastructure could enable Indonesia to boost international bandwidth at competitive prices, thereby encouraging technological adoption. Moreover, an improved transport infrastructure with a network of highways connecting cities such as Jakarta, Medan, and Surabaya would enhance economic activity between these cities as well as in villages along the way. Improved transport infrastructure would encourage domestic as well as international trade, especially if the efficiency of customs administrations was also improved. It would also help alleviate poor access to basic amenities, especially in rural regions, where only 80%of the population has access to improved water sources (Geiger, 2011) and limited access to healthcare.

*4.3 Education and Employment*

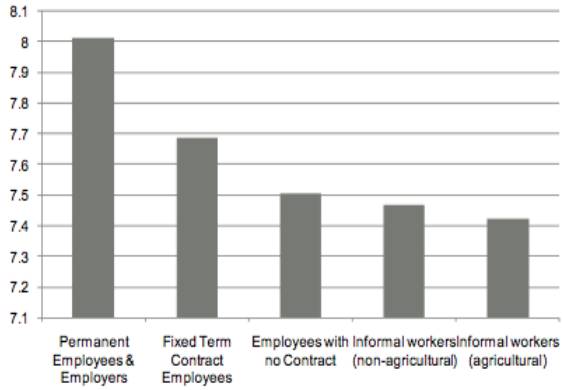
Considering the declining population in the under-20 age group, resources should be directed away from primary education toward secondary and tertiary education. They should also be used to enhance the still comparatively low quality of education, and to try to boost enrolment rates. Given the low portion of university graduates, it would make sense to instead educate more workers with on-the-job and vocational training so that they can perform higher value-added non-agricultural jobs in the formal sector. This is because jobs in the formal sector provide wages that are 30% higher than those in the informal sector, and also provide non-wage benefits (World Bank 1, 2009).

*(shares of the labor force)*




Source: Sakernas 2007 and World Bank

*(mean log monthly wages)*




Source: IFLS 2007

A flexible labor market is necessary to ensure its efficiency and competitiveness, and protection for workers is also particularly important, as it is related to Indonesia's efforts to alleviate poverty in a sustainable manner. It is imperative that jobless economic growth, as what happened between 1999 and 2003, does not occur again, as this would severely handicap efforts to reduce poverty. The actions that the government can take are twofold: First, create more jobs, especially in the formal value-added sector; second, improve worker protection, for example, by imposing labor policies that make it mandatory for employers to give workers employment contracts, even if they are in the informal sector. Currently, even in the formal sector, 81% of employees work without a contract (World Bank 1, 2009), which means that they receive lower wages and are less likely to receive non-wage benefits. The dire need for the government to invest in human capital is based on the need for individuals to generate income for savings and expenditure.

*4.4 Society*

As the economy develops, it is important for Indonesia not to lose sight of the quality of life and standard of living of its inhabitants. With the rapid rate of urbanization that is disappearing, it will become necessary to improve conditions in the cities as they become more overcrowded, such as sanitation, public transportation, housing, and security. They also need to ensure that the poorer rural regions are well provided for; for example, the government could set long-term plans to develop areas such as northern Sumatra as an economic hub in manufacturing and services, rather than just resources industries or agriculture. This could be done through investment allocation, designation of free trade zones, and improved transport infrastructure.

The government also needs to improve national healthcare, especially considering the aging population and the newly implemented universal health coverage plans. Health spending in Indonesia is still relatively low compared with its neighboring countries, and improvements are necessary especially in rural regions, and particularly in terms of quality and efficiency. The capacity of the health workforce and specialists is also not yet up to par, with an estimated 40% of doctors absent without valid reason during working hours (World Bank 1, 2009). Indonesia could improve on this by promoting the education and training of specialists, combined with a proper incentive system, and further development of projects such as mobile clinics.

The government should also start considering a solid design for the provision of social welfare—they are currently adopting a minimalist role that could further exacerbate problems with poverty and income equalities, potentially leading to social unrest. They should also advocate scientific knowledge and impose strict regulations in order to preserve the national environment and resources.

*4.5 Women—Empowerment, Education, and Employment*

In order to exploit the demographic composition to its full potential, Indonesia should attempt to empower and educate its women population in order to increase their economic participation, thereby further reducing the dependency ratio. This is currently restricted to a major extent by religious beliefs and social norms, although Indonesia can take a stance in trying to change societal attitudes, among women and men alike, toward education equality and women working outside the home. It is also important to empower women to make choices regarding age of marriage and number of children to bear, so as to control population growth. Although Muslim women face difficulties regarding their rights and equality, change can happen with increased awareness through media, government support, and activism. We can take Tunisia as a model for positive effects of empowering women politically, economically, and socially, which has resulted in lower birth rates, substantial economic growth, and a shift in social attitudes toward women.

**5. Challenges**

Indonesia's remarkable economic growth has been mainly a result of an increase in inputs, specifically labor and capital. However, this may not be enough to sustain growth

in the future, especially as the demographic window comes to a close and the workforce starts to shrink. Indonesia should instead rely on productivity gains to sustain growth, which, according to George Magnus, author of *The Age of Aging*, depends on "excellent education, good macroeconomic management and adequate regulation of labour markets." Otherwise, they could fall into a middle-income trap, and could undergo the same situation as countries in Latin America, which had the same demographic profile, but squandered away this opportunity due to lack of a solid government.

Indonesia also needs to be aware that the timing of the demographic window of opportunity varies from one region to another: Indonesia is a diverse country whose age composition differs among regions. For example, Pacitan has a higher percentage of older people at 14.2% (Ananta & Arifin, 2009) and sees a huge influx of younger people each year in search of job opportunities; therefore, the demographic window or opportunity in this region will occur much earlier than 2025. The government should ensure not to impose a homogenous policy onto the entire population, but should instead tailor policies to match each region's demographic situation.

Some pressing challenges for Indonesia to take action quickly are that it needs to quickly determine where it will be able to get the funding for the universal health coverage system, especially considering the increasing fraction of the elderly in the upcoming decades. They also need to finance the huge infrastructure upgrades, which will already be challenging as a result of the difficult environment due to the geography and the climate. The current plan is to increase taxes on exports of raw minerals and to approve a new Land Law for Public Use, which would ease a major constraint in acquiring land for public infrastructure. However, the legislation surrounding this has been proceeding very slowly.

It is vital for Indonesia to maximize its window of opportunity and to tackle its challenges head-on. The cost of missing the demographic window would be dear: A weak economic stance coupled with a higher proportion of older people means that Indonesia would have to deal with financing pensions and healthcare, and its huge population would then become a major liability. The productive-age population would suffer high unemployment without decent job creation, which could lead to social problems and unrest.

Furthermore, some extraordinary unpredictable scenarios could occur, which would distort the foreseen demographic situation in Indonesia, such as:

- Reversal of declining fertility trends due to Islamic influences
- Global economic depression
- Natural disaster such as the paralyzing 2008 tsunami
- Political turmoil or social unrest

**6. Global Order**

Indonesia is located at the heart of South East Asia, and is starting to play an increasingly prominent role in global affairs. It is South East Asia's only member of the G-20, and is projected by the Standard Chartered Bank to be included in the G-7 by 2030, as it is expected to be the world's 5th largest economy at that time.

Indonesia is the current chair and leading member of the Association of Southeast Asian Nations (ASEAN), and is, therefore, responsible for shaping and consolidating regional initiatives that are focused on mutual economic, social, and political benefit.

The other more prominent one should consider when analyzing Indonesia's role in the global order is the nation's relationship with China. The complete implementation of the ASEAN-China Free Trade Agreement (ACTFA) in early-mid 2000 was a cause for public concern in Indonesia (Chandra & Lontoh, 2011). The Indonesian government has always been overly protectionist, and its future handling of this agreement (in particular, its renegotiating of specific tariff lines) is likely to play a critical role in the nation's future relationships with China and other global economic powerhouses.

*Foreign Trade*

As previously mentioned, Indonesia's recent successes have been primarily sustained by a powerful domestic middle class. What this also means is that Indonesia's export market has been experiencing indolent growth. The reasons for this sluggish growth can be attributed to both bureaucratic inefficiencies within the Indonesian government and public and private failures to support entrepreneurial ventures.

**7. Where to Invest?**

*Automotive Industry*

Propelled by an expanding and ever-more prosperous middle class, Indonesia as a country buys more cars than any other country in the South East Asian region. What is

also important to mention is that Indonesians are increasingly opting for luxury car brands. It is not uncommon to see Porsches, Bentleys, and Audis in the richer neighborhoods of Jakarta. The two-car family is slowly becoming commonplace, particularly in the nation's capital.

The bank's central Bank (Bank Indonesia), supporting this trend, has kept its primary interest rate at 6.75%. This has allowed Indonesian citizens to finance their purchases of automobiles at an affordable rate. This is significant, because the average Indonesian citizen will finance their purchase of a car by 80% of bank loans. Several car-makers have picked up on this trend and announced direct investment of more than $2 billion in 2011.

One potential concern for investors in the sector is that the cost of driving is set to increase. In February 2012, the Indonesian government announced that it would slash subsidies for fuel for the majority of private vehicles. This is likely to have a decisive impact, because without the subsidy, the price of fuel could increase by close to 100%. However, this announcement caused widespread agitation among the Indonesian public, and analysts have stated that there is a possibility that the government will reverse this decision.

*Tourism and Service Industry*

At the moment, the service industry represents close to 40% of GDP. Unfortunately, of this figure, very little can be attributed to the tourism industry. It is an industry that experts regard with much potential but identify as poorly managed. The real value of tourist receipts actually lowered in 2012 compared with 2011.

However, there is much room for optimism in the tourism sector. Recent events such as the Jakarta Great Sale Festival (June 2011) and the Jakarta International Java Jazz festival (March 2012) were massive successes, and promoters have made it a point to actively advertise these festivals in nearby locations (such as Thailand and Singapore). Analysts have predicted that the 2012 edition of the Jakarta Great Sale Festival will generate close to $1 billion in revenues.

The government is also trying to promote Indonesia as a tourist destination. In July 2010, the Ministry of Culture and Tourism provided community funding to 200 select villages across Indonesia. These villages are known as "tourist spots" and have proved

to be a major success with the influx of tourists (both domestic and international). This entry of tourist revenue means that several new jobs were created for local villagers. The government has set an ambitious goal of hosting close to 8 million tourists in 2012, and this kind of objective setting represents a massive niche market for potential investment.

*Construction Industry*

Given the expected economic growth in Indonesia over the next couple of decades, combined with the government's upcoming focus on prioritizing infrastructure development, we believe that the construction industry could prove to be a lucrative investment in the long term.

The Indonesian construction sector will reach an expected value of USD78bn in 2013, up from USD38.8bn in 2008 (Business Monitor International, 2011). This rapid expansion of the construction industry is likely to continue, driven by transport and energy infrastructure developments, as well as industrial construction from the economy's rapidly expanding mining sector. The aforementioned increase in population and urbanization will also drive demand for residential units. Another factor is that the government is looking to increase private investment into construction, through the newly developed Indonesian Infrastructure Fund. The government has already announced USD250bn for infrastructure development in the years up to 2015 only, 60% of which will come from private investment (Businesswire, 2012).

Foreign construction firms are only permitted to be subcontractors or advisors to local firms, and only on the condition that the local firm does not have the expertise to do the work. Regarding government-financed projects, foreign companies should form joint ventures with local firms (Business Monitor International, 2011). For this reason, we believe that a good strategy for investors looking to profit from the construction boom would be to invest in publicly traded domestic Indonesian construction companies, such as AdhiKarya or WijayaKarya, as well as local companies related to the construction sector; for example, iron and steel, cement, and engineering (Business Monitor International, 2011).

*Healthcare Industry*

In the first half the 1990s, Indonesia had a triumvirate structure of community health care centers. This was considered an abject failure of a system and was ranked last (with a rate of 0.66 hospitals beds per 1,000 citizens) among all Association of Southeast Asian Nations (ASEAN) members (World Health Organization, 2010).

The tide started shifting in about 1995, when the World Health Organization reported that there were 16 physicians per 100,000 population in Indonesia, 50 nurses per 100,000, and 26 midwives per 100,000 (World Health Organization, 2010). This was overall considered a confused healthcare system where both traditional and modern health care approaches were applied (World Health Organization, 2010).

This was a turning point for the nation and was evidenced in Indonesia's 2007 public expenditure review which showed that the private sector health had grown significantly from 1997 to 2007. As an initial step, the United States Agency for International Development's (USAID) health systems 20/20 and strengthening Pharmaceutical Systems projects reviewed the current state of affairs in private health care. It then honed in on the gaps in the system and offered tangible measures to improve the existing state of affairs (United States Agency for International Development, 2010).

Due to the success of such initiatives, there was a large trend among Indonesians for private health care, even among the members in the lowest segment of the socioeconomic chain. It is predicted that over the long term, general demand for private healthcare will increase and although the trend has shown a slight slow-down since 2004. This, however, can be attributed to the government initiatives to offer publicly funded facilities for the poorest Indonesians (United States Agency for International Development, 2010). A final observation is that due to the success of the aforementioned schemes, several of Indonesia's key health indicators, such as infant and child mortality, have shown positive and steady improvement over the past 20 years, and in particular in the 1997–2007 period. However, there are still causes for concern in two main areas: (1) Child malnutrition and (2) Low prevalence of Measles, Mumps, Rubella (MMR) vaccine (United States Agency for International Development, 2010).

## 8. Conclusion

In sum, we can see that the outlook for Indonesia is positive, given the favorable demographic shifts and the stable political and economic environment. Nonetheless, it is necessary for the country to improve on certain measures such as investment in human capital and the development of infrastructure in order for it to truly capture this demographic opportunity and leverage some of the natural resources that have remained untapped till now. Failure to do so could cause a huge burden on the country, as it means the economy could fail to achieve a level of development that is capable of sustaining it through the future when the dependency ratio starts rising as the elderly account for an increasing portion of the population.

Awareness of the demographic trends is the first step in tackling the upcoming challenges, and the future of Indonesia is bright if the government can prevail. This would help bring the numerous budding investment opportunities within the country to fruition, and would bring the nation onto the world stage as a leading global player.

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**Project Paper 8**


# Demography meets Switzerland's Migration Policy and its Implications

submitted by

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**Executive Summary**

Switzerland is, next to Luxembourg, the country that faces the most vital challenges regarding the significantly high number of immigrants in Europe. Yet, there is strong evidence that immigration plays a key role in Switzerland's economic growth at the same time that it counter affects the country's demographic development (Afonso, 2007; Sheldon, 2001; Stalder, 2010). This paper examines the importance of migration and its multidimensional effect on the country's demographic, political, economic and social development.

To this aim, it first introduces the demographic evolution in Switzerland to this day and then continues with a theoretical overview of the different scenarios related to future population growth. After the provision of the political framework and the most recent initiatives that the government has taken, in order to confront the social dissatisfaction related to the multidimensional influence of immigration, it estimates the expected outcomes of one of these initiatives.

Immigration regulations have become a key policy instrument towards the development of a social environment whining which social welfare can be maximized given the existing policy regulations and international agreements, as well as the country's market dynamics. However, immigration provisions do not come at zero costs.

This paper elaborates on the initiative 'Stop overpopulation—to secure natural resources'. According to this initiative, the permanent resident population is not to increase by more than 0.2% of the average of the three previous years due to immigration. In order to gauge the effect of this initiative, we have developed our own data set. In particular, we have designed a formula that records the migration growth, provided that the initiative would be set into effect, and takes into consideration the growth of the Swiss people together with the already existing foreign population. If the growth of this population hits the 0.2% limit, then the migration growth is equal to zero; otherwise, it has some room to generate positive numbers. For this analysis, we have addressed the time window from 2013 to 2060.

As a final step, this paper combines the produced theoretical results with detailed knowledge about the dynamics of different sectors of interest. Based on this analysis, this paper identifies that migration is an issue that touches on a number of realms while its effects vary over the short term and the long term. Additionally, we suggest that this initiative is an inappropriate policy choice that will violate Switzerland's international agreements and will drive the economic growth, as well as Switzerland's competitiveness, down. In closing, the authors of this paper suggest that stricter policy regulations related to the use of social benefits from immigrants and the wage dumping could strengthen the efficiency of market outcome. In addition, Switzerland would be able to overcome some of immigration's negative

effects if the state would focus more on designing the proper framework, leaving the steering wheel of migration to labour market dynamics.

