

WDA Forum



# Project Papers 2013

*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  
Fall 2013*





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## **I. Introduction and Rationale**

For the fifth year in a row 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“.

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 outside-the-box thinking and knowledge generation focusing around potential future population trends and their impact on business and society.

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

The coming decades we will be confronted with demographic dynamics 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 demographic change is so intimidating and makes it all the more crucial to be permanently prepared for innovation and creativity as well as openness for change.

However, this will only be achievable if appropriate education/training and thus knowledge/skills can be developed in the time remaining.

My contribution as a member of the 60+ generation 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 dynamics 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, 21 students from 8 different nations (Brazil, Bulgaria, China, India, Italy, Lebanon, Russia and Switzerland) and from 6 different HSG Master Programs successfully bid for this class and represented an inspiring spectrum of diversity.

The benefit for the participants was to acquire an understanding about the social and business environment they are most likely to encounter within the 2020 - 2050 time period. As such, these students have 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 21 students aligned in 7 project groups and engaged in building deeper knowledge on one of the following demographic challenge topics:

- Demographic ageing in Switzerland - Patterns of the overall population vs. the group of medical doctors and nurses
- Innovate for an ageing society: New structures and business models to make longevity an achievement
- Flexible retirement: An UBS case study
- A model on using demographic indicators for strategic planning - Taking the Chinese Government as an Example
- Population dynamics and its implications - Northern vs. Southern Europe
- The Emerging Markets
- Demographic ageing - What is the impact on capital markets?

In the subsequent 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.

I am more than convinced that the papers prepared by the students will be inspir-

ing and will provide new views on how our „Planet Earth“ might develop. One might also agree 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 facilitate any further discussions with any potential reader.

Dr. med. Hans Groth, MBA

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Guest Lecturer on „Demography and its interconnections to wealth, health and social sustainability“, University of St. Gallen (HSG)

St. Gallen, September 2014



## **II. Papers of the 2013 Masterclass:**





Universität St.Gallen

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**Megatrend 'Global Demographic Change' –  
Tackling Business and Society Challenges in 2030 and beyond**

**Demographic Ageing in Switzerland:  
Patterns of the overall population vs. the group of medical doctors and nurses**

Lecturer: Dr. med. Hans Groth, MBA

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## PREAMBLE

"The big challenge of the future will be to on the one hand acknowledge active elderly persons according to their competences (and these include the possibility to also be working during retirement age, if desired). On the other hand it is about gracefully nursing and treating care-dependent respectively demential persons. The society of the future requires two cultures of ages: One for active elderly persons and one for care-dependent persons towards the end of life."

*(Translated from: "Alternde Gesellschaft - verjüngte Senioren. Über die doppelte Dynamik des Alterns". Neue Zürcher Zeitung, 27<sup>th</sup> of September 2005; François Höpflinger, honorary professor for sociology at the University of Zurich and research director with the University Institute "Age and Generations" (INAG) in Sion)*

## EXECUTIVE SUMMARY

A look at the development of the population in Switzerland over the last 50 years most remarkably shows a change in the population's age pattern. While in 1960 10.3% of the Swiss people were over the age of 65, in 2012 there were 17.4%. Simultaneously, the share of people below the age of 20 has fallen from 31.8% to only 20.4%. This development, also called demographic ageing, will continue in the near future and is crucial for the medical sector. The growing number of elderly people requests more medical assistance, which raises the question, if there is enough medical personnel to meet the increasing demand for health care.

In regards to the estimated number of doctors, it does not seem that there will be a shortage, since most of them work in hospitals. Still, there are a few concerns, which need to be considered associated with a possible shortage:

1. There are too few students allowed to follow a medicinal study.
2. There are too many special subjects in the field of medicine.
3. The feminisation of the medical sector increases the number of doctors, but decreases the average working hours.

A shortage in nursing personnel, by contrast, is much more likely to happen, because the growing share of old people is very dependent on them. Since there will be more elderly people in the future and therefore an increased need for caring and nursing, also more nursing staff will be required. Additionally, especially in sociomedical institutions and Spitex nursing personnel will reveal a high number of retiring people by 2030 (approximately 60%), therefore stressing a probable shortage even more. The problem of retirement is not that pressing with doctors, which are better represented in all age classes.

An estimated calculation on the base of data from the Bundesamt für Statistik has confirmed, that there will not likely be too few doctors, but too few nursing personnel. To tackle this issue, the following solutions are possible:

1. Foster the overall health for people over 65 to prevent and postpone the need for medical assistance.
2. Increase the number of places for medical training at universities (just in case of an increased likelihood for a lack of doctors).
3. Hire people with lower qualifications to work in sociomedical institutions and Spitex.
4. Render the overall medical sector more attractive through higher salaries.

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## 1. INTRODUCTION

This paper studies the demand and supply for medical personnel in Switzerland in the framework of a simple forecast model. We are investigating whether there will be a shortage of doctors and nurses, assuming a similar demographic development in the future as there was in the past. We divide medical personnel into doctors and nursing personnel.

We first consider the overall population demography in Switzerland and evaluate the historic development in order to provide a forecast of the aging population. We consider 2010 the benchmark year and forecast the age pattern until 2030. We analyse, how the developments of the Swiss population affect the medical sector in terms of staff requirement and reasons for a possible shortage in the future. The focus will be on family physicians (ambulant care), hospitals, sociomedical institutions (retirement and nursing homes) and Spitex.

Moreover we consider the demographic structure of doctors and nurses and show the differences compared to the overall demographic population structure in the country. We take the issues that arise from the comparison and the population forecasts into consideration and try to give an overview of possible solutions. Characteristics that influence the supply of medical personnel are for example education, migration and retirement. We mainly focus on the feminization of the medical personal and on challenges that arise due to that development.

Our theoretical analysis comprises a model that synthesises the most relevant trends such as demographic ageing, doctors' education, migration, retirement and the topic of feminisation of the medical education. We assumed that all factors concerning the demand for doctors remains constant except for the population ageing and growth. In Section 2.4.4 we update the model for the characteristics of the feminization of medicine and study the impact, this development has on the supply of medical personnel in Switzerland.

Since it is necessary for the Swiss society to ensure that there will be no shortage of medical personnel, the above-mentioned developments have to be taken into account and possible actions have to be taken.

## **2. MAIN PART**

### **2.1. Demography of Switzerland**

This chapter will offer a brief overview of the overall Swiss population development during the last 50 years. It will afterwards focus on the changing age pattern and outline the causes of an ageing society.

#### **2.1.1. Overview**

The Swiss population counted 8'039'060 people as of 2012, whereof 49.4% were male and 50.6% female (Bundesamt für Statistik, 2013a). Since 1946 (4.49 million inhabitants) it has been growing with an annual rate of at least 1%, whereas it almost even reached 3% in 1961 (see figure 1) (Bundesamt für Statistik, 2010a; Bundesamt für Statistik, 2013b). The causes for this exceptional growth were the baby boom after World War II and high immigration connected to the temporary economic booms at that time. With the economic crisis in the early seventies, this progress eventually came to a halt, only to begin again in 1980 and settle once more around 1% during the past few years. According to prognoses of the Bundesamt für Statistik (2010) the Swiss population is expected to further grow up to estimated 8.7 million people until 2030.

#### **2.1.2. Demographic Ageing**

During the last five decades one could observe that with the population growth a considerable change in the Swiss age structure has evolved. While the share of persons above the age of 65 was at 10.3% in 1960, it has risen to 17.4% by 2012 (Bundesamt für Statistik, 2013a). Simultaneously, the share of persons younger than 20 years has fallen from 31.8% to 20.4% (see figure 2). This consequently accounts for an increase in the average age from approximately 34 to 41.4 years (Bundesamt für Statistik, 2009b). These changes in the age pattern can be explained on the basis of two important demographic developments in the past 50 years (Schmid Botkine & Rausa-de Luca, 2008; Bundesamt für Statistik, 2009a):

(1) The falling percentage of young people in Switzerland can be traced back to the invention of the birth control pill in the early sixties and the end of the economic boom in the early seventies. These events brought the post-war baby boom to a halt, wherefore the number of annual live births has been dropping from 110'000 in 1966 to 70'000 in 2010. This eventually caused the birth rate to drop from 2.8 children per woman and settle at around 1.4 in the past few years (Bundesamt für Statistik, 2010a; Schmid Botkine & Rausa-de Luca, 2008). Additionally, women have begun to give birth at a higher age. While they started to have children at averagely 25.3 years in the sixties, they are now starting at around 29.6. The reasons for this delay in childbirth can be found in societal phenomena, such as longer periods of education for women, prosperity and the difficulty of uniting work

and family. Accordingly, women who start to have children at a higher age are expected to give birth fewer times.

(2) The increased share of people over the age of 65 can be explained by the following reasons (Schmid Botkine & Rausa-de Luca, 2008). On the one hand, the baby boomer generation from the post-war period has been entering this age class for a few years now. On the other hand, and most important, the mortality rate experienced a fall. This can be affiliated to improved medical assistance, hygiene standards, nutrition and the overall living standard in the 20th century, which caused child mortality to decrease. Furthermore, diseases and infections could have been fought. As a result, life expectancy has been climbing from 74.1 years in 1960 to 84.4 years in 2010 for women and from 68.7 to 79.7 years for men (Bundesamt für Statistik, 2010a). Compared on a global level, Switzerland has one of the highest life expectancies. An important aspect in this matter is the life expectation for people over 65. Mostly thanks to medical developments in the area of cardiac diseases, women can expect to live another 21.8 years and men another 18.3 years after retiring.

This altogether eventually led to the contemporary age structure in Switzerland, also known as demographic ageing. According to the middle forecast of the Bundesamt für Statistik (2010), the share of young people in Switzerland will further fall to around 19% by 2030, whereas people over 65 will become more and represent around 24% by the same time (see figure 3).