**Table of Contents**

**Table of Charts**[1]



[1] Charts 2, 3, 4, 8 and 9 have been designed by the authors based on their own calculations and with the use

## 1 Introduction

In Switzerland, there are several upcoming initiatives that claim that immigration must be limited. This shows the increasing pressure the Swiss government encounters to take action against immigration. The options for action, however, are strongly confined since Switzerland is a contracting party in several international agreements (for example, the agreement on free movement of persons between Switzerland and the EU) that do not allow political regulations against immigration. A violation of such agreements could have negative effects on Switzerland's profile and its economy. There are not only juridical difficulties for political interference but also economic ones.

At the same time, the claim for limiting immigration raises questions concerning not only the instruments used but also the selection of the decision maker. Who will decide which immigrants are allowed to enter and which are not? Will the economy still be able to hire all the employees it needs? Is political steering of migration effective, or should the labour market undertake this task? This paper will elaborate these questions in the following chapters.

More precisely, we will start with an introduction of the demographic development in Switzerland up until today and will provide an overview of how it is expected to evolve in the future. Then in Chapter 3, we move on to the political background related to migration. In the main section, the paper focuses on the impacts the initiative will have if it is put into effect. For this reason, Chapter 4 will lay out the impact of immigration on the economy and the country's competitiveness and social system and analyse the expected consequences its limitation will have. Finally, Chapter 5 ends with some careful conclusions and discusses some ideas that could improve the migration scheme.

## 2 Switzerland's Demography

To begin with, in order to gain a better understanding of Switzerland's current economic situation it is necessary to display the country's demographic development. By doing so, it can be seen how demography has evolved over time and which challenges have to be faced. This paper will elaborate these challenges and will try to answer the question of what would happen if there was a stricter migration policy. In order to answer this question, it is necessary to first take a look at the importance and the effects migration has had until today. As a next step, we are going to design a scenario regarding Switzerland's demographic development and its impact on the country's economic development, as well as other aspects that we deem to be important for its social welfare. For our better understanding, we have considered some general forecasts regarding the population growth, which will then be adjusted to the scenario of a stricter migration policy.

### 2.1 Historical Background

Switzerland counted 2,515,396 people in 1861. Since then and by the end of the 19th century, population had been growing steadily below 1%. During the period from 1895 to 1910, Switzerland experienced a strong population growth (reaching approximately 2% per year). After that, the population growth decreased but stayed positive, with an exception in 1918 when due to Spanish flu the population decreased suddenly. After World War II and until 1969, there was another period in which there was a strong population increase in Switzerland, which is known as the "baby boomers". The strong economic recession in Switzerland that occurred between 1975 and 1977 led to a decreasing population. Since then the country has continuously been growing in a moderate way to this day, reaching 7,954,700 people by the end of 2011 (FSO Switzerland (E), 2012). The decrease in the years 1918 and 1975-1977 was caused by a negative migration balance. There have been other periods within the accounted time horizon in which migration balance was negative. Especially in the late 19th century and during both the world wars, the number of people migrating out of left Switzerland exceeded the number of people immigrating into the country. But during these years, the surplus of births was high enough to compensate the migration deficit. The number of births has been higher than the amount of deaths over the whole period from 1861 to the present day, except for the year 1918 in which, as mentioned earlier, many people suffered from the Spanish flu (FSO Switzerland (B), 2012).

The change in size of Switzerland's population can be interpreted in many ways. On the one hand, as mentioned earlier, for the biggest period of time there has been a positive migration and birth balance. On the other hand, the main factor driving population growth has been the increasing life expectancy. Back in the 1950s, life expectancy for women had been close to 71 and for men about 66.5. Nowadays, these numbers are close to 85 for women and 80 for men. This effect obviously has its limits because life expectancy cannot grow

constantly and endlessly over time. It is also important to mention that fertility has strongly decreased over the past few years. An average woman living in Switzerland gave birth to theoretically 4.38 children in 1871 (FSO Switzerland (D), 2010) and 2.4 children in 1950, whereas in 2010 the fertility rate had decreased to 1.54 (FSO Switzerland (C), 2011). By comparing the surplus of births and the migration balance over time, it can be seen that population growth was strongly dependent on the surplus of births until after the Second World War. From this point, except from the period of economic recession, migration has been growing in importance because of its effect on population growth. Nowadays, around 75% of the population growth is due to migration. However, migration seems to be volatile since it is strongly correlated to economic changes. As it can be clearly seen, there is high uncertainty related to how Switzerland's demography will develop (FSO Switzerland (A), 2012; FSO Switzerland (B), 2012).

### 2.2 Current Situation

The actual population pyramid displays many of the historical events described before. For example, the decrease in fertility might be one of the reasons explaining the population pyramid's urn shape. Another reason explaining this shape is that the baby boomers, born during the years after the Second World War until 1969, are aging. This group of people between the ages of 40 and 65 now represents the biggest share of Switzerland's population, reaching 35.5% (FSO Switzerland (E), 2012). Especially the ratio of number of employed people to number of inactive people (youth and pensioners) has changed drastically.

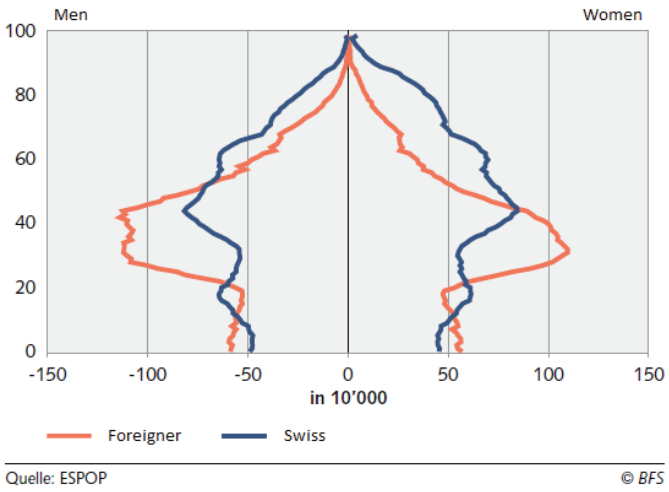



Chart 1: Population pyramid split into the Swiss people and foreigners (FSO Switzerland (J), 2010, p. 6)

In 1860, there were 70.6 people below 20 years and only 9.2 pensioners per 100 people in the active labour force. Today, this quotient has decreased for youth to 33.8% and tripled for pensioners to 27% (FSO Switzerland (D), 2010). Due to the high life expectancy (women: 84.7; men: 80.3), the total share of pensioners has increased as well, reaching 17.2% in 2011 (FSO Switzerland (E), 2012). It is interesting to see what happens when the population pyramid is split into people with Swiss nationality and immigrants (both displayed by a representative number of 10,000 people as done by the BFS). As shown in the above graph (FSO Switzerland (J), 2010), the youth's quotients for these two groups are not very different (Swiss: 35%; foreigners: 31%), whereas the ageing quotient is much higher within the Swiss share of the population (Swiss: 32%; foreigners: 11%) (FSO Switzerland (J), 2010). The total numbers are closer to the ones from the Swiss because the share of people who live permanently in Switzerland without Swiss citizenship was 22.8% in 2011 (FSO Switzerland (E), 2012). Although the population is ageing and fertility is decreasing, Switzerland's population is still growing with a rate of 1.1%. (FSO Switzerland (E), 2012).

### 2.3 General Forecast

According to the Swiss Federal Statistical Offices, there are three main scenarios related to the expected development of the country's population. The standard and middle scenario "A-00-2010" describes the development with the current trends. The other two scenarios "B-00-2010" and "C-00-2010" show what would happen if the defined criteria such as fertility, life expectancy and migration (Moeckli, 2011) will develop in such a way as to support population growth (B) or to detain it (C). Scenario "D-00-2010" shows the case of an increasing ageing quotient, whereas scenario "E-00-2010" illustrates the case of a shrinking one. Besides these three main and two special scenarios, there are 13 others that deal with the change of trend ceteris paribus in one criterion (FSO Switzerland (K), 2010).

In this chapter, there are no assumptions on future voting or migration. Therefore, this chapter will restrict itself to illustrating the general forecast of Switzerland's demography based on the numbers from scenario A-00-2010. According to this scenario, the number of people living in Switzerland will reach 8,738,477 people by 2030 (FSO Switzerland (G), 2012). Population is expected to grow till 2040 and then stagnate at a level of approximately 9 million people (Moeckli, 2011). The share of people in the working age between 20 and 65 will decrease to 56.3%, the youth will decrease to 19.5% and the group of people above 65 will increase to 24.2%. This implies that, in average, 100 employed people will have to take care of 77.7 inactive people ($34.7 < 20$; $43 > 65$)[2] (FSO Switzerland (G), 2012). The share of people over the age of 80 within the pensioners is expected to increase to 32.4% or even 42.1% by 2060.

[2] Excluding the existence of unemployment.

This plays a crucial role in the country's social support system, because the older a person gets the more costly he/she becomes for the society. Moreover, the fertility in this middle scenario is expected to remain at today's level, reaching 1.52 children per woman (FSO Switzerland (I), 2011). Combined with the assumption of a life expectancy that will not be much different from today's (FSO Switzerland (K), 2010), this implies that the birth surplus in 2030 will be 0.2‰ with a negative trend reaching -2.7% by 2060 (FSO Switzerland (F), 2012). Because the population is expected to stagnate after 2040, the migration balance must be positive to compensate the upcoming death surplus. Although the balance for Swiss people will stay slightly negative, the migration balance will level off at about 2.5% (FSO Switzerland (H), 2011; FSO Switzerland (F), 2012).

The scenarios B-00-2010 and C-00-2010 show the upper and lower bounds, respectively, of the population's development and therefore represent the extreme cases. This might help in making prognosis about the possible outcomes. The highest possible population size estimated by the Federal Statistical Office for 2030 (2060) is 9,533,000 (11,315,400) people, whereas the lowest outcome is 7,888,300 (6,758,200) (Moeckli, 2011). These numbers show that there is high uncertainty regarding the factors that directly influence Switzerland's demography. A continuing growth, as well as a strong decrease in population, is considered to be possible.

Before changing over to the scenario and therefore the consequences of immigration, the political framework of immigration is presented in the following chapter.

# 3 Political Decisions Concerning Migration

Since the introduction of the federal act of residence and settlement of foreigners in the year 1931, the Federal Council of Switzerland has been responsible for the unification of social and economic interests, as well as the surveillance of the degree of foreign infiltration (d'Amato, 2008). Therefore, the Swiss Federal Office for Migration has been pursuing three main goals (Federal Office for Migration, 2012):

- Managing immigration to ensure and foster Swiss prosperity
- Supporting refugees
- Introducing necessary arrangements for a peaceful living together of locals and immigrants

As we see in this chapter, the first and the third points are linked together. On the one hand, a certain degree of immigration is needed to provide the Swiss market with enough workforce. On the other hand, the Swiss population has a fear of foreign infiltration. This leads to a trade-off between social and economic needs.

## 3.1 Past Developments in the Politics of Migration

The fears of the Swiss population of immigration are not new. The first popular initiative against foreign infiltration was launched in 1964 (Federal Chancellery (A), 2012). The claim of this initiative was to decrease the amount of immigrants in Switzerland to a maximum of 10% of the total population. In fact, the amount of immigrants increased from 10.8% in 1960 to 17.2% in 1970 (FSO Switzerland (N), 2008). Although this initiative has been recalled, many initiatives have been launched since then that aim to decrease immigration.

In 1970, immigration quotas were introduced in order to limit the amount of immigrants in Switzerland (Federal Council of Switzerland, 2012). Since 1999, these quotas have been affecting mainly the non-EU countries, as the agreement on free movement of persons between Switzerland and the EU does not allow this regulation instrument any more.[3] These developments have led to a dual permit system. Immigration from non-EU countries is limited to highly qualified employees. Immigration from EU countries, on the other hand, is (widely) liberalized. Additionally, there is immigration based on residence permits for the family of an immigrant, as well as immigration driven by humanitarian needs (asylum).

### 3.2 Current Developments in the Politics of Migration

The liberalization of migration between Switzerland and the European Union is now in danger as current initiatives in Switzerland claim a decrease in immigration. The initiative 'against mass immigration' will soon be ready to be voted on since enough signatures had been collected by March 2012 (Federal Chancellery (B), 2012). This initiative claims that quotas and yearly maxima should be used to limit immigration into Switzerland. Quotas are already being used for non-EU countries.

At the same time, there are two additional initiatives that are still in the process of signature collection:

- Initiative 'stabilization of the total population'
- Initiative 'stop overpopulation—to secure natural resources'

The first claims that immigration is not to exceed emigration, without mentioning the measures to be taken (Federal Chancellery (C), 2012). The second initiative claims that the permanent population is not allowed to increase by more than 0.2% of the average of the three previous years due to immigration (Federal Chancellery (D), 2012). This initiative will be used as the basis for the design of the scenario in the following chapter.

The presented initiatives are probably not going to be approved by the Swiss population, since the Federal Council disapproves the reinforced political steering of immigration. As Simonetta Sommaruga explained in one of her speeches (FDJP, 2012), the economy is the driving force of immigration. Politics should focus on preventing and minimizing the negative consequences of immigration, but the general steering itself should be done through the dynamics of the labour market. For the scenario, however, this discussion is not important,

[3] Quotas still exist for the new EU countries on the basis of the transition period.

since its purpose is to analyse the impact of immigration as well as the possible consequences of an immigration limitation. Even if the approval of the initiative is improbable, its existence shows the increasing pressure the Swiss population is putting on its government in order to steer immigration more effectively and even limit its number.

### 3.3 Political Difficulties of the Initiatives

Before beginning with the analysis of the consequences of the initiatives on Switzerland's economy, social systems, etc., we discuss some of the political problems this initiative is causing. First of all, the agreement on free movement of persons between Switzerland and the European Union is in all probability going to be violated. Immigration cannot be liberalized and limited at the same time. Because of the 'guillotine clause' in the bilateral treaties, all the agreements between Switzerland and the EU can be canceled due to the violation of one agreement (FDFA, 2012). The initiative is therefore a danger for future beneficial relationship between the two contracting parties.

Second, the initiative does not mention by whom the immigration should be steered. Is it the economy who decides which immigrants are allowed to enter or will it be a political decision?

Third, there is the question of how immigration will be limited. In this case, every year a different amount of immigrants will be allowed to enter. This would probably be managed by quotas. Other instruments need to be borne in mind.

Finally, the initiative raises the question of who will be affected. This factor is highly linked with the precedent factor, since the groups affected depend on the limitation instruments used. For example, one could argue that particularly the low-qualified immigrants would be affected, since this was the case for the non-EU countries where immigration is enormously limited. On the other hand, low-skilled immigrants primarily enter due to residence permits for families (Bundesamt für Migration, 2011). Therefore, low-skilled immigrants would be affected if the regulations for residence permits for families are changed to limit immigration (for example, by introducing additional requirements for receiving such permits). The same argument holds for immigrants entering due to asylum. They would not be affected by immigration quotas.

In conclusion, the approval of the initiative would raise several political questions that again will have a great impact on Switzerland's economy, social system, etc., on which we focus in the next chapter.

## 4 Scenario—Estimated Development

Generous immigration regulations are generally believed to have affected the labour market outcome and have significant economic and social effects overall. In the meantime, demographics in the shape of decreasing fertility rates and therefore labour force shortage

are one of the key challenges of Switzerland. Thus, immigration regulations have become a key policy variable in counter-affecting demographic changes and precisely understanding the vital importance of their effects.

As the effect of immigration regulations is embedded in a complex network of different perspectives and is heterogeneous among the parties concerned, many empirical studies that explicitly try to gauge the effect of immigration on the country's economic growth make use of shifts in policy regimes. The introduction of the previous chapter on the upcoming political initiatives has helped us realize the importance the limitation of immigration has for the Swiss population.