## **2.2. Demography of medical personnel**

In this chapter it will be analysed, how the above-described developments of the Swiss population affect the medical sector in terms of staff requirement and reasons for a possible shortage in the future. The focus will be on family physicians (ambulant care), hospitals, sociomedical institutions (retirement and nursing homes) and Spitex, which employ approximately 66.67% of the overall medical staff and are therefore considered to be the most important institutions within the medical sector (Jaccard Ruedin & Weaver, Ageing Workforce in an Ageing Society, 2009).

### **2.2.1. Doctors**

In 2010, there have been 49'675 doctors working in Switzerland, of which 16'087 have been working as family physician, 21'827 in hospitals and 344 in social institutions (there were none working for Spitex) (Bundesamt für Statistik, 2011a; Bundesamt für Statistik, 2011b; Bundesamt für Statistik, 2011c; Jaccard Ruedin, Seematter-Bagnoud, Junod, Roth, & Santos-Eggimann, 2008). Of these 67.9%, 76.5% and 64.2% were male respectively 32.1%, 23.5% and 35.8% female. 2'369 doctors retired that year (which are 7.4% of the total number) and 672 out of 5'651 students graduated in medicine. Due to immigration, there was a growth of 1'045 doctors.

It is assumed that a person under 65 has on average 4 incidents per year, for which he will be seeking ambulant medical assistance in a family practice (Jaccard Ruedin, Seematter-Bagnoud, Junod, Roth, & Santos-Eggimann, 2008). Persons over 65 by contrast are going 13 times a year to see the physician. Summed up, this accounted for a number of annual ambulant incidents of approximately 43.5 million in 2010. Therefore, there are 2706 incidents per family physician per year. The number of hospitalisations in the same year was 1.3 million, which accounts for 40 patients per doctor (Bundesamt für Statistik, 2012). Finally, there were 135'819 clients seeking care in social institutions, whereas the ratio of clients per doctor was 395. Of these 135'819 patients around 91% are above the age of 65. Since most of the doctors are needed in ambulant medical care and hospitals, the request for medical assistance is mostly influenced by the whole population growth of Switzerland. Accordingly, this request will increase in the coming years. However, since a person is more likely to visit a doctor more often when he has reached a certain age, a further growth of the age class above 65 will exponentially increase for the demand of ambulant medical assistance. Therefore, even though the density of doctors per Swiss inhabitant has been more than quadrupling during the last 50 years, the possibility of a shortage of employed doctors remains (FMH, 2009). One reason for this is the employment level of doctors, meaning that there is an increasing number of female doctors, which however only work part-time (this issue in particular will be explained in more detail in a later chapter). Furthermore, a higher demand for quality is calling for a better service and therefore more doctors per clients. Additionally, due to continuously differentiating subjects of the medical education, there are less doctors specialising in general practice, which however is basic for family practices and therefore primary health care. This increased range of specialisations also raises the average age of a doctor receiving his diploma as specialist. This possible shortage of physicians is not least a consequence of the current educational system. Because of the Numerus Clausus, many of the medical aspirants are being sorted out, which lead to a decreasing number of medical students in the past few years. Paradoxically, the number of assistant physicians has simultaneously been increasing. The explanation for this is the immigration of foreign doctors, mainly Germans, closing that gap. This highly indicates that the education of 600 to 700 Swiss doctors a year is not sufficient.

### **2.2.2. Nursing personnel**

The number of nursing staff in 2010 came to 75'521 persons working in hospitals (roughly 86% female), 66'433 in social institutions (roughly 84% female) and 32'496 for Spitex (no data regarding the sex of employees), while 1'468 employees immigrated (Bundesamt für Statistik, 2011a; Bundesamt für Statistik, 2011b; Bundesamt für Statistik, 2011c).

There were as many persons seeking medical assistance in hospitals and sociomedical institutions as already described above, namely 1.3 million

respectively 135'819. Additionally, there were 352'334 persons using Spitex. Of these 352'334 calling on Spitex almost 75% are 65 years or older (Bundesamt für Statistik, 2011d). This altogether accounts for 18 patients per nurse in hospitals, 2 in social institutions and 8 in Spitex.

Since most of the patients in sociomedical institutions or Spitex are over the age of 65, the share of this age category in the Swiss population is very crucial. Thus, the predicted increase of percentage of persons over 65 to about 24% in 2030 is implicating an intense ascent in people either seeking care in sociomedical institutions or requiring Spitex. According to Höpflinger et al. (2011), the caring rate for persons increases with their age. In the age category from 75 - 79 the rate is well below 10% and above 13% for the category from 80 - 84, but drastically increases to 34% for persons between the age of 85 and 90, after which age it surpasses 50%. In old age, women are more dependent on care than men, mainly because their life expectation is higher and they survive for a longer period of time when in care. However, it must be stressed, that being old per se is no disease. With the gained years after 65 during the past five decades also the number of years living healthy has been increasing. Therefore, it is important to distinguish between simple assistance, mostly offered by Spitex, and actual care assistance offered by sociomedical institutions. The former is most likely to increase the most in the next years, due to the gained healthy years of age, whereas stationary care is most needed the last few years before death. Still, the request for both types of assistance will increase in the future, due to the over ageing society in Switzerland, wherefore more nursing personnel will be needed to maintain the current quality of service. This is furthermore accentuated when looking at the share of care-dependent persons compared to other European countries. After Iceland (9.3%) Switzerland has the second highest share of persons above 65 to be taken care of in sociomedical institutions (6.6%). This is due to different socio- and health-political circumstances, namely the strong expansion of welfare state services. After all, the future demand for medical assistance in sociomedical institutions and Spitex is very dependent on the general health of the elderly people.

Last but not least, a look at the age pyramid of employed medical personnel (doctors and nursing staff) gives reasons for concern. In figure 4 and 5 it can be seen, that demographic ageing is also concerning the medical personnel itself. In sociomedical institutions, around 30% of the whole staff will have reached retirement age by 2020 and further 30% by 2030. The situation looks similar within Spitex. Figure 5 seems to put this fear into perspective, however it must be seen, that the composition of the personnel in that is different. In hospitals, the staff is averagely younger, wherefore only about 15% will retire by 2020 and further 14% ten years later.

Recapitulating, all the above mentioned factors will most likely lead to a lack of medical personnel by 2030, therefore resulting in a decreasing quality of medical

assistance. To avoid that, the government must take active measures to address these problems. A number of possible solutions will be given in a few chapters.

### **2.3. Forecasting demand and supply of doctors and other medical personnel**

As described in the previous chapter, the demography of the Swiss population is changing rapidly. Therefore, making sure that a sufficient amount of doctors and other medical personnel is available and well educated is an important goal for the society. On one hand, educating too many doctors can be a big burden for public resources and lead to less attractive careers because of relatively low wages. On the other hand, a shortage of doctors puts the whole health system at risk leading to massive costs and even unnecessary deaths. Finding the proper balance is an on-going evaluation of all the relevant factors and socio-economic trends to estimate how the demand and the supply of doctors in the next decades will look like. To get a rough picture for the year 2030, we built a model that synthesises the most relevant trends such as demographic ageing, doctors' education, migration, retirement and the topic of feminisation of the medical education. Since predictions of the future usually work best with simple models, we only have a small set of assumptions about how the future differs from today, which are outlined in the following part.

#### **2.3.1. Data basis**

The major data source used for our analysis has been the Swiss Federal Statistical Office (“Bundesamt für Statistik”, BFS). They provide detailed scenarios for the likely population development in Switzerland by 2060 starting in 2010. The BFS provides three scenarios for the future growth of the Swiss population, namely “low”, “medium” and “high”. For our analysis we used the medium scenario, which is the most likely one, assuming that socioeconomic trends will persist and structural breaks will not occur. The underlying assumptions are as following: The competition between attractive jobs and family further leads to a decline in fertility, which is only slightly softened by state policies that try to support families. Furthermore, it is assumed that the share of people with health issues will not drastically reduce even though mortality will continue to decline. Despite having a high volatility, net immigration will decline in the long-term because of a convergence of all European countries and a subsequent reduction of the attractiveness of Switzerland. Altogether, the medium scenario of the BFS assumes that the total population will increase from 7.8 million in 2010 to 8.7 million inhabitants in 2030, whereas the share of people over the age of 65 will increase from 17% to approximately 24% as already mentioned earlier. Yearly net migration is assumed to decline from 0.65% to 0.26% of total population in the same period of time.

In our classification we found doctors working as family physicians (“ambulant”), in a hospital or in a sociomedical institution like nursing homes for the elderly. To estimate the current population of the different classes of doctors we used different sources. The BFS did a survey with all hospitals in Switzerland, which states that 21'827 doctors have been working in 299 different Swiss hospitals by the end of 2010 (cut-off date: 31.12.2010). This corresponds to 18'818.3 full-time equivalents, since some doctors work only part-time. One hospital in Zurich did not participate in this survey.

The Swiss Medical Association (FMH) provides an estimate of the population of doctors working as general practitioners. In 2010, 16'087 doctors worked in single or group medical offices. To calculate the corresponding full time equivalents, we assumed that a family physician works on average 83% of a full-time position. This number is based on self-reported working hours of 5'567 doctors and exhibit a gender gap: Women self-reported to work 69% on average, whereas man reported 89%. In total, general practitioners worked as much as 13'352.2 full-time equivalents in Switzerland.

The information about the number of doctors that work in sociomedical institutions is based on a survey of these institutions by the BFS. It revealed that 344 doctors or 94 full time equivalents worked either in retirement or nursing homes.

Since the population forecast data and the doctors' data were from 2010, we decided to use year 2010 as the basis year for our forecasts.

### **2.3.2. Forecasting demand for doctors**

Our forecast for the demand of doctors in 2030 is divided into two parts. First, we tried to forecast the likely demand for doctors FTEs according to the BFS' medium forecast of the population development. In the next step, we asked ourselves, if this demand is likely to be met given the likely retirement, immigration and education rate of doctors.