As already mentioned, this paper will elaborate on the initiative 'stop overpopulation—to secure natural resources'. According to this initiative, the permanent resident population is not to increase by more than 0.2% of the average of the three previous years due to immigration. Provisions in the migration regulations, which are in place in virtually every European country, aim at the protection of the local workforce, the national identity and the country's economic development.

However, immigration provisions do not come at zero costs. The effect of migration touches on a various number of realms of economic and political literature. For our purposes, we are going to use the set-up of the aforementioned initiative to analyse its possible consequences on the Swiss market outcome, including demographic change, economic growth and academia, the country's competitiveness, as well as the country's health care system and security system. We will also extend the overview by briefly touching on a few other aspects that we deem to be important for the present study, for example, the living and housing costs.

### 4.1 Data and Empirical Strategy

Due to constrained access to the necessary data, we are not able to conduct our own empirical analysis by generating the appropriate econometric model and running the required regressions. Therefore, in order to tackle the expected effects that may arise from a new immigration scheme, we have made use of the data received by the analysis conducted by the Federal Statistical Office of Switzerland.

To be more specific, the calculations we have exported are based on the three main scenarios from the Federal Statistical Office, A-00-2010, B-00-2010 and C-00-2010, and the respective data representing the expected population size until 2060. As already mentioned, scenarios B and C, which are the scenarios with the strongest and lowest expected population growth, represent the extreme cases and therefore illustrate the boundaries within which the population is expected to evolve in the future. Case A focuses on the current trends and is therefore considered to be the most probable one.

Our analysis focuses on the prognostication of migration growth in a time window from 2013 to 2060. We therefore have calculated this function for all the years from 2013 to 2060 and have obtained the expected values of future population size given that the new initiative will be put into effect. After obtaining these numbers, it is possible to think further and tackle the effects of this limitation on the economy, social security systems, educational level and other areas.

### 4.2 Calculation

By introducing the initiative, we had to change the data from the Federal Statistical Office and take some assumptions. First, we assumed the formula suggested in the initiative to have first become active in 2013, so we could easily calculate the three-year average from the previous years, 2010, 2011 and 2012. In a further step, we assumed that the demand for moving to Switzerland is infinite; thus, we obtained the maximum number of immigrants allowed by the initiative for every year. Taking all the aforementioned assumptions into consideration, the examined initiative can be mathematically represented by the following function:

$$M13 = \max\left[0;\ 1.002 * \frac{(P10 + P11 + P12)}{3} - E_{P(CH)}13 + F12\right]$$

$$P13 = E_{P(CH)}13 + F12 + M13$$

$$F13 = F12 + M13$$

*M*13: total number of immigrants in 2013; *P*13: size of the whole population in 2013; *F*13: foreigners in Switzerland in 2013; : expected number of Swiss people in 2013

The initiative implies that population is not allowed to grow more than 0.2% of the average of the previous three years due to migration growth. This divides the analysis into two probable outcomes. First, if the Swiss population together with the foreigners already living in Switzerland grow by more than 0.2% of the three-year average of population, migration growth is not allowed and thus it must be zero. In the other case, if the growth of the Swiss population and the already existing foreign population is lower than 0.2% of the three-year average of population, migration growth is allowed to grow till it fills the gap to this 0.2% limit. This is represented by the first equation with the maximum condition. This implies that either the Swiss together with the already existing foreign population in Switzerland will grow together strongly and thus migration growth will be equal to zero or they will grow with a moderate trade-off, leaving some space for migration to also grow.

By running this calculation, we obtained different results from those obtained by the Federal Statistical Office. Therefore, the three-year average is continuously taken by our new, calculated population sizes. If migration is positive, the total number of foreigners living in Switzerland has to be adjusted. This is represented by the third equation. The second equation gives the total population size. After obtaining new numbers for the population development under the constraint of the initiative for the different scenarios, comparisons with the unchanged scenarios can be made to see the numeric demographic effects of the initiative.

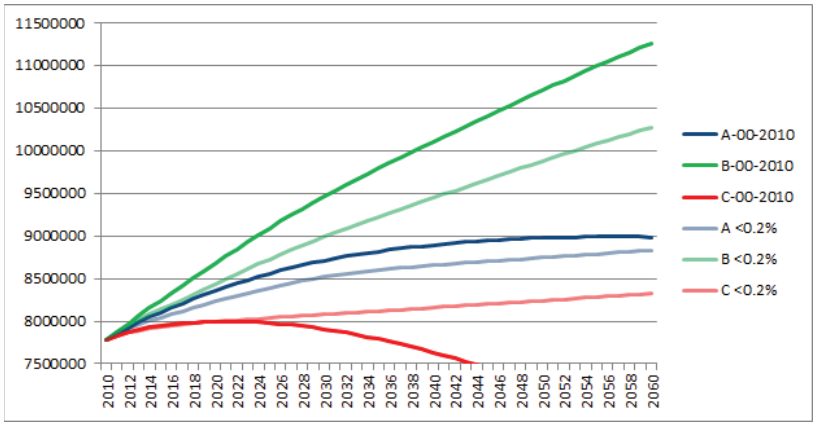



Chart 2: Development with the initiative's constraint

### 4.3 Demographic Results

By plotting the obtained mathematical results, we received the following chart. The blue line in the chart shows the unchanged forecast A-00-2010 of the Federal Statistical Office. Again, this scenario assumes that today's trends will continue. The population size according to this scenario will reach approximately 8.7 million people in 2030. The light blue graph illustrates the growth of the population in the case the initiative 'stop mass immigration' is put into effect. The light-blue line is lower than the blue line because immigration is possible only if population growth without immigration is less than 0.2% of the average of population of the three previous years. This is not fulfilled in scenario A-00-2010. The same explanation holds for the pair of green lines, which represent scenario B-00-2010. Regarding scenario C-00-2010, the situation is different because it underlies the assumption of a shrinking Swiss population after 2020. In this scenario, immigration can take over all the growth up to the limit of 0.2%. Thus, the light-red line is higher after 2020 and continues to grow at 0.2% of the average population size of the previous three years. Before 2020, the initiative has just a tiny effect on population growth, so the lines are almost the same. It is important to understand that these light lines only represent a maximum of the population, assuming that every year the allowed maximum of people will immigrate. Thus, population will only be as big as that shown by the light-red line, if there are always at least as many people willing to come to Switzerland as are permitted to enter the country.

The development of population is not always smooth. This raises the following question: What would happen if there will be a recession from 2015 to 2017 similar to the one that occurred from 1975 to 1977 when on average 50,000 people emigrated from Switzerland? This scenario is represented by the green line. It shows that if there will be a time period where the allowed maximum of immigration will not be reached or in other words, 50,000 people per year will emigrate from Switzerland during 2015 to 2017, the maximum of immigrants will be lower in every upcoming year. An economic recession could lead to such

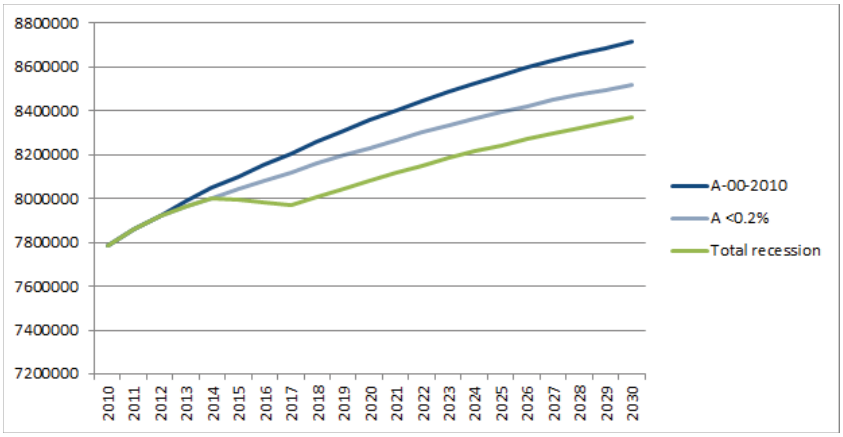



Chart 3: Population development with recession

a situation. Any circumstance in which the allowed maximum of immigration is not fulfilled will have a permanent effect on Switzerland's demography. On the other hand, the effect will be mitigated if more people want to move to Switzerland.

Hence, the effect of the initiative strongly depends on the willingness of the immigrants to enter Switzerland. Chart 4 shows the maximum reduction of immigrants the initiative will cause, taking into account every scenario. Scenario B, which assumes generally high growth caused especially by immigration, will be strongly limited. In 2030, there will be a difference of around 470,000 people. The difference for scenario A will stay at about 200,000 people. Scenario C assumes permanent negative immigration balance; thus, the allowed maximum of foreigners is higher than the amount of foreigners willing to come to Switzerland. In this case, the initiative's formula would not come into play and the red line will thus be just a theoretical one. Chart 4 shows again the ongoing effect of a recession or a short time period in which immigration does not reach the maximum level that would be allowed. We created an artificial recession from 2015 to 2017 with a total amount of 150,000 people leaving Switzerland. The difference in population between this case and the unchanged scenario A would still be 150,000 people in 2030 because the Swiss share of population grows more than 0.2% in scenario A until 2030; thus immigration equals zero.

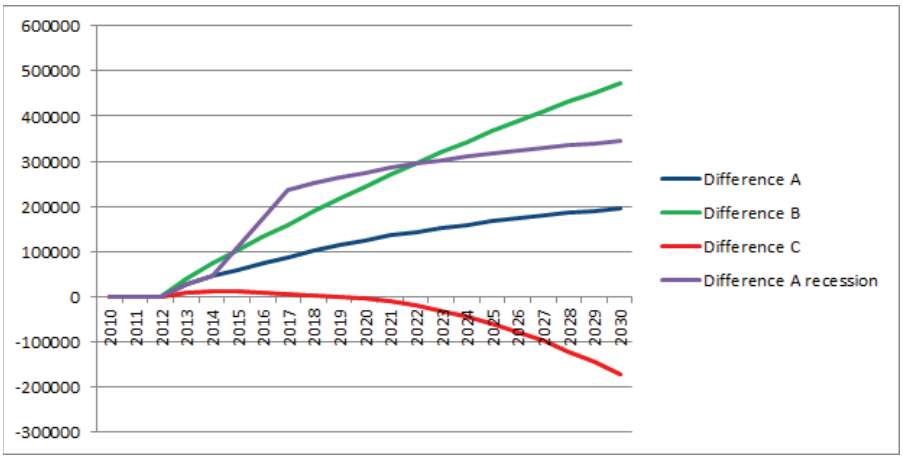
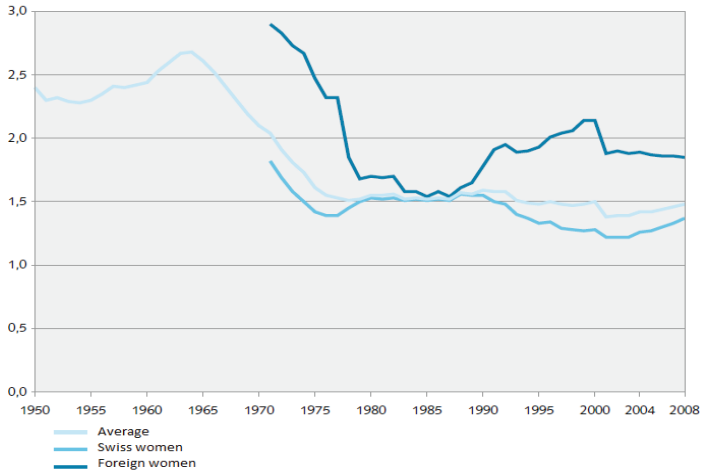



Chart 4: Population differences caused by immigration

The main findings from this calculation are the persistence of a time period with negative immigration growth and an imagination of the dimension of the initiative's effects expressed in differences of population size. For 2030, the initiative will not have an influence if population and immigration are decreasing as suggested in scenario C. In the case of scenario A the difference will be 200,000 people, whereas in the case of a strong, growing population like in scenario B difference in population size will be caused by the initiative of around 470,000 people (FSO Switzerland (L), 2012).




Source: (FSO Switzerland (M), 2009)

Chart 5: Fertility rates: the Swiss versus foreigners

These differences in population size may be even higher as shown in this calculation. One reason suggests that this is the composition of the fertility rate plotted in chart 5. During the last 40 years, the fertility rate was higher for foreign women in Switzerland than for Swiss women. This difference in fertility rate between foreign and Swiss women used to be more than one child in 1970. This spread decreased over time but still existed in 2008. Thus, if the initiative detains foreigners from coming to Switzerland, it will also have an effect on the

average fertility rate. The initiative therefore would have not only a direct influence on immigration growth but also an indirect influence on population growth, since the average fertility rate would probably decrease (FSO Switzerland (M), 2009).

### *4.3.2 Economic Development*

The initiative that our analysis is based on underlies a decrease in the population growth caused by the number of people immigrating into Switzerland. This part of the analysis will estimate the impact the opening to the EU labour market has on the cyclical and long-run development of the Swiss economy in case the examined initiative is put into effect.

Stalder (2010) in his empirical analysis suggests that facilitated immigration resolves the "labour shortage" problem while causing a diminishing effect on wages, and in turn inflation. To make this clearer, we are going to present a short overview of how immigration influences the labour and goods market. We are also going to illustrate how the interaction between these two markets influences the total market outcome.

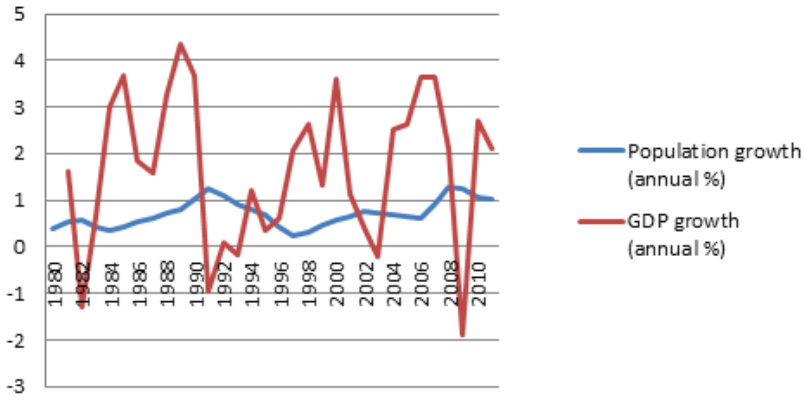



Chart 6: Correlation between population growth and GDP growth

Before we start our analysis, it is interesting to present some evidence that imply that population growth is driving economic development. According to the following graph, there is a clear correlation between the annual GDP growth measured in Swiss currency (CHF) and the annual population growth.

A possible explanation for this could be that population growth drives consumption to higher levels. This trend in turn leads to an increase in capital flow in the Swiss economy and thus GDP growth. Since migration is driving population growth, as already mentioned, one can conclude that migration leads to GDP growth. However, it is very important to clarify that although correlation is a good indicator for causality, it does not prove that an actual causal relation exists between immigration growth and GDP growth. For example, it could also be the case of a converse causality where more immigrants are attracted by Switzerland

because of the country's economic growth. Hence, there are also other factors that need to be taken into account before any conclusion can be drawn.

To begin with, Switzerland is a country facing significant challenges regarding the high number of vacancies in the labour market. Chart 7 illustrates the amounts of vacancies in the two main sectors of the Swiss economy from 2004 till the second quarter of 2012. In both sectors, the amounts of vacancies have been fluctuating, reaching their peaks in 2007. It is also very interesting to notice that the amount of vacancies by the end of the second quarter of 2012 has reached on average approximately 14,400 and 34,880 in sectors I and II, respectively, at the same time that the unemployment rate in Switzerland has reached almost 3.7%.

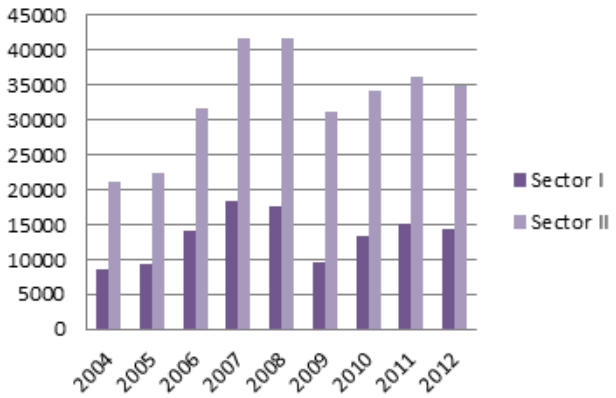



Chart 7: Job vacancies

As in every labour market that is labour constrained, this is driving the national output down with a spillover effect on goods supply. In the case of Switzerland, immigration plays a crucial role in constraining this negative effect. In fact, according to Stalder (2008) the opening of the Swiss economy to the EU labour market during the upswing period from 2004 to 2008 mitigated the labour shortages of the Swiss labour market, contributing in this way to a higher GDP growth. According to the following chart, in 2011 more than 27% of the people employed in Switzerland had been foreigners. That year, nearly 66% of immigrants from the EU-17/EFTA countries[4] worked in the service sector, 20% in the industrial sector and only 1.6% in the agricultural sector.

However, facilitated immigration does not just alleviate the structural mismatch in the labour market, but it is also followed by some negative effects that undermine the declining unemployment. More precisely, new immigration challenges the job opportunities of the already existing labour force in other segments of the labour market where employment is demand determined. Consequently, immigration tends to raise unemployment and lower labour productivity and real wages, given that the physical capital cannot immediately adjust

[4] The EU-17/EFTA countries fully benefit from the freedom of movement.

to the growing labour force (Borjas, 2003). In fact, Sheldon (2001) in his empirical work about Switzerland suggested that immigration employment lowers the wages of the Swiss labour force by roughly 0.2%. “This has a spillover effect on the goods market since the inactive labor force tends to reduce its consumption. In a typical ‘Keynesian’ situation, these two spillovers tend to reinforce each other” (Stalder, 2010, p. 3).

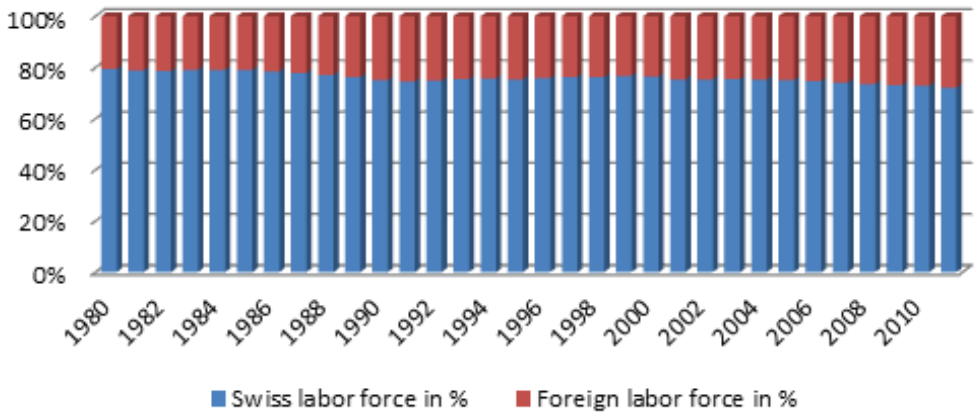



Chart 8: Labour market distribution in Switzerland by nationality

By the same token, it is interesting to analyse the distribution of foreign and Swiss labour forces. According to chart 9, the number of foreign inactive people is significantly higher than the Swiss. On the other hand, the number of unemployed people is proportionally almost the same in both categories. Consequently, there is high probability that by driving the number of immigrants down unemployment is going to fall.

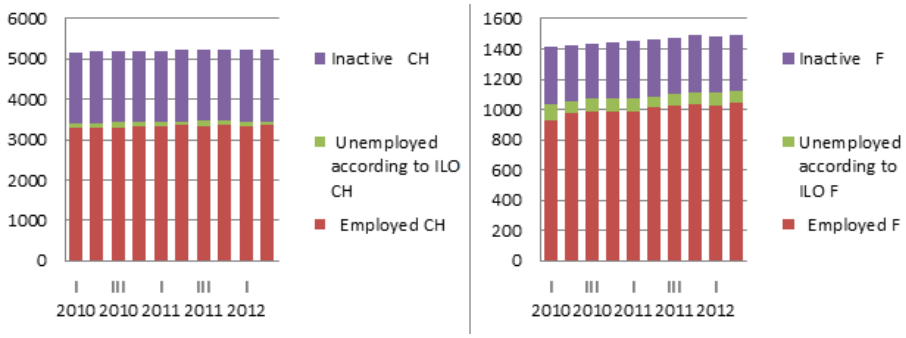



Chart 9: Swiss and foreign labour forces

Although this is most certainly true, it cannot itself be an argument against immigration growth. It is of high importance to highlight the different effects migration can have on the Swiss labour market outcome taking into consideration the level of education that the labour force migrating to Switzerland has. For example, immigration could also lead to higher unemployment even when employment is supply determined when the qualifications for certain vacancies are not fulfilled. The variation in cross section of micromarkets can be viewed as a measure of ‘structural mismatch’ that varies over the business cycle.

### *4.3.3 Academia*

Highly qualified immigrants

According to the report on migration of the Federal Council, the Swiss economy has been structurally transformed from an industrial society to a society based on services. As a consequence, low-skilled work tasks are being outsourced, which means that the demand for low-qualified labour force has decreased over the years (Federal Council, 2012). As it is seen from chart 11[5], the higher the level of education the lower the share of unemployed people.

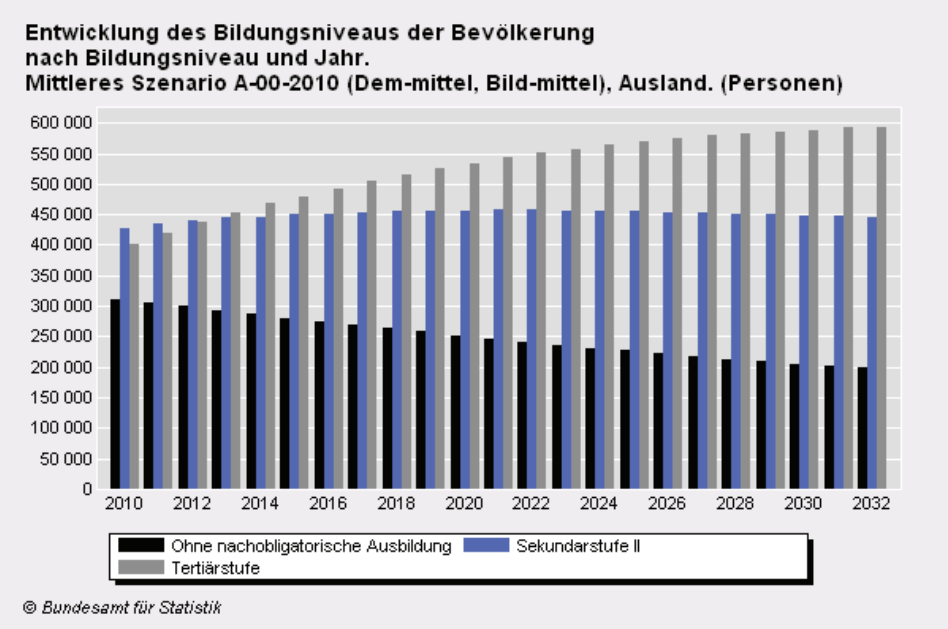



Chart 10: Development of the educational level of immigrants in Switzerland

At the same time, the majority of Swiss immigrants are highly qualified. According to the Federal Council (2011), this trend, known as 'the newer the immigrants the more qualified they are', is expected to continue in the future. In fact, according to table 1, 83% of the foreign employees had completed secondary and higher levels of education and more than 50% had completed the tertiary level of education by 2010. Swiss firms are confronted with a lack of Swiss experts especially in the mathematical–technical professions (because there is not a sufficient amount of young Swiss people who are interested) as well as in the health care sector (because there is a lack of infrastructure for the education of more people) (Federal Council, 2012). As long as this lack exists, highly skilled immigrants are needed.

If the initiative is approved, Swiss firms will have enormous problems to find adequate work craft. In the long run, however, it would be possible to adapt to this problem by

[5] Appendix.

instruments like education promotion and improvement of the educational infrastructure. But positive results cannot be expected in the short run.

Low-qualified immigrants

In March 2011, the freedom of movement with the EU-8 countries became fully effective. Because immigration from the West European countries has drastically increased since then, the Federal Council has reintroduced quotas. During the liberalized period, immigration of low-qualified work craft has increased (especially in the agricultural sector) (Bundesamt für Migration, 2011). Generally, the immigration of low-qualified persons is limited because of the dual permit system (see chapter 2). Therefore, it would seem that low-qualified immigration is highly limited. However, this is only true for the immigrants affected by the quotas. As already mentioned in chapter 2.3, nearly one-third of immigration is caused by residence permits received by the families of immigrants, who are predominantly unskilled.

The consequences of approving the initiative are not as clear as in the previous case. Surely, low-qualified people would be strongly affected if quotas were introduced as a limitation instrument. Then they would only have a chance for entry if the highly skilled immigrants do not exhaust the yearly amount of permits. In this case, the initiative would lead to a lack of work craft mainly in the agricultural sector and also in the industrial sector, where most of the low-qualified immigrants are working.

However, residence permits are not directly connected with the quotas (see chapter 3). The biggest amount of low-qualified immigrants would therefore only be affected by the initiative if the residence permits are being used as a limitation instrument. If that is the case, then the lack of work craft in the primary and secondary sectors would be considerably more serious than in the aforementioned case.

### *4.3.4 International Trade and Competitiveness*

It all boils down to the point where the effect of migration on Switzerland's economic growth is multidimensional and its impact varies over time. As already mentioned, "higher population growth stimulates GDP growth from the demand side via increased private consumption and housing investment". It "thereby counteracts the inflation, dampening supply-side effect of increased immigration to some extent" (Stalder, 2010, p. 18). Thus, although a reduced expansion of labour supply will have a positive effect on employment in the short run, it will counteract to a weaker increase in labour demand influencing the Swiss labour and goods market negatively in the long run.

In this context, migration's impact on Switzerland's competitiveness must also be considered. As already mentioned, migration appears as an instrument enhancing the cyclical impact of Swiss labour market tightness. Therefore, if migration growth falls to zero this will challenge the reduced availability of qualified workers in Switzerland even more. The supply-driven employment positions will lower GDP growth, whereas inflation will be lifted.

The sudden increase in prices will make Switzerland much more expensive in comparison to the other EU countries, influencing the country's exports and overall competitiveness in the international market (Sheldon, 2001).

Another important aspect that is deemed important is the political dimensions of the migration issue. If the examined initiative is put into effect, this will give rise to high political conflicts and debates regarding the international profile of Switzerland. Such a policy will harm Switzerland's international profile, reducing the country's competitiveness and, most probably, complete access in international trade.

Most importantly, even if it would be more profitable for the Swiss economy to select immigrants according to their educational background and Swiss labour market needs, such a policy would violate the agreement with the EU on liberalized migration, as well as the WTO rules for members of all countries. Under the WTO agreement, countries that are members of the WTO are not allowed to discriminate between their trading countries. In addition, zero migration is also not a possible policy. Under the General Agreement in Trade and Services (GATS), countries that have agreed to open their markets for goods or services are bound to their initial commitments. In order for these bindings to change, it requires long negotiations with the affected trading partners so that they get compensated for their probable loss of trade.

#### *4.3.5 Social Security*

In one of her speeches (FDJP, 2012), Simonetta Sommaruga explained that immigration is an advantage for our social system. Fact is, in the year of 2010 immigrants from EU/EFTA countries paid more into the old-age and survivor's insurance (AHV) than they draw from. This trend is also expected to be continued when these immigrants are entering rentage, since the majority of immigrants are highly qualified and therefore payments are higher than the benefits that one can draw.

Regarding unemployment insurance, things look a bit different. Immigrants from EU/EFTA countries paid 21% of the premium and draw 23% of the compensation. Non-EU/EFTA countries draw 20% of the compensation and paid only 6% of the premium. This implies that immigration is a benefit for the retirement system but a burden for the unemployment insurance. However, Sommaruga emphasized that concerning the pension scheme we talk about billions, whereas concerning the unemployment insurance contributions we 'only' talk about millions. Therefore, in total immigration supports our social systems.

This conclusion is relativized in a report regarding the freedom of movement agreement (Federal Council, 2012). According to this report, immigrants are currently supporting our social systems, but it will not necessarily be the same case in the future. There would have to be even more immigrants in the future (when contemporary immigrants are entering rentage) in order to secure the pension system in the long run. This means that the current problem of

Swiss demography for the social systems is not solved but only shifted into the future. Furthermore, it is explained that highly skilled immigrants are rather mobile, whereas low-qualified immigrants are more settled. This means that the current situation is not guaranteed to stay positive at all.

If the initiative 'stop overpopulation—for the protection of natural resources' is approved, our social system would be less supported by immigrants. In other words, not only would there be a lack of highly skilled immigrants contributing to the system but also would the amount of people receiving pensions and insurance payments not necessarily decrease. This is due to the fact that there is a majority of benefited recipients who are staying in Switzerland due to asylum or residence permit for family and are therefore not (necessarily)[6] affected by the quotas. On the other hand, there would be fewer immigrants drawing rent payments in the future. In this case again, the consequences of the initiative depend on the instrument used to limit immigration.

#### *4.3.6 Health Care System*

According to the Federal Office of Public Health (FOPH), immigrants in Switzerland live with a higher health risk than native people (FOPH, 2008). Furthermore, they are more often affected by poverty and unemployment than the Swiss. Finally, their state of health is worse in diverse areas than the natives. These facts are especially true for low-qualified immigrants.

There are several reasons that explain these facts. One explanation is that many immigrants work in the production sector where physical stress is high. In the third sector, immigrants often do the low-qualified jobs (for example, cleaning). Additionally, low-skilled immigrants are rarely informed about health risks, precautionary measures, etc. (mainly because of linguistic difficulties). These factors sum up to a higher health risk for foreigners compared with the Swiss population.

We do not have empirical data to compare the amounts of health insurance premium paid by foreigners and the Swiss with the benefits drawn by foreigners and the Swiss. We act on the assumption that the health care system is similar to the unemployment insurance—immigrants pay less into the insurance than they draw from it. This assumption is supported by the similarities between unemployment insurance and health insurance: low-skilled immigrants are generally more affected than highly qualified ones.

The approval of the initiative would therefore have an impact on the Swiss health care system. The direction of this impact depends on which immigrants are affected by the initiative. Therefore, again the instrument used to limit immigration determines the consequences of the initiative on the health care system. If there are less low-skilled immigrants coming into Switzerland the effect could be positive, whereas the impact could be

[6] See chapter 3.

negative if less highly qualified people are immigrating. This, however, cannot be stated with certainty for sure, since the jobs that cause physical stress would not vanish but be filled with other employees.

#### *4.3.7 Living Costs*

Population growth leads to increasing population density because the country's territory stays the same under normal conditions. Thus, population growth has an influence on the way of life for the whole community. In this paper, we mainly focus on potential additional costs of living because they can be measured by numbers. The costs of living mainly consist of housing prices and infrastructural costs. Cultural and social changes, which certainly occur due to migration, will not be observed in detail because the influence of migration depends on a variety of assumptions.

#### *4.3.8 Housing Costs*

Degen and Fischer (2010) suggest that migration has an influence on housing prices independent of "house price inflation, nationwide rent control, and modest immigration". They found that "an immigration inflow equal to 1% of an area's population is coincident with an increase in prices for single-family homes of about 2.7%" (Degen & Fischer, 2010, p. 1). In Switzerland, housing prices were mostly increased in the luxury property market in the areas of Geneva and Zurich (SwissInfo, 2010). A limitation of immigration suggested by the initiative therefore would lead to a relaxation in housing prices, which would be a benefit for the Swiss society.

#### *4.3.9 Infrastructural Costs*

The relation between immigration and infrastructural costs are similar to the one described earlier for housing prices. Immigration leads to a bigger population, so the infrastructure of the country has to be improved. The transportation system has to face the challenge of increasing people and thus has to be expanded, which is costly. The energy supply has to grow as well to fulfil the people's needs and to maintain the functionality of the country. Concerning infrastructural cost, the initiative would mitigate the challenges faced by an increasing population. These positive effects of the initiative are probably the main goals of the initiators.