To keep the model simple, we assumed that all factors concerning the demand for doctors remains constant, except the population ageing and growth. For example in 2010, a total of 1'330'825 hospital clients (BFS, 2010b) and 135'819 clients of sociomedical institutions (BFS, 2010c) have been reported. That is, a full-time hospital doctor medicated 71 clients a year on average, whereas one full-time social institution doctor gave attention to 1'445 clients. These numbers are imputed factors and do not represent the actual number of clients, a doctor dealt with. Hospital doctors for example have remarkably more clients per year, but correspondingly one client usually requires the attention of multiple doctors (e.g. in an operation, where a surgeon and an anaesthesiologist is required). We assumed these factors stay constant from 2010 to 2030.

For general practitioners we first estimated the total number of yearly treatments throughout Switzerland. A study done by PrimaryCare (2008) evaluated data of health insurance companies and found that on average a person with the age below 65 pays doctors a visit four times a year, whereas people above 65 see a

doctor 13 times a year. These ratios proved to be stable. In 2010, about 43 million ambulant incidents occurred in total, which are 3'260 per full-time working doctor or 14 patients a day (2010 had 253 working days minus 20 assumed holidays).

But how will the number of clients of hospitals, sociomedical institutions and ambulant incidents develop between 2010 and 2030? The number of ambulant incidents is correlated to population. Using the median population forecast of the BFS we estimated that the total number of incidents will increase to almost 55 million. This represents a 28% increase, whereas the population will grow only at about 12%. The enhanced share of elderly people explains the stark increase, since they have to visit the doctor more often.

For hospitals we do not assume a strong increase of clients. Next to elderly people a high share of clients of hospitals are children and pregnant women. Therefore, a simplifying premise of our model is that the number of hospital clients correlates with the total population growth. Consequently, we predict only a slight increase of hospital clients from 1.3 million in 2010 to 1.5 million in 2030. Nevertheless, clients of sociomedical institutions increase strongest in our model. For a basis of 136'000 clients in 2010 the total for 2030 is 235'000 clients (73% increase). We assume the number of clients for sociomedical institutions is proportional to the number of people in Switzerland that are older than 70 years.

The estimates for the ambulant incidents, hospital clients and clients of social institutions can be used to calculate the expected demand of doctors working full-time. In 2030, Switzerland will require about 17'000 general practitioners, 21'000 full-time hospital doctors and almost 200 full-time doctors for social institutions (total 38'000 FTE doctors).

### **2.3.3. Forecasting demand for nursing personnel**

For nursing staff we used a different classification than for doctors. In 2010 77'792.9 full-time equivalent nurses have been working in Swiss hospitals (BFS, 2010b), 52'378.9 (BFS, 2010c) in sociomedical institutions (primarily nursing homes) and 15'683.3 for Spitex organisations (2010d). Spitex refers to the performance of nursing services at the home of elderly persons.

In our model we assumed that the demand for nurses working for social institutions or Spitex is proportional to the share of elderly people (persons with an age above 70 years), whereas the demand for hospital nurses will grow correlating to the total population growth.

We used the following (constant) factors: In 2010, one hospital nurse had about 17 clients per year. A nurse in a sociomedical institution cared for about 3 clients on average and one Spitex nurse for averagely 22 clients.

Altogether, we assumed that the demand of nurses will be increasing from 146'000 nurses in 2010 to 204'000 nurses in 2030. This represents an increase of about 40% in full-time equivalents.

### **2.3.4. Education**

In Switzerland it is possible to obtain a degree in human medicine at five universities: Basel, Berne, Geneva, Lausanne and Zurich. For the universities, that are located in the German speaking area, human medicine is a Numerus Clausus subject. It is necessary for the students to pass an entrance examination. In the French speaking part of the country all students are accepted but a high number of them do not pass the first year's examinations. Human medicine students obtain the degree "Staatsexamen" after six years of study, which allows them to work in a hospital or a doctor's office. Further postgraduate training on the job leads to the advanced degree "eidgenössischer Facharzt".

Altogether, about 30% of applicants get accepted as students in the German speaking area. At the levels bachelor, master or diploma, 6'327 students (BFS, 2010e) studied human medicine in 2010. This is 67% of all 9'418 students in the medicine faculty, which also includes animal medicine and pharmacy (BFS, 2011). In 2020, the total is predicted to grow to 11'490 students in the neutral scenario (7'700 human medicine). We assumed that the number of students will not increase a lot from 2020 to 2030 but is limited to 8'000 students in total.

Of 6'327 students 672 (10.6%) graduated in 2010. Assuming this rate is constant, we calculated Swiss universities to educate 3'000 - 4'000 doctors every 5 years.

For the education of nurses we assumed that the number of graduates will remain constant at the current level of 5'250 students per year.

### **2.3.5. Migration**

Recruiting doctors from different countries is regarded as problematic in an international context. Poor countries need a relatively high effort to educate doctors, primarily because of high comparative costs to buy expensive equipment. Every doctor that migrates to a different country takes with him a large amount of human capital that cannot be replaced in the country of origin very easily. Statistically, Switzerland recruits almost all foreign doctors from its neighbouring countries Germany, France and Austria, which are regarded as relatively rich. The leaking of human capital is still expensive for these countries, but far from being problematic. However, these countries attract foreign doctors as well, which leads to a trickling fall of vacancies for doctors down to the poorest countries. To prevent this so-called domino effect, the WHO in Geneva established a Codex regarding international recruiting of health staff in Mai 2010. The abstract principle is that migration of health staff should benefit both the destination country and the country of origin.