## 5 Conclusion

Attempts on changing the immigration regulations have proven that there is high dissatisfaction with the current migration regime. This is due to the fact that migration is an issue with multidimensional effects that vary over the short run and long run, influencing social welfare. This study has applied one of the most recent initiatives, 'stop overpopulation—to secure natural resources', on the expected Swiss and foreign population growth in Switzerland, as estimated by the Swiss Federal Office, in order to identify the dynamics of this immigration policy.

From our analysis, we have derived that immigration is a key driver of population growth in Switzerland while it also plays a crucial role in the labour, goods and social security market outcome. As elaborated in the previous chapter, if immigration falls to zero unemployment will also fall in the short run. However, the negative long-run impact on the labour market, taking into account the educational level of the immigrants and the existing labour shortage, will exceed the positive impact in the short run. At the same time, a fall in the population, together with the negative long-run labour outcome, will cause a decrease in the social security income and a fall in consumption with a spillover effect in the goods market. In all, if the examined initiative is put into effect, GDP growth is going to fall while inflation is going to rise. In this context, a change in the migration scheme as underlined by the examined initiative will weaken Switzerland's position in the international market and will also raise huge conflicts with the WTO and the EU countries.

Although there is strong evidence to support the arguments of this analysis, the produced results need to be treated cautiously since there are many factors that need to be taken into account. The conclusions drawn should also remain limited taking into consideration that the study has been conducted in a period characterized by the European financial crisis. Therefore, the predicted reactions may not evolve symmetrically in economic upturn periods.

Nevertheless, we can conclude some careful advice for the Swiss immigration set-up. Measures against migration require the formulation of objectives: Looking at the findings of this paper, we conclude that an extreme reduction of migration, like the one implied by the examined initiative, will harm the economy and international profile of Switzerland in many ways. At the same time, we identify a strong need for a change in the immigration policy regime. However, the complexity of policy choices allow for no premature conclusions. The EU and the WTO agreements together with the impact on the country's competitiveness leave a very restrictive room for change in immigration policy regime and residence permit regulations.

We consider that it would be possible to introduce additional requirements for residence permits for families. For example, request to master the basic knowledge of a Swiss language. Moreover, it is a moral, health and, in turn, efficiency issue that immigrants with

long-term residence permits do not feel insecure about staying in Switzerland but become smoothly integrated into the Swiss society. As laid out in chapter 4.3.6, there is a higher health risk for immigrants than for native people. We argue that this may be due to the uncertainty they face regarding the environment they live in. If the state would take measures to ensure their smooth integration into the society and organize campaigns with information about the health risks and the means to avoid them, then this would boost their health conditions. As a consequence, there would also be a positive effect on the health care system and their productivity.

We conclude that as long as Switzerland's labour market needs remain as they are today (immigrants are becoming more and more educated and policy choices are driven by international agreements), there is an urgent need for a joint effort that will pursue a set of more sustainable interests. Politicians should focus on improving the social framework and therefore minimize the negative consequences of immigration. For example, the authors of this paper believe that there is still some room for improvement in the measures regarding the proper use of the social benefits from immigrants. In addition, striker policy regulations could also lead to the restriction of wage dumping.

Measures that focus on the negative impacts of immigration can act as direct responses to the population's fears. This would allow the labour market to continue with the steering of migration while the politic sphere focuses on improving the situation without directly intervening into the economy. In other words, the government should inform the Swiss population that a change in the political regulations regarding immigration would generate a number of negative consequences for the whole society and is thus not the appropriate policy. In this context, measures that focus on the origins of the people's fear (unemployment, wage dumping, etc.) could act as additional incentives for the population to dismiss upcoming initiatives.

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## Appendix

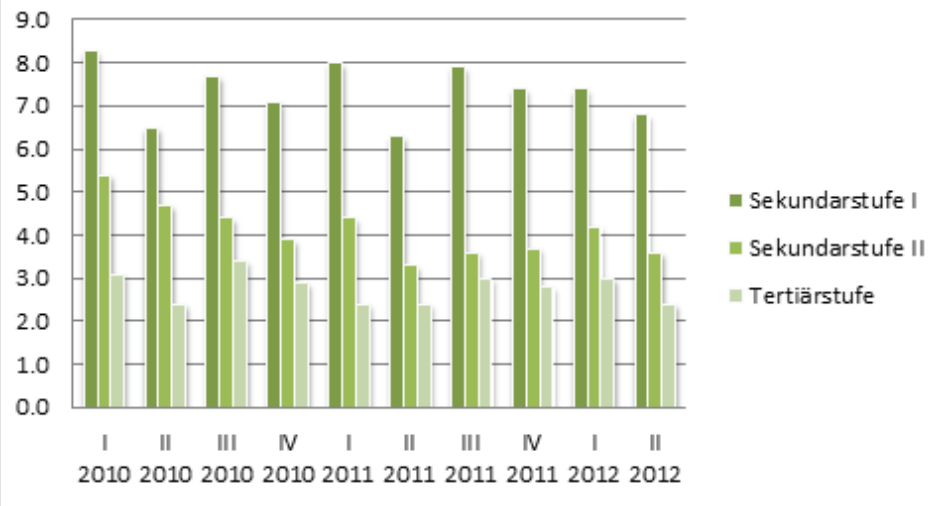


Chart 11: Unemployment rates based on educational level

| Period of immigration | Secondary level and higher | Tertiary level |
|---|---|---|
| 1986-1995 | 53% | 18% |
| 1995-2002 | 73% | 41% |
| 2002-2010 | 83% | 51% |

Source: (Federal Council, 2012)

Table 1: Educational qualification of foreigners in Switzerland

**Project Paper 9**


Demography meets Healthcare
Investment Opportunities in China

# Making the leap for further growth and business development: A strategic analysis for Fresenius Medical Care

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Dr. med. Hans Groth, MBA

## Contents

## I. Executive summary

Fresenius Medical Care is a vertical integrated dialysis products and services provider. In China, it has been driving its business through providing dialysis machines and disposable products to local hospitals and clinics. So far, it has produced almost half of all hemodialysis machines currently used in China. Recently, in mid-2012, it started its first wholly owned dialysis center in Jiansu, the eastern province, that was attributable to the relaxation on the regulation of foreigner-run clinics in late 2010.

China is the second largest economy in the world with more than 1.3 billion dwellers, among whom about 13% are older than 60 years. Kidney failure, a common chronic disease that appears in the aging population, is threatening more than 1 million Chinese, while only 10–15% receive proper treatment, which is only one third of the global average, implying a massive, untapped market. The current size of the dialysis market is estimated at US$1.64 billion, and is projected to increase tenfold if all patients are covered by public insurance.

For Fresenius Medical Care to take advantage of this enormous market potential and achieve its sustainable success in China, strategies adapted to the current demographic situation and healthcare system are required. Given the prevalence of in-center type of dialysis treatments, Fresenius Medical Care is encouraged to continue its current strategy of allying local hospitals in providing dialysis services, for which eastern/coastal provinces and cities are the key markets. Denser populations form the basis of customers for dialysis centers, while affluent income and urban medical insurance schemes solicit the demands. On the other hand, Fresenius Medical Care is suggested to pay close attention and prepare to react to China's latest healthcare-related policies, such as foreigner-run dialysis centers and drug price cuts.

## II. Research motivation and introduction

Demographics identify trends such as population shift and evolution. Coming along with these changes are emerging investment opportunities, especially in the healthcare sectors. In China, the aging population, shrinking workforces, urbanization, increasing chronic diseases, and limited medical care funding are post-burgeoning investment opportunities. Investors learn to lever the findings on demographics as a basis of their investment strategies. However, purely using demographic projections to form the basis for investment strategies can be risky. A demographic analysis should be combined with an assessment of other factors, such as policies and culture, in order to help guide investment decisions.

In this article, I use Fresenius Medical Care, a German-based provider of dialysis products and services, to discuss the business opportunities arising with the demographic changes in the Chinese market. First, I introduce the company in discussion and its development in China. Next, we look at China's demographic evolution and highlight its health indicators. Then, I present the current healthcare system in China, including its universal coverage in 2009's healthcare reform. Afterward, analyses on market opportunities as well as risks are addressed. Lastly, I propose strategic movements that aim at achieving Fresenius Medical Care's sustainable success in the Chinese market.

## III. Fresenius Medical Care introduction

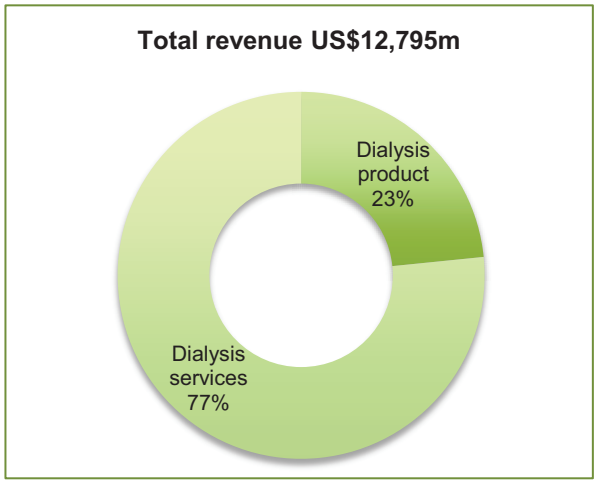
### Fresenius Medical Care at a glance

Fresenius Medical Care AG & Co. KGaA (FWB: FME, NYSE: FMS) is the world's leading provider of dialysis products and services. Overall, 36% of it is owned by the German healthcare group Fresenius SE & Co. KGaA. Dialysis is a procedure that removes waste and surplus water from the blood, substituting the function of the kidney in case of kidney failure. Predominate dialysis treatments are hemodialysis (HD) and peritoneal dialysis (PD). In the case of HD, a hemodialysis machine controls the flow of blood from the patient through synthetic bloodlines into a special filter, the dialyzer, where it is cleansed and returned to the patient's body. With PD, the patient's peritoneum is used as a dialyzing membrane. Around 89% of dialysis treatments are HD(Fresenius Medical Care 2011 Annual Report, 2012).

Fresenius Medical Care offers vertically integrated products and services along the entire dialysis value chain, including products such as dialysis machines, dialyzers, and disposable accessories, and services such as dialysis clinics (Fresenius Medical Care 2011 Annual Report, 2012).

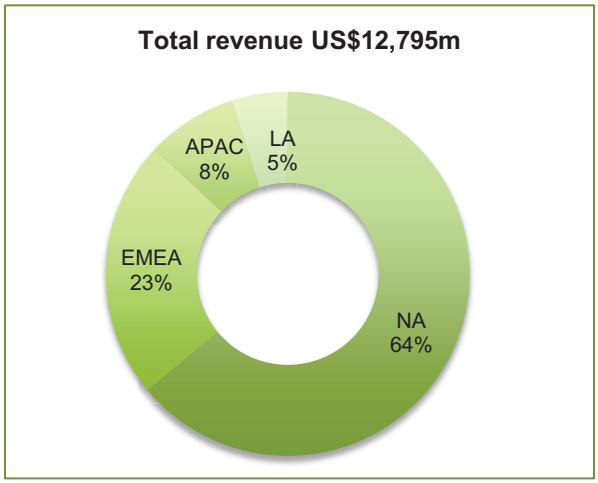
Last year, Fresenius Medical Care generated a revenue of US$12,795m (a 6% increase compared with that in 2010). By segment breakdown, services accounted for 77% of revenue; however, in North America, services accounted for 90% of the region's revenue. Figure 2, overleaf, gives the regional revenue breakdown. North America, followed by EMEA, is still the largest market for Fresenius Medical Care.

Figure 1 Revenue breakdown by segments




Source: Annual report 2011

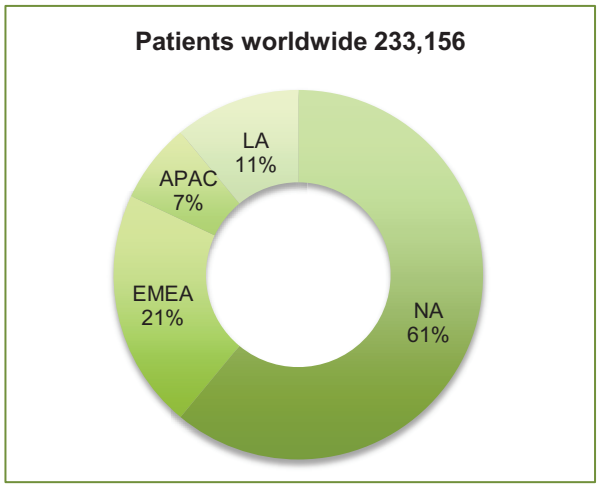
Figure 2 Revenue breakdown by geographic regions




Source: Annual report 2011

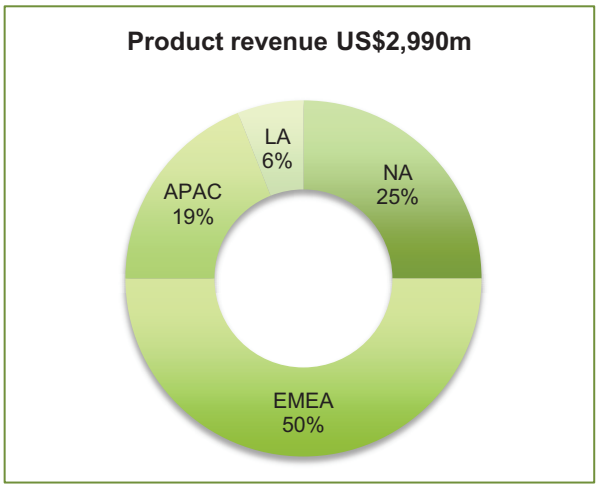
Of the revenue generated from services in terms of the number of patients treated, 61% is from North America. As for the revenue from dialysis products, the Asia–Pacific region gained importance, accounting for 19% of the overall revenues. However, Europe remains the key market with a revenue share of almost 50%.

Figure 3 Service revenue by region in terms of number of patients




Source: Annual report 2011

Figure 4 Products revenue by region in terms of sales




Source: Annual report 2011

Fresenius Medical Care's most important customers are state owned or public health insurers, private health insurers, and companies, as dialysis service is a business that is shaped largely by countries' healthcare and reimbursement systems (Fresenius Medical Care 2011 Annual Report, 2012).

**Fresenius Medical Care in China**

Out of the four business segments under Fresenius Group[1] (Fresenius Medical Care, Fresenius Kabi, Fresenius Helios, and Fresenius Vamed), two are present in China: Fresenius Kabi (China)[2], which holds 100% of Beijing Fresenius Kabi Pharmaceutical (BFP) and 51% shares of Sino-Swede Pharmaceutical Co., Ltd. (SSPC), and Fresenius Medical Care (Jiangsu) Co., Ltd[3]. The products and services of each company are stated in Table1, below.

Table1 Fresenius in China

| Companies | Fresenius Kabi (China) Co., Ltd | | Fresenius Medical Care (Jiangsu) Co., Ltd |
|---|---|---|---|
| | BFP | SSPC | |
| **Products & Services** | infusion solutions for parenteral and enteral nutrition | basic infusion solutions<br><br>intravenously administered drugs<br><br>Ketosteril®, a product for patients with chronic kidney failure | tubing systems<br><br>other single-use dialysis products<br><br>jointly operating 70+ dialysis centers with local hospitals<br><br>first built FMC dialysis clinic in Jiangsu[4] |
| | | | There is also an office in Shanghai: Fresenius Medical Care (Shanghsi) Co., Ltd. |

Fresenius Medical Care (Jiansu) factory produces tubing systems and other single-use products; all the dialysis machines, however, are imported rather than produced locally. Almost all foreign manufacturers follow the same operation pattern of importing core machines overseas, yet they produce and assemble consumables locally in China. As for services, Fresenius Medical Care primarily drives its business through cooperation with local hospitals/clinics[5] and management contracts. So far, it has provided 52 hospitals/clinics with

[1] Fresenius SE & Co. KGaA
[2] in Chinese: 费森尤斯卡比(中國) http://www.fresenius.com/748.htm
[3] in Chinese: 江苏费森尤斯医药用品有限公司 http://www.fresenius.com/749.htm
[4] Fresenius Medical Care is one of the first foreign companies to open a dialysis clinic in China, where medical care is a highly restricted market.
[5] In China, almost all dialysis centers belong to hospitals.

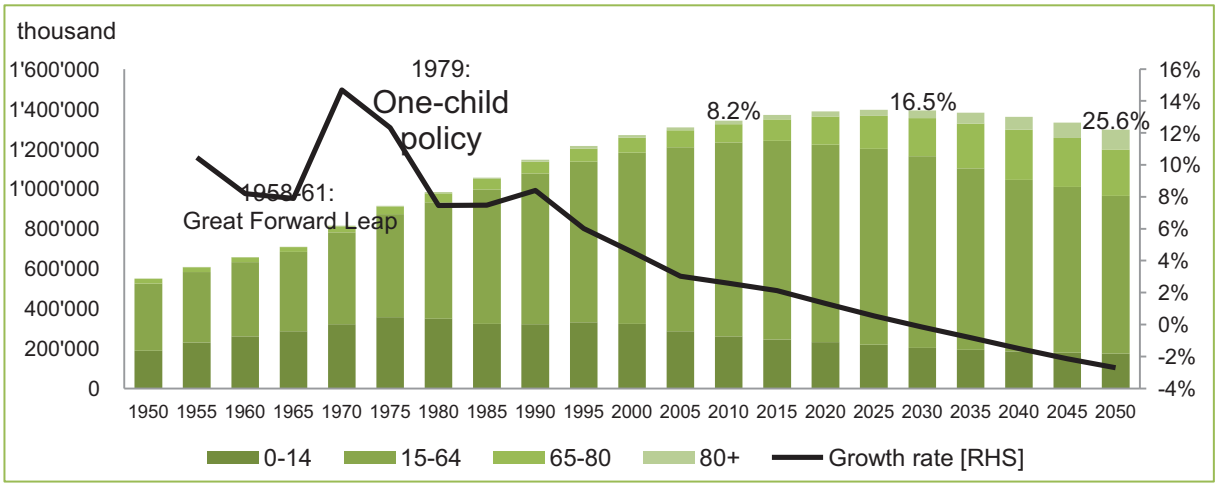
dialysis machines and disposable products. In 2012, Fresenius Medical Care opened its first dialysis clinic in this region in the eastern Chinese province of Jiangsu; this clinic initially cared for around 40 patients. This makes Fresenius Medical Care one of the first foreign companies to open a wholly owned dialysis clinic in China.

## IV. China's demographic evolution

At present, China's population is more than 1.3 billion, and it is anticipated to peak in around 2025. With the largest population in the world, China's population growth has been somewhat slowed by its family planning program that had been started in the 1970s. The total fertility rate, from the 1970s to present, decreased from 5.9% to around 1.6%, and the proportion of Chinese population in the world total decreased from 22% to 19%.

The age structure so far still posts demographic dividends; however, China is facing an aging society. Besides this aging trend, China has other demographic phenomena catching our attention, such as urbanization, rural–urban income disparities, and internal migration.

Figure 5 China's population by age group (mark proportion of age 65 years or above)

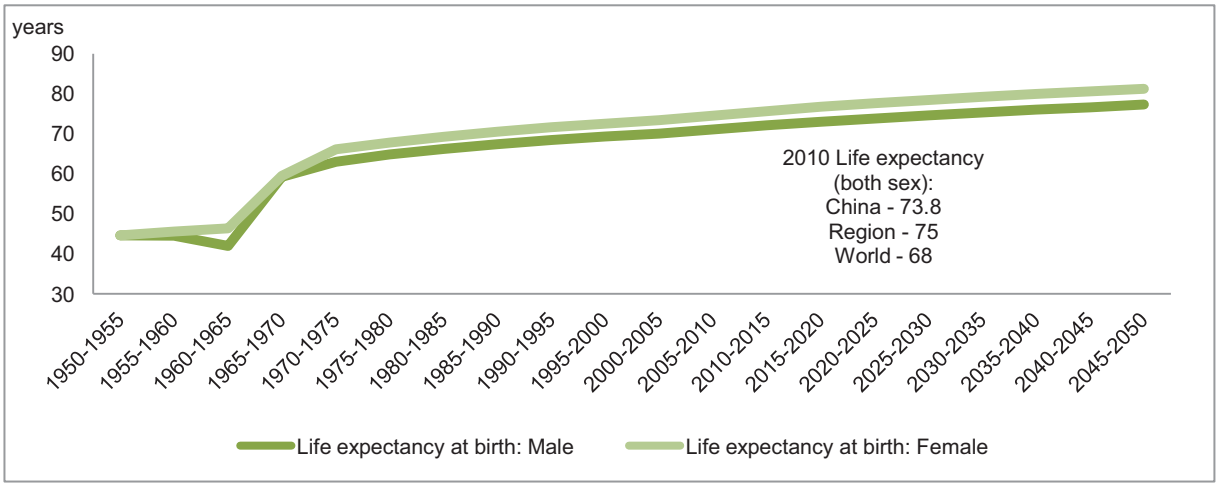



Source: Population Division of the Department of Economic and Social Affairs of the United Nations

### An aging population

At present, China has a speedily aging population. It is projected that 12% of the population in 2020 will be 65 years old or older[6]. With the improvement of medical conditions since 1949, life expectancy has dramatically increased from less than 45 years old in the 1950s to 74 years old in 2015, as shown in Figure 6. It is demographically normal for the proportion of the aged population to increase as a country develops, because people live longer and have fewer children. In China, the changing of social culture and, more importantly, the implementation of birth control policy in the late 1970s are the major factors responsible for its speedy aging. The "One-Child" policy achieved a decline in the birth rate; however, it also resulted in a rapid aging speed. China has taken just 20 years to reach an age profile that took Britain or France 60 or 70 years (Devichand, 2012).

Figure 6 Chinese life expectancy at birth




Source: Population Division of the Department of Economic and Social Affairs of the United Nations

The unique speed leaves China a more challenging aged society than the other developed countries have experienced: China is growing old before it grows rich. The appearance of the aging level before the level of economic development casts negative consequences, such as insufficient elderly welfare and labor shortages. Table 2, overleaf, shows that in China's labor

[6]According to the Population Division of the Department of Economic and Social Affairs of the UN Secretariat, World Population Prospects: The 2010 Revision, esa.un.org/unpd/wpp/index.htm

force, participation among older people is 43% for men and 16% for women, which is high compared with the numbers in more developed countries, even though China's statutory retirement age is 60 years old while it is 65 in Germany and 65 (men)/ 60 (women) in the United Kingdom. Economic activeness of older people in China is the result of the limited coverage of social security schemes or the relatively low value of the pensions received by those who are covered (Department of Economic and Social Affairs United Nations, 2012).

Table 2 Proportion of the older population in labor force, 2012

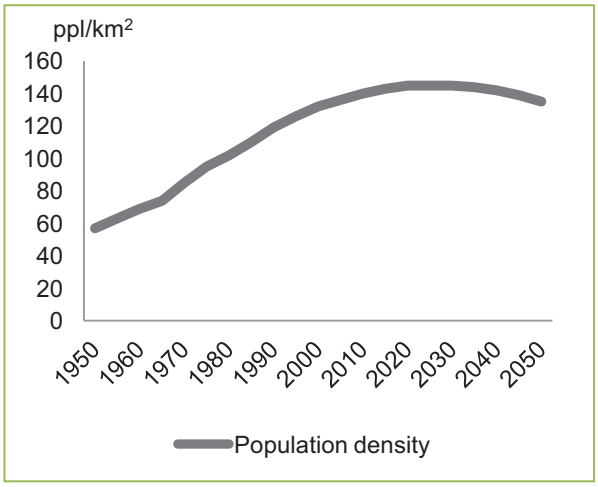
| Proportion in labor force, 60yr or 60+ (%) | Country | World | More Developed | Less Developed | Asia | China | Germany | Japan | UK |
|---|---|---|---|---|---|---|---|---|---|
| | Men | **42** | **26** | **50** | **48** | **43** | **18** | **42** | **25** |
| | Women | **20** | **15** | **22** | **20** | **16** | **10** | **23** | **14** |

Source: United Nations

**Imbalanced distribution**

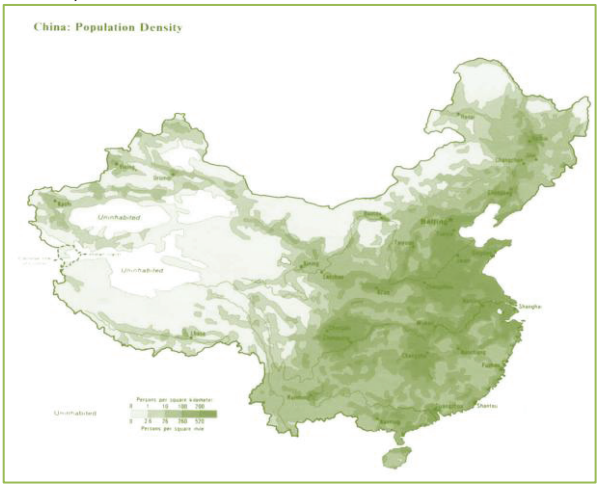
Population density increased along with population growth. In 2010, it was 140 people per square kilometer, as shown in Figure 7, below. However, the population demonstrates an extremely uneven distribution. In eastern coastal areas, the population density is more than 300 people per $km^2$, while in the northwest and southwest, some regions have a population that is merely denser than 10 people per $km^2$.

Figure 7Population density per $km^2$




Source: United Nations

Figure 8 Uneven distribution of population (the darker the denser)

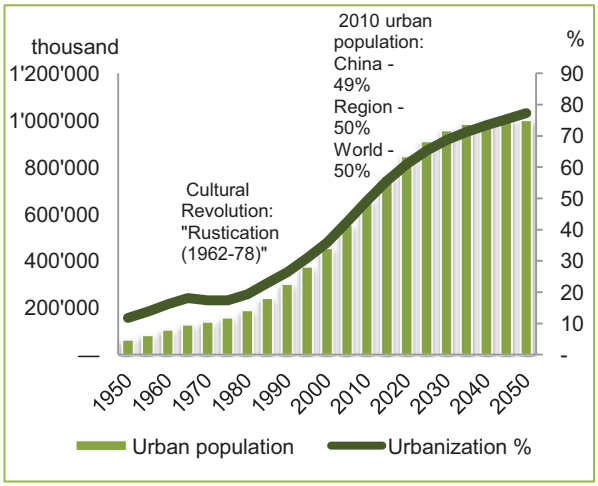



Source: WorldMap (mapas.owje.com)

Urbanization in China speeded up after the Cultural Revolution and after the initiation of the

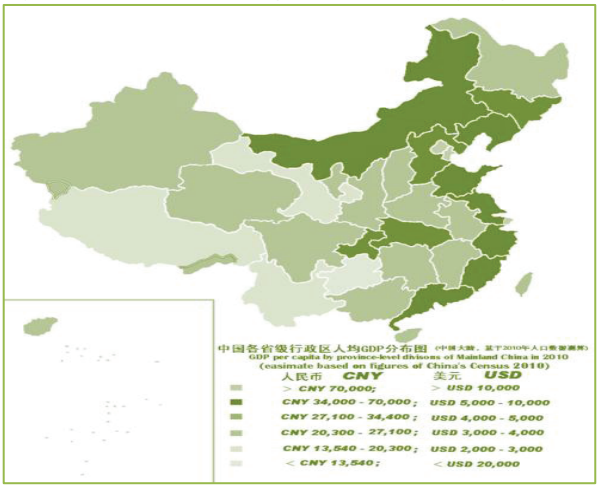
economic reform and opening policy in late 1970s. By the end of 2011, the urban population accounted for 691 million or 51.3% of the total population, rising from 26% in 1990 (National Bureau of Statistics of China, 2012). The rate is expected to increase to 65% in 2020 and 77% in 2050. The proportion of the urban population exceeded 50% the first time in 2011, yet it is still lower than the regional average (56%) or global average (52%).

Figure 9Urbanization




Source: United Nations

Figure 10GDP per capita (the darker the higher)




Source: NBS

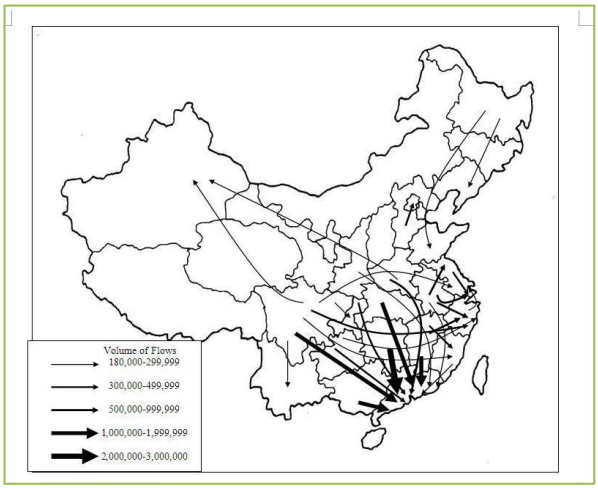
Not only divergences are observed in population density; but also the level of income is strongly weighted to the eastern part, as shown in Figure 10. Urbanization accelerated after the reforms in 1979, during which massive employment opportunities created by the inflow of foreign direct investment fostered urban population growth. The link between the rapid pace of industrialization and population growth in the urban area more or less explained the increase in urban per capita income that has far outstripped the rise in the income of rural China (McKinsey Global Institute, 2009).

**Huge migration of population**

A phenomenon that is linked closely with the imbalance development and urbanization is China's internal migration. Despite China's tight restriction on urban–rural migration and its unique *hukou* (home registration) system, one of its demographic characteristics lies in its high

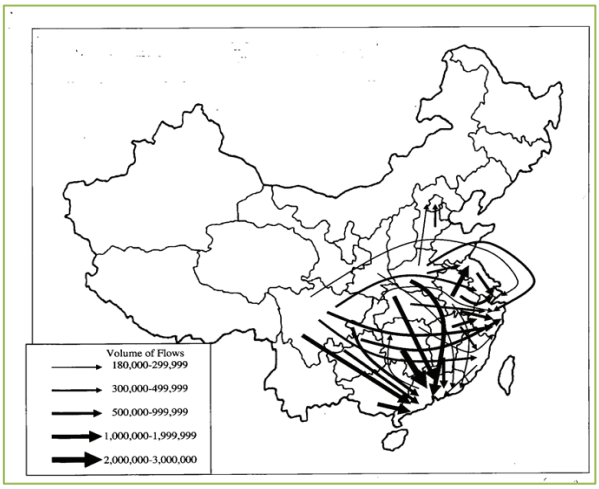
and increasing migrant population, or floating population. According to China's National Bureau of Statistics, in 2011, there were 265.78 million migrant workers (an increase of 4.4% compared with 2010), and out of these, migrants who left their provinces accounted for 158.63 million (an increase of 3.4% compared with 2010) and migrant workers who worked within their home provinces reached 94.15 million (an increase of 5.9% compared with 2010)[7].

Figure 11 The 30 largest inter-provincial migrations, 1995–2000




Source: National Bureau of Statistics (2002)

Figure 12 The 30 largest inter-provincial migrations, 2000–2005




Source: National Bureau of Statistics (2007)

In China, people are strictly tied to their hukou. If one wants to change residence permanently or formally, an approval of hukou change from the local authorities is required. Urban or rural residents are generally permitted to move hukou within the same city or town; however, formal (or "permanent") moves—meaning those involving a hukou change of crossing a city or town—are strictly regulated and require approval by the public security authorities. Generally speaking, it is very difficult for an ordinary person to change hukou from rural to urban areas, or from smaller cities to larger cities (Chan K. W., 2009a). For example, in Shanghai, to qualify for permanent residency (i.e. to change hukou), applicants should have held a Shanghai residency certificate, should have paid tax duly, and should have been in the city's social

[7] It has been noted that the statistics of Chinese migration can be misleading due to the underlying concepts that China uses to define migration, which are quite different from those commonly employed in other countries (Chan, 2007).

security system for at least seven years (Li, 2009). The hukou system nowadays works chiefly as an "entitlement" distribution mechanism to limit most state-provided social goods to the urban residents rather than to stop migration, because what comes attached to the hukou are benefits including healthcare, a pension, and less competition in entering local universities or enterprises. Furthermore, if one lives where he or she is not registered (i.e. not having a hukou), one has more difficulties in getting a driver's license, buying a house, or purchasing a car. For example, one with a non-Shanghai hukou is not qualified to purchase a house in Shanghai, unless one is married, has a family, and has paid tax duly for more than a year. In terms of social insurance, migrants are also at an inferior position. The National Population and Family Planning Commission (NPFPC) pointed out in its annual report of *The Development of Chinese Migrant Population 2012* that in 2011, the ratio of migrant workers covered in the social insurance was less than 30%. A typical social insurance includes pension, medical care, occupational injury, unemployment, maternity, and housing funds. Increasing migrants is one of the major trends of China's demographic development. Government officials[8] from NPFPC estimated that by 2040, there will be 500 million of floating population along with 500 million of urban population and 500 million of rural population (News.cn, 2009).