As already mentioned, Switzerland recruits a large portion of its health professionals from neighbouring countries. In total 36% of all doctors and nurses are foreigners, most of them from Germany. In 2010, about 1'045 doctors relocated to Switzerland, which is about 2% of the total net migration (Obsan, 2012). Net migration for nurses was 1'468 in absolute terms, which is 2.9% of total net migration. We assumed that these factors would stay constant so that the

migration of doctors and medical personnel will symmetrically decline respective to the net migration of 465 doctors in 2030 respectively 653 nurses.

### **2.3.6. Retirement**

Another important part of the model is a rough analysis of how many doctors will retire at which point in time. For general practitioners the rate of old doctors is alarming high. In 2010 10.2% of general practitioners were already older than 65 and are probably already retired by now. An alarming high rate of 35.4% of general practitioners is 55 - 64 years old and therefore already very close to retiring. A report by Obsan (2012) found that only 19.9% of all general practitioners are younger than 44 years old. Fortunately, this alarming numbers do not represent the total doctors' population. Hospital doctors on the other hand are very young on average. Only 9.2% of all hospital doctors are older than 55 years, whereas 72.8% are younger than 44 years. We assumed that doctors working for sociomedical institutions have the same age structure as general practitioners.

Beyond the scope of this paper, but nevertheless quite important, is to research the reason why hospital doctors are so young and general practitioners are extremely old in comparison.

An intuitive satisfying answer is, that hospitals are a good environment to educate doctors, which later have enough money and knowledge to invest into their own doctor's office. Another driver could be, that hospitals are usually located in cities with a high living standard for well-educated metropolitan doctors. However, the following questions could be considered in this respect: Is it reasonable to believe that they will give up their lifestyle and move back to remote village locations? What is it about the high percentage of Germans (primarily) working in hospitals? Will they get a doctor's office in Switzerland when they get older or back in their home country Germany?

With the rough data available we cannot answer those questions. The only thing that can be pointed out with certainty is, that a future shortage of doctors due to retirement is likely to occur for general practitioners, but not for hospital doctors.

## **2.4. Feminisation of medicine**

In the context of the health care debate in Switzerland it is increasingly spoken of the feminisation of medicine. But what does this term exactly mean? The term feminisation means a high or significantly increasing number of women in a professional group. In medicine, the proportion of female students has steadily risen and in the early nineties it has finally crossed the 50% threshold. Since early 2000, more women than men conclude the study of medicine with the federal state exam (Latal, 2010).

#### **2.4.1. Feminisation of the medical education**

Since the turn of the century, the number of students of human medicine has only increased by 3%, whereas the proportion of women among those students has risen by 19%. This trend is also evident in the number of degrees. The number of students who successfully completed the course with a federal doctors diploma has declined since 2000 by about 11% to 672 in 2008, but the proportion of women among the graduates during the same period has grown by 36% to 61.5%. It is therefore especially the increasing number of female doctors, which causes the growth of the number of medical doctors in Switzerland (Kraft & Hostettler, 2013). Due to the increasing share of women among students and degrees, the proportion of women among doctors in all age groups will rise in the coming years.

#### **2.4.2. Feminisation in the various disciplines**

The feminisation of medicine can be observed in all areas of medicine, but the increasing share of women varies depending on the field. Women often choose other disciplines than their male counterparts. Subjects, such as anaesthesiology, obstetrics and gynaecology, child and adolescent psychiatry and psychotherapy, ophthalmology, paediatrics and psychiatry and psychotherapy mainly arise the interest of women. In these fields, an increase in the number of female doctors is more often observed. In disciplines that are particularly persecuted by men, such as surgery, the proportion of women is relatively low and increases less strongly.

#### **2.4.3. Integration of feminisation**

Although the number of medical students is constantly increasing, the number of doctors decreases with ascending hierarchy at work. Only 9.9% of the chief doctors positions are staffed by women (Kraft & Hersperger, 2000). The working conditions of the medical profession seem to be unfavourable for the reconciliation of work and family, hence many doctors quit their job after starting a family. This means that the feminisation of medicine is both a challenge and an opportunity to improve the reconciliation of work and family for doctors. More flexible working and employment conditions are required. Especially in the fields of medicine, in which the proportion of women after graduation is particularly high, such as the children and youth medicine, obstetrics and gynaecology, there should be a rethinking with regard to training and working conditions, in order to ensure the medical supply of the population by professional doctors and specialists.

With the acquisition of the medical diploma in the mid-twenties the practical training of the medicine students begins and they have to specialize on a particular field of medicine. The aim must be to develop a training model that ensures, that a specialist title can be achieved in a reasonable time, which allows the doctor to engage in business on his own responsibility. One possible model to meet these needs would be a careful stage planning of training. To provisionally complete such a stage with a special doctor title is a good precondition for women to

incorporate a family break. At a later stage, the training can then be resumed to acquire additional skills. This may for example result in the acquisition of a centroid or a proficiency certificate. Particularly in disciplines in which the number of female doctors is increasing, these are good conditions to remain in the profession and to ensure the security of supply (Kraft et al., 2000). Since 1992, it is possible to complete the medical education in a part-time model (Kraft & Hersperger, 2000). This needs to be further developed so that an adequate supply of doctors in Switzerland is not hindered by the feminisation of medicine.