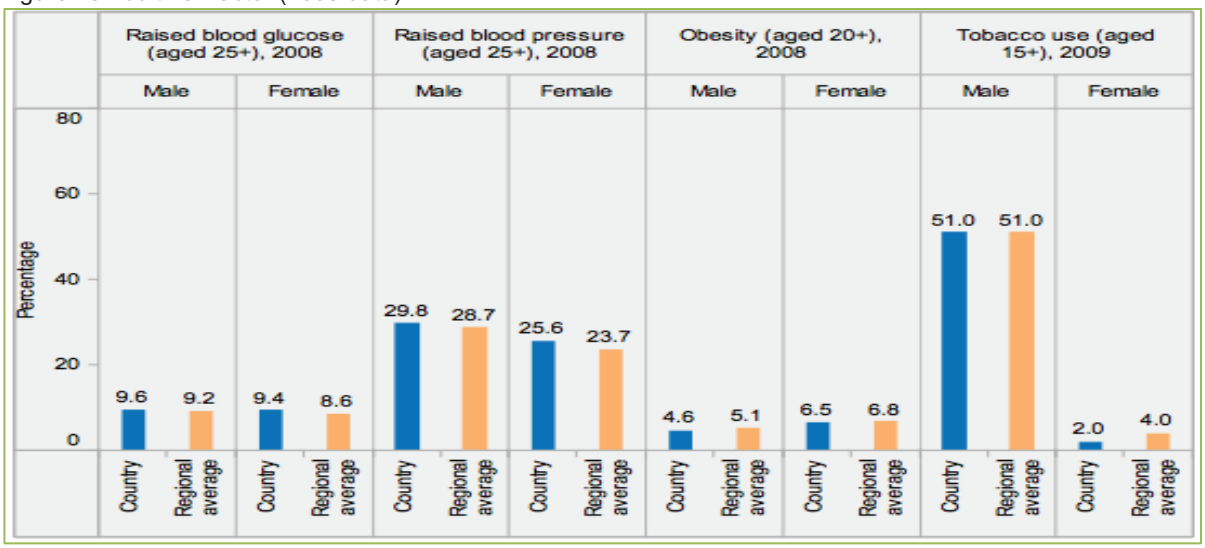
## V. Health in China

A higher standard of living and improved health conditions accompanied economic reforms in the late 1970s, which led to rapid economic growth and helped lift hundreds of millions of people out of poverty.

[8]Peian Wang, vice chairman of National Population and Family Planning Commission.

According to WHO, a decline in infectious diseases was seen between 1998 and 2008, while population growth and increased longevity are leading to a rapid increase in the total number of middle-aged and older adults, with a corresponding increase in the number of deaths caused by non-communicable disease conditions (NCD). In 2003, China's disease profile resembled that of a developed country, with about 80% of total deaths due to non-communicable diseases and injuries (WHO, 2011).The major causes of death in 2009 were cardiovascular disease (36%), malignant neoplasms (18%), and non-communicable respiratory disease (17%)(WHO, 2009). As shown in Figure 13, China's health indicators on diabetes mellitus and hypertension—two diseases that often precede chronic kidney failure—are slightly higher than the regional average. In addition, the causes of death, such as diabetes and hypertension, are increasing, that is, from 11.2 and 20.9 in 2004 to 11.6 and 21.3 per 100,000 people in 2009.

Figure 13 Adult risk factor (2008 data)




Source: WHO country health profile 2012

On the other hand, China's healthcare resources also improved along with economic growth. The number of hospitals[9] increased from 9,902 in 1980 to 20,918 in 2011; licensed/assistant

[9]Hospitals include general hospitals, hospitals specialized in traditional Chinese medicine, and specialized hospitals.

doctors increased from1.56 per 1,000 populations to 1.79 during the same period (National Bureau of Statistics of China, 2011). However, healthcare resources are still lagging behind developed countries as indicated in Table 3, overleaf. Lower government expenditure on healthcare could be one of the reasons for resource shortage (see Table 4 for a comparison). Meeting the challenges of an increasing aged population and higher medical care demands, the government launched a new plan for healthcare reforms in early 2009, aiming at addressing the improvements required for a healthcare system.

Table 3 Health resources comparison

| (Per 10,000 population) | Number of physicians | Nurses & midwives | Hospital beds |
|---|---|---|---|
| Brazil | 17.6 | 64.2 | 24 |
| **China** | **14.2** | **21.4** | **42** |
| Germany | 36 | 111 | 82 |
| Japan | 13.8 | 41.4 | 137 |
| South Korea | 20.2 | 56.9 | 104 |
| UK | 27.4 | 101.3 | 33 |

Source: WHO country health profile

Table 4 Expenditure on healthcare

| | Brazil | **China** | Germany | S.Korea | Japan | UK |
|---|---|---|---|---|---|---|
| Per capita gov't expenditure on health (PPP int.$) | 483 | **203** | 3,339 | 1,193 | 2,644 | 2,919 |
| Per capita total expenditure on health (PPP int. $) | 1,028 | **379** | 4,332 | 2,023 | 3,204 | 3,480 |
| % of gov't to total expenditure | 47% | **54%** | 77% | 59% | 83% | 84% |

Source: WHO country health profile

Health resources for dialysis in China are scare. Currently, about 1.1 million kidney failure patients need dialysis, but only 10~15% are receiving the treatment. By 2010, there were around 2,300 dialysis centers in China that were mostly affiliated to hospitals. In China, only Class II and Class III[10] hospitals are capable of providing dialysis treatments. On an average, Class II hospitals have 2 to 5 machines, and Class III hospitals have more than 20 machines. Given the issue of hospital overcrowding, the government has started allowing foreign

[10]According to the scale (size, personnel, infrastructure, research capacity, etc.), hospitals are classified into three levels: Class I, II, and III, with Class III being the highest. Under each Class, the hospitals are further ranked into A, B, and C. The hospital with Class III A is the best.

operators to establish dialysis centers in the country (Li & Zhou, 2010). Fresenius Medical Care and Baxter are the chief among them.

Being the most developed and richest area in China, Shanghai has the most established public healthcare policies. In total, 63 hospitals are providing dialysis services in Shanghai. About 6 large hospitals such as Zhongshan, Changzheng, and Huashan are equipped with more than 70 dialysis machines each, compared with 10 machines each in most hospitals in Shanghai and 5 machines in most Class II hospitals.

## VI. China's healthcare system

### Healthcare insurance

China's health insurance is characterized by its multi-layer system. The main pole of its state healthcare safety net is the Basic Medical Insurance System (BMI), which is divided, according to the insured's population cohort into three schemes[11]:

(1) the **Urban Employees' Basic Medical Insurance** (hereafter abbreviated as **UEBMI**);

(2) the **Urban Residents' Basic Medical Insurance** (hereafter abbreviated as **URBMI**); and

(3) the **New Rural Cooperative Medical Scheme** (hereafter abbreviated as **NRCMS**).

The **UEBMI** applies to the urban employed and provides the greatest protection, covering major catastrophes, chronic diseases, and outpatient diseases. This scheme is financed by the employees and the employers[12] with no state subsidy. The **URBMI**, launched in 2007, applies to the urban residents without formal employment, including students, and covers

[11] In Chinese: 城鎮職工醫療保險、城鎮居民醫療保險、新型農村合作醫療保險

[12] The employers pay 6~8% of the payroll; the employees pay 2% of the payroll

certain types of major and chronic diseases. URBMI's premium is lower than that of UEBMI but higher than that of NRCMS, at around RMB 40~150 (equivalent to US$6.4~24). Finance for this scheme relies mainly on governments' subsidies (at center and local levels). Total annual government subsidy per enrollee is RMB 60~210 (equivalent to US$9.6~34), but such numbers vary from province to province (Wanchuan Lin, 2007) (Yang, 2012). The **NRCMS** is a voluntary program that was initiated in 2003 to overhaul the healthcare system, attending to the rural population and covering major diseases and basic medicines. Similar to URBMI, the scheme is mainly financed by governments' budgets (at center and local levels)[13].

**Problems of current healthcare system**

Since the announcement of *Opinions of the CPC Central Committee and the State Council on Deepening the Health Care System Reform* (the guidelines of the latest healthcare reform plan) in 2009, about 1.26 billion are covered by either of the three schemes by 2011, accounting for more than 95% of the total population. Given such an achievement, the healthcare system in China still has room for perfection. The one we are most concerned with is the low security level of NRCMS; a large share of the medical expenditure is still borne by individuals and county-level governments through tax revenues. Patients with NRCMS get only 30~50% reimbursement of their medical bills if hospitalized, while URBMI enrollees get around 55% and UEBMI get more than 70% of the cost reimbursed. However, when facing major catastrophes or chronic diseases that require long-term treatment, the medical expenses are still heavy burdens to most people. Upper-class Chinese thus usually seek extra coverage by purchasing private insurances. Besides the BIM, other sources for medical aid are available for specific groups, such as civil servant medical aid and supplemental

[13] By 2010, the annual premium increased to RMB120 (US$ 17.6) per year (RMB 50 each from central and local governments, and RMB 20 from individuals for poor regions).

allowance for urban employees.

Another issue with regard to the current healthcare system is the lack of mobility of insurance. With nearly 20% of the total population being floating, the inflexibility and complexity of reimbursement procedures leave quite a few migrant workers being excluded from the benefits of the insurance. Even though a transfer between different schemes is feasible and offsite medical treatments are allowed to be reimbursed since July 2010, fragmented policies and divergent reimbursement directories and subsidy levels still make the system very non-transparent.

**Reimbursement on dialysis**

In China, it usually costs RMB 400~500 (equivalent to US$64~82) per HD treatment; PD costs a little less. If supplementary medicines such as erythropoietin are also counted, they cost a patient about RMB 100,000~120,000 (around US$19, 000). Under the current healthcare system, reimbursement for dialysis varies by region, ranging between 40% and 95% or more. UEBMI patients bear the co-payment for HD, which is around 5–15% for inpatients and around 20% for outpatients, while rural patients bear 30~60% of the costs. Supplementary medicines, however, are not reimbursed, and, therefore, only about 2 out of 3 ESRD[14]patients receive erythropoietin, yet the hematocrit levels of most cases are less than ideal[15]. Table 5, below, gives a comparison of the annual cost of dialysis per patient. Differences of costs are partly due to the cost of medical personnel in each country. Table 6, below, gives information on reimbursement rate to the hospitals from the governments in Shanghai and Beijing.

[14] End-stage renal disease, also known as *chronic renal failure* (CRF) or *stage-five kidney disease* (American Kidney Fund)

[15] According to interviews with medical personnel

Table 5 Annual cost of dialysis per patient

| (US$) | HD | PD | GDP per Capita |
|---|---|---|---|
| China | 13,689 | 7,371 | 5,718 |
| Mexico | 13,689 | 7,898 | 10,598 |
| Taiwan | 16,861 | 13,984 | 23,061 |
| HK | 42,121 | 17,902 | 36,285 |
| Japan | 44,228 | 52,652 | 48,337 |
| USA | 81,084 | 61,076 | 51,011 |
| Sweden | 91,614 | 48,439 | 59,945 |

Source: CEBM2010

Table 6 Reimbursement to the hospitals in SHA and BJ

| (US$) | HD | PD |
|---|---|---|
| Shanghai | 65.7 | 18.2 |
| Beijing | up to 78.8 | 24.7 |
| Unit | per treatment | per day |
| Note | Including dialyzers, bloodlines, concentrates, and other supplies but without Erythropoietin | |

Source: CEBM2010

## VII. Market opportunities and competitions in China

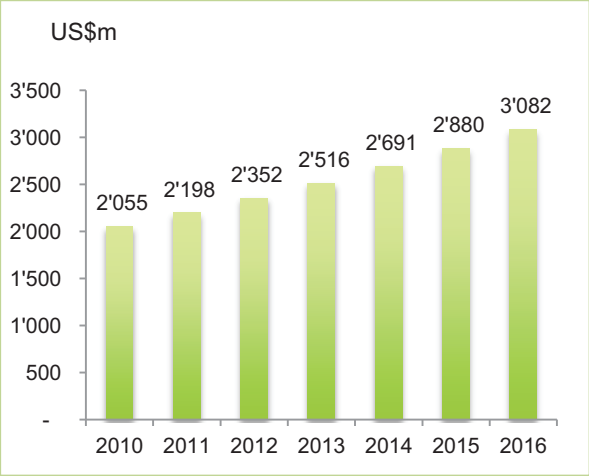
### Enormous market potential

Globally, it was estimated that in 2011 the value of the global dialysis market would be at around US$75billion, corresponding to an increase of around 4% compared with 2010. Of this market volume, around US$13 billion is dialysis products and US$62 billion is dialysis services (including dialysis drugs) (Fresenius Medical Care 2011 Annual Report, 2012).

In China, it is estimated that about 1.1 million chronic kidney disease patients are in need of dialysis, of which only 10~15% received treatments, which is only one third the global average. In dollar terms, the dialysis market is valued at around RMB10.3 billion (equivalent to US$1.65 billion), and is projected to increase tenfold[16] if all patients are covered. The major causes of kidney failure are glomerulonephritis (56.5%), diabetes (18.7%), and high blood pressure (9.5%).

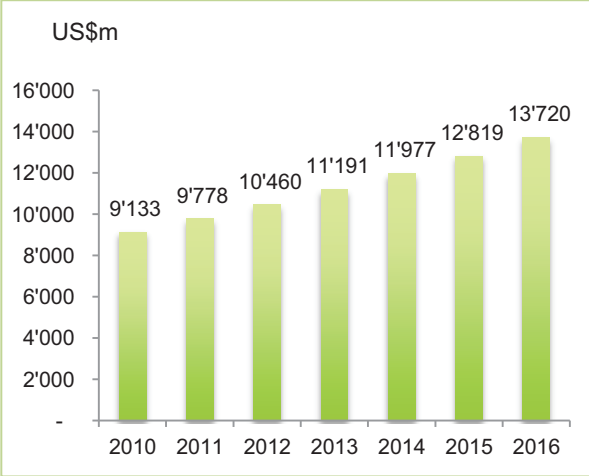
[16]Kalorama Information

Figure 14 Demand on dialysis products in the Greater China




Source: ICON Group International

Figure 15 Demand on dialysis centers in the Greater China




Source: ICON Group International

Key products of the dialysis market are HD machines, bloodlines, and dialyzers. About 18,000 HD machines were installed in 2010, and by the end of 2015, 25,000 machines are expected to be in the region or a 6.79% compound annual growth rate. The total demand for bloodlines stood at 16 million units in 2010 and is poised to grow to 23 million units by 2015[17].

The market is expected to continue growing at a rate of about 7% over the next 5-year term. As for dialyzers, the demand stood at 16 million units in 2010, and the market is expected to touch the level of 23.4 million units by the end of 2015, which is equivalent to a 7.9% compound annual growth rate. As Fresenius Medical Care pointed out in its 2011 annual report: “China was our second largest sales market for newly sold hemodialysis machines after the US.” China indeed possesses enormous market potential for both dialysis devices and services, but to what extent these opportunities can be realized into hard cash will rest on the extent to which dialysis treatments are reimbursed.

**Market competition**

Market competition analysis is divided into two parts: the competition in dialysis products and dialysis services.

[17]CEBM Industry report“中國透析產業處於爆發式發展前夜”

**Dialysis products**

Worldwide, the three largest manufacturers of dialysis products (Fresenius Medical Care, Baxter, and Gambro) together account for approximately 65% of the market in 2011 in terms of revenue (Fresenius Medical Care 2011 Annual Report, 2012).

Table7 Market leaders in dialysis products

| | Rank 1 | Rank 2 | Rank 3 |
|---|---|---|---|
| **Dialyzers** | Fresenius Medical Care | Gambro | Nipro |
| **Dialysis machines** | Fresenius Medical Care | Nikkiso | Gambro |
| **Concentrates for HD** | Fresenius Medical Care | Fuso | Gambro |
| **Bloodline systems** | Fresenius Medical Care | Gambro | Kawasumi |
| **Products for PD** | Baxter | Fresenius Medical Care | Terumo |

Source: Fresenius Medical Care 2011 Annual Report

In China, foreign manufacturers occupied a major share of the dialysis market. More than 90% of the market share of HD machines belongs to foreign players, with Fresenius Medical Care producing more than 49% of all hemodialysis machines currently used in China; Gambro ranked the second; and Nikkiso ranked the third. Similarly, foreign firms hold more than an 80% market share of HD consumables, of which 30% are held by Japanese brands.

**Price competitiveness**

On an average, it costs US$33,000 per machine made by foreign manufacturers, while it costs US$19,000 for one from domestic manufacturers. However, lower cost does not translate into market shares. It is difficult for domestic makers such as Weigao, Langsheng, and Jihua[18] to enter top-tier hospitals, mainly because the quality of their products failed to meet the standard of Class II or Class III hospitals. Locals, however, focus on other developing markets such as Saudi Arabia, India, and Indonesia.

As for consumables, foreign brands are most used, yet they are largely produced domestically. The domestic manufacturers mentioned earlier have sophisticated knowledge and techniques

[18]In Chinese: 威高集团、江苏朗生生命科技有限公司、广州市暨华医疗器械有限公司

to produce dialyzers and other consumables and are growing speedily in the market. The average cost of a set of consumables to hospitals is around US$33, while hospitals usually charge a 50% margin to patients.

**Dialysis services**

Worldwide, Fresenius Medical Care has the largest market shares in providing dialysis services and is followed by DaVita, Diaverum, and so on. In China, an in-center dialysis service is prevalent; most dialysis centers are affiliated to hospitals. Under this kind of a system, dialysis manufacturers or service providers have to cooperate with local clinics by providing machines and consumables or management contracts. Fresenius Medical Care currently provides machines and disposable products to 52 hospitals/clinics. Small firms have difficulties in entering the market because of their insufficient lobbying power against market leaders, such as Fresenius Medical Care or Baxter. Fresenius Medical Care started operating its first dialysis center in Jiangsu in mid-2012 as a part of a pilot project in China[19]. Since the regulations on wholly foreign-owned clinics were approved by the government less than two years earlier (Li & Zhou, 2010), it is still hard to draw a competition landscape of dialysis services.

## VIII. Investment risks

Facing enormous market potential, there are still a few downsides that Fresenius Medical Care has to look after. Competition from the local manufacturers is one of them. Although locals are not capable of producing sophisticated machines for top-tier hospitals, their

[19]The information regarding pilot clinics is seen in Fresenius Medical Care's 2011 annual report and some Chinese newspapers; however, no further information is available regarding its operation updates.

dialyzers and other consumables are substitutes for Fresenius' products. To defend the rapid growth of local firms, Fresenius Medical Care should also extend its focus customers to Class II hospitals. Another major risk of expanding the market is the shortage of dialysis specialists. Dialysis service supply requires a large number of nephrology specialists and nurses to support the expansion, while there is a dire shortage of such professionals in China[20]. It is also very likely that the fast-rising wage level can further hamper the cost of operation. Legal and regulatory risks are also involved. The healthcare regulation system in China is highly complex. The Ministry of Health governs key guidelines centrally, while regional authorities also have great power over local industry players. The FDA approval time and procedures are not standardized; so, lobbying is necessary throughout the whole process. For example, to set up a joint venture, companies, depending on their size, need approval from the National Development and Reform Commission (NDRC), Ministry of Commerce, and/or provincial government. The decision-making process and key decision makers are not transparent to foreign companies. China is a very policy-led market economy that very often risks the companies which are not able to react in a timely and appropriate manner to the changes of policies or government attitudes due to the insufficient information transparency. Although cooperation with the central government can help access relevant information and result in immunity from major damage to some extent, in many cases, regional authorities play a key role in introducing such risks, which is very difficult to manage.

## IX. Strategic movements

Combining the above findings on China's demography and healthcare system, we can

[20]Ministry of Health and interviews with medical personnel

conclude with the following analyses:

**Eastern provinces/cities are still the key markets.** In China, in-center types of dialysis treatment are prevalent for both management and regulatory reasons. Renal patients generally receive a dialysis treatment in clinics or dialysis centers, which they visit thrice a week for several hours. To support such a type of an operation, a dense population will ensure a larger customer base. Moreover, imbalanced regional development has also resulted in prosperous economic activities, job opportunities, and, thus, a higher level of income, which is essential for patients to support long-term treatments. Naturally, it is observed that the top ten provinces/cities in the dialysis market (refer Figure16, overleaf) also correspond to the wealthier provinces/ cities in Figure 10 (GDP per capita).

Figure16 Top ten provinces/cities for dialysis market

Source: CEBM

**Dialysis demands hinge on healthcare insurance coverage.** Dialysis is a long-term and costly treatment, and thus in most countries[21], the number of dialysis patients usually increase drastically once such treatment is extensively covered by insurance. In China, although only 10~15% of ESRD patients receive dialysis, the market of the remaining 85~90% depends on the improvement of healthcare insurance. While urban employed and residents receive

[21]CEBM industry report – healthcare

greater reimbursement, low protection of NCMS and discrimination of benefits toward migrants could defer the market opportunities to cash in. On the other hand, since hospitals make a very low margin on public insured HD patients (less than 5% in Shanghai[22]), they look for patients under private medical insurances, which allow the hospitals to circumvent the price cap imposed by the authorities or to offer flexible packages, such as discounts or loyalty programs.

**Healthcare development relies heavily on policies.** In China, the providers of both foreign and domestic dialysis products compete under a free capitalist market; however, acceptable models of running a business depend on states' policies. The providers of dialysis products mostly drive their revenue by cooperating with local hospitals/clinics. Wholly foreigner-owned clinics were approved only about two years earlier. Home dialysis, an alternative for patients out of the convenient reach of dialysis centers, has not yet received favorable support from governments.

In 2010, Fresenius Medical Care presented a mid-term strategy of GOAL 13 ("Growth Opportunities to Assure Leadership in 2013"), aiming at achieving its success through four paths: **Organic growth** by the expansion of clinic networks and by introducing innovative dialysis products; **Acquisition** to selectively expand dialysis clinic networks; **Horizontal expansion** by expanding the range of dialysis drugs; and **Home dialysis** to assume a more important role in the home therapies market. The materialization of these four paths in China requires strategies that adapt to the current setting of the Chinese demographic environment and healthcare system.

In coastal China regions, where reimbursement is favorable and a larger patient base exists,

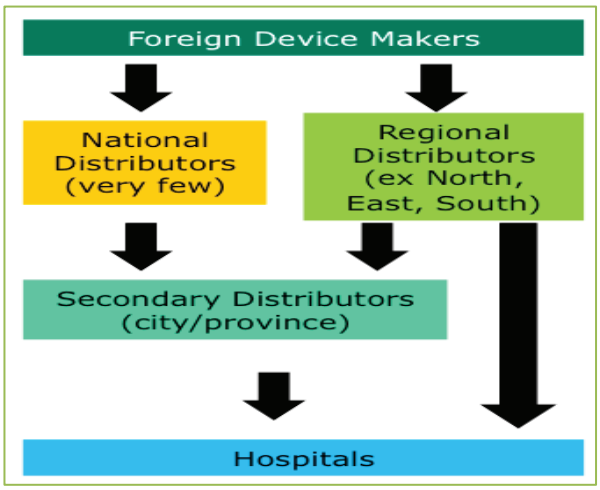
[22]Interviews with medical personnel

Fresenius Medical Care can expand its market through two approaches. The first is by continuing its current model by cooperating with local hospitals through providing dialysis products. After all, the in-center type of dialysis centers/clinics is the main stream. In addition to hospitals providing treatments to patients covered with private insurances, Fresenius Medical Care can draw on its experiences in countries with a prevalence of private healthcare systems, such as the United States, to provide management advice to those hospitals. The second is to operate its own dialysis center, as objective factors, namely, the denser resident clusters with better insurance and a higher income, for dialysis services that exist. The pilot center in Jiansu could serve as a good indicator of the acceptance of independent (non-hospital affiliated) dialysis centers among the Chinese.

A business model that succeeded in Taiwan, a neighboring country, can also be applied to the Chinese market if regulations on hospital operation are further eased. In Taiwan, nephrologists play a key role. They cooperate with devices providers and run dialysis centers. As for market opportunities in the west regions or in the rural areas, the 12th Five-Year Plan has stipulated provisions of improved social safety net for the rural population and a gradual increase on the reimbursement of major diseases. The hidden demands may arise along with the improving reimbursement rate. To expand the market, Fresenius Medical Care will still need to cooperate with local hospitals to operate dialysis clinics. Furthermore, establishing solid and trustworthy partnerships with local distributors could also be a key to succeed. Fresenius Medical Care has been thoroughly developing the Chinese market since decades and enjoys high brand awareness; however, given the overall dialysis market, it is very fragmented, major procurement decisions lie in the hands of individual hospitals, and local distributors can facilitate the market penetration with knowhow on connections. Figure17,

below, shows the typical distribution network of medical devices in China.

Figure17 The typical distribution network of medical devices in China




Sources: medical personnel interviews

Pricing strategy is another approach that is used for penetrating the market. As has been observed, Japanese players are growing strong, because their business model better fits the hospital procurement procedures, which usually stipulate a strict budget cap on machines while being lenient on follow-on maintenance fee. Fresenius Medical Care could refer to Japanese' pricing scheme as being rigid on device procurement price but relaxed on maintenance fee to cater to local habits and procurement regulations.

Dialysis drugs enable Fresenius Medical Care to expand its product portfolio horizontally beyond providing dialysis devices and services. In China, the market demands are very much led by policies. If the drugs used to counteract anemia and to regulate the bone metabolism of dialysis patients are covered by public insurance, the demands are expected to emerge. So far, the Chinese government has reiterated a more affordable medical care and wider coverage within the 12th 5 years, and thus drug price cut will certainly be a tactic to bringing more drugs on the essential drugs list. Fresenius Medical Care can consider promoting drugs at a lower price with mediocre quality, which will better satisfy the markets' appetite in China.

Lastly, regarding the home hemodialysis (HHD), China is still a premature market for it. First of

all, it is very costly to win government support, which, however, is a necessity to convince both medical professionals and patients. Currently, there is no policy support on HHD. In-center treatment is still the dominant choice for most patients. As from the patient side, challenges are the absence of patient monitoring infrastructure and home hygiene control. Besides, HHD is not reimbursed, and for those who are financially capable, kidney transplant is a more popular solution. Culturally speaking, the Chinese wealthy class is looking for service, not physical freedom.

## X. Conclusion

Elderly populations are associated with high prevalence of chronic kidney disease. China[23], with its enormous population size and unique demographic policies, is marching with unprecedented speed into an aging society. The assessment of market potential on dialysis has shown the attractiveness in China due to its huge amount of untapped dialysis demands, which, however, rely on a more universal healthcare coverage to release. Given China's demographic evolution and current healthcare system, Fresenius Medical Care, the global leading dialysis products and services provider, would still find its key markets in eastern/coastal regions. Under the circumstances that state policies direct the development of China's healthcare industry, cooperation with local hospital-affiliated dialysis centers remains the main channel to develop business in China. The recent relaxation of regulation on foreigner-run dialysis centers allowed Fresenius Medical Care an alternative business model to provide dialysis services in its own clinic. Although its success still remains to be seen, it is an indicator for the development of private dialysis services in China and prepares Fresenius

[23]U. S. National Library of Medicine National Institutes of Health; Stevens LA, 2010

Medical Care to meet up future demands with some flexibility. Therefore, the future depends on how Fresenius Medical Care can maximize the benefits brought about by China's demographic shifts via forming business models that adapt to the changes of healthcare policies.

**Appendix: Hukou system**

A hukou (or called *huji*) is a record in the system of household registration required by law in the People's Republic of China. Such a system has its origins in ancient China (as early as 2000BC) that family or clans were registered for the purpose of taxation and social controls. The Communist Party initiated a command economy when it came to power in 1949. Later in 1958, the Chinese government officially declared the Hukou dengji tiaoli (Household Registration Regulation) to control the movement of people between urban and rural areas. Since then, Chinese citizens have taken away one major basic right of the freedom of internal migration and residence, and the system has served as the linchpin of China's divisive dualistic structure (eryuan jiegou) and the foundation for its two classes of citizenship.

The hukao system heavily restricts the freedom of mobility of Chinese citizens, which allows them opportunities to enhance their well-being by moving to a better place or a better job. If one wants to change their residence permanently or formally, approval of hukou change from the local authorities is required. Urban or rural residents are generally permitted to move hukou within the same city or town; however, formal (or "permanent") moves—meaning those involving a hukou change of crossing a city or town—are strictly regulated and require

approval by the public security authorities. Generally speaking, it is very difficult for an ordinary person to change hukou from rural to urban areas, or from smaller cities to larger cities (Chan K. W., 2009a). For example, in Shanghai, to qualify for permanent residency (i.e. to change hukou), applicants should have held a Shanghai residency certificate, should have paid tax duly, and should have been in the city's social security system for at least seven years (Li C. , 2009).

As of today, more than half a century after the promulgation of the hukao regulation and modernization on transportation that travel time from Beijing to Shanghai is reduced from 37hours[24] to 5 hours by train, the importance for hukou to stop migration has paled, but its omnipotent power to determine many important aspects of life remains. It works nowadays chiefly as an “entitlement” distribution mechanism to limit most state-provided social goods to the urban residents, because what comes attached to the hukou are benefits including healthcare, a pension, and less competition in entering local universities or enterprises. Furthermore, if one lives where he or she is not registered (i.e. not having a hukou), one has more difficulties in getting a driver’s license, buying a house, or purchasing a car. For example, one with non-Shanghai hukou is not qualified to purchase a house in Shanghai, unless one has married, has a family, and has paid tax duly for more than a year. In terms of social insurance, migrants are also at an inferior position.

Hukou reform has never failed out of discussion among the public or People’s Congress in the past decade, as it is clear that for China to move forward it cannot have two classes of citizenship. Quite a few guidelines and plans are dedicated to improve the inequality. In 2010, rural migrant workers were allowed to settle permanently in small and medium cities and to

[24]细节中的往事和现实(2) http://data.book.163.com/book/section/000BODMI/000BODMI19.html

enjoy the same public facilities and services as those with local urban hukou. In 2012, the General Office of the State Council raised that any forthcoming measure on employment, compulsory education, and vocational training should not be linked to the identity of hukou. Nonetheless, pessimistic opinions for the abolition of the hukou system argued that the hukou system is integral to China's socioeconomic structure and development strategy. Rural-hukou migrants, because of their disadvantage with regard to bargaining power, represent a huge pool of cheap labor for employers or middle-class Chinese, who are loath to give up such luxuries. K. W. Chan, geographic professor at the University of Washington, has also pointed out that there is a lot of vested interest in keeping the system as is and there is no major incentive for anyone who has a voice to change the system (Chan K. W., Despite China's Modernization, the Inequitable Hukou System Remains, 2010).

A cautiously optimistic prediction on China's hukou system is that it is impossible to dismantle the hukou system completely in the near future, as a thorough reform entails tearing down current dualistic structures, universalizing state-provided social security, healthcare, and some other social services, but as China works to transfer the economy's heavy dependence on exports toward domestic consumption, it is expected that the government will expedite the reform to mitigate the inequality for the rural population and migrant workers in order to lift their meager income.

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