Another possible solution for female doctors, but also for male colleagues, would be a part-time model. It is easily conductible in the outpatient area and already introduced in many children's hospitals. In the inpatient area there are much less part-time jobs, as there is a need to ensure the continuity in patient care. But with careful transfer and adequate organization, a part-time model should not affect patient care even in the inpatient area.

In addition, the extension of maternity leave and the introduction or extension of a fatherly leave could be a protection measure to keep more women in the job. Further, an adequate childcare is of particular interest, especially for doctors since they are dependent on care services and facilities, which offer flexible opening hours. It is important that all hospitals provide enough nursery places that offer flexible and individual solution models.

#### **2.4.4. Updating the model**

To update the model with regards to feminisation, we assume, that in the long run the share of women actually working in the job reaches the share of the current female graduate students of 56% (FMH, 2012). During the first years this might overstate the share of women truly working in the field, but it is hard to make any solid assumptions that are not taken out of thin air. The next step is to integrate the different working stint assumptions. FMH makes a survey how many half-days the different medical professionals have worked. The data is self-reported so it is quite safe to assume that the hours are overstated in reality. Fortunately, this bias subtracts the bias introduced because of the overstated shares of women.

As already indicated, the self-reported working hours give a clear picture of the gender gap. Female ambulant doctors work only 69% in comparison to a full-time equivalent, whereas male ambulant doctors allegedly worked 89%. Female hospital doctors work 87%, when male doctors on average work more than one full-time equivalent (101%).

Using this working time stint in combination with the assumed share of female doctors of 56% makes it possible to calculate an actual required headcount from the demanded full-time equivalents number.

### 3. CONCLUSION

An unrepresentative survey with 20 experts of different demographic sectors showed a common expectation for the demand for doctors to go up with certainty until 2030. Asking the participants of the survey for their estimation if this increased demand will be met (1) or will not be met (10) revealed a slightly optimistic believe that the future demand will be met with an average score of 4.5. Our basic model predicts no excess demand for doctors, when the current socioeconomic conditions persist. As the survey showed this assumptions might be to conservative and not totally realistically. Possible critical points discussed, were: The need for hospital doctors might increase faster than correlating with the growth rate of the overall population. Changes in lifestyle might lead to a stark reduction of the average working stint of a doctor. Family hostile work conditions are associated to a high dropout rate for women.

On the other hand the supply assumptions are to positive and carry a significant downside risk: The supply of doctors is only met when enough foreign doctors can be attracted to work in Switzerland. Without an on going significant immigration of doctors the health sector simply breaks down with unforeseen consequences. Net migration rates historically tended to fluctuate quite heavily, which implies a low confidence for the predicted numbers of the BFS. Rates easily can be way lower as predicted including a scenario where the net migration of doctors is actually negative.

A safe case scenario, that assumes no net migration of 13'000 doctors until 2030 (see figure 7), makes it clear that the education within Switzerland (16'000 doctors) only can compensate for the high number of retirements (14'000 doctors.) The certain increase in demand of at least 7'000 doctors cannot be met (see figure 6). Net migration is less important for the supply of nurses.

The calculation for nursing shows a very balanced picture. The model predicts a shortage of less than 7'000 full-time equivalents. This is hardly alarming since the basis is very large with a predicted supply of 197'000 nurses. We understand the demand and supply as balanced by this small difference of only 3.5%.

On the surface the numbers look good, but the discussion showed that slightly different assumption could easily lead to an pressing demand of doctors. To solve those potential problems of demographic ageing and avoid a shortage of medical personnel, the following ideas might be considered.

First, since predominantly the increasing share of people over the age of 65 is seemingly the biggest cause for a shortage of medical staff, promoting healthiness for retired people is very important. This includes the prevention of medical issues as well increasing the overall health of retired people. It has been pointed out that such persons are more likely to go to the doctor or are in need of (care) assistance at home, wherefore a general improvement of their life quality would relieve the medical sector by a lot, namely reducing the demand for medical staff and

eventually also costs. In this regards can also be mentioned, that a more crucial differentiation could be made between elderly people who need simple assistance with easy tasks and elderly people who need actual care to survive. That could distribute the workload better between sociomedical institutions and Spitex, allowing a more effective usage of the resources.

Second, specifically the future lack of doctors has to be solved by increasing the number of university places in the medical faculty. It is not bearable that the need for medical help has been increasing over the last decades, whereas the number of (Swiss) students has been stagnating at a more or less same level. Therefore, since the demand went up, so must the supply. Until now, immigrating doctors could avoid this issue. However, immigration is very unstable and cannot be counted on as a steady factor, which simultaneously excludes it as a possible solution. Further regarding the education of doctors, it could be considered to contain the offer of possible specialisations.

Third, the qualification of medical personnel working in sociomedical institutions is very high (Bundesamt für Statistik, 2010b). Around 30% of the employees have a tertiary education and further 20% secondary education. One solution would therefore be to reduce qualification and hire more people without special education. This is very conceivable with Spitex, where most of the time only simple care assistance is needed, which could be done by persons without any education in the medical sector. Where applicable, upgrade training course could be offered to bring such people up to one basic level. With this method, unspecialised people could do much of the accruing work, whereas registered nurses could focus on cases that require their skills. This again would improve efficiency and allow for more people to be taken care of.

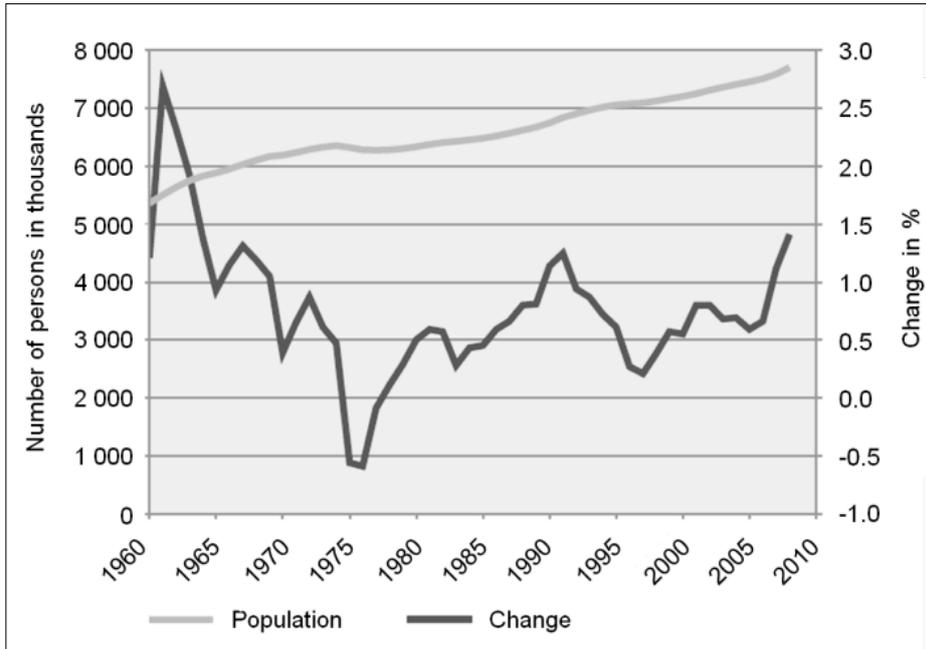
Fourth, employments in the medical sector should become more attractive. Currently, there almost is no economic incentive to choose a medical profession, since those salaries are very low, compared to others in other branches, even though the performance is the same, when not even higher. Therefore, increasing salaries must set incentives. This, however, is only possible, when medical costs decrease, respectively medicine as a whole get s more efficient. As of now, there is little appeal to set efficiency as the primary goal in this sector, because most is paid by the government.

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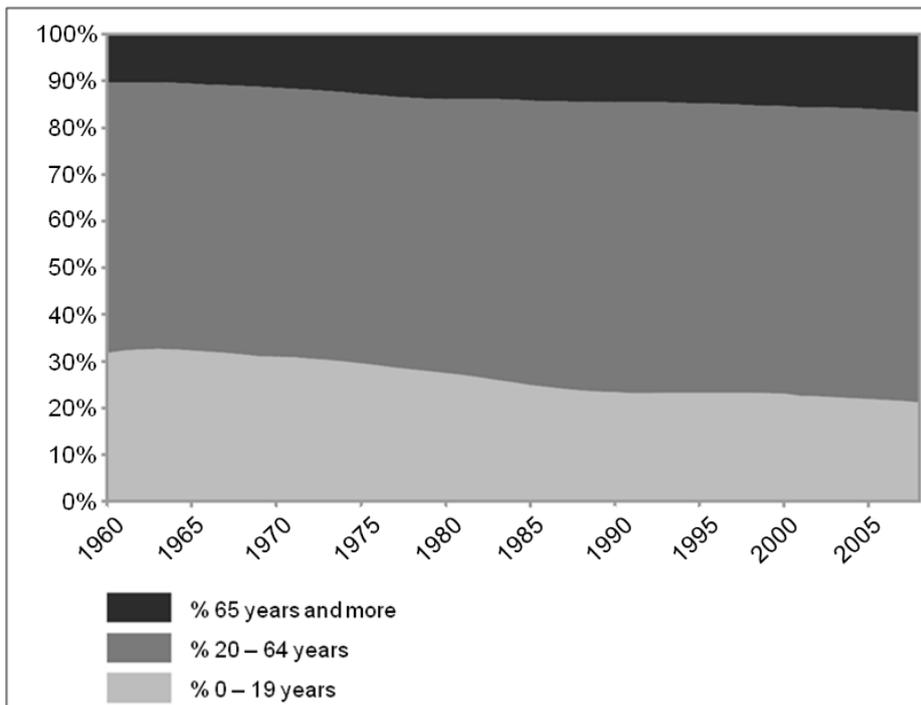
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## APPENDIX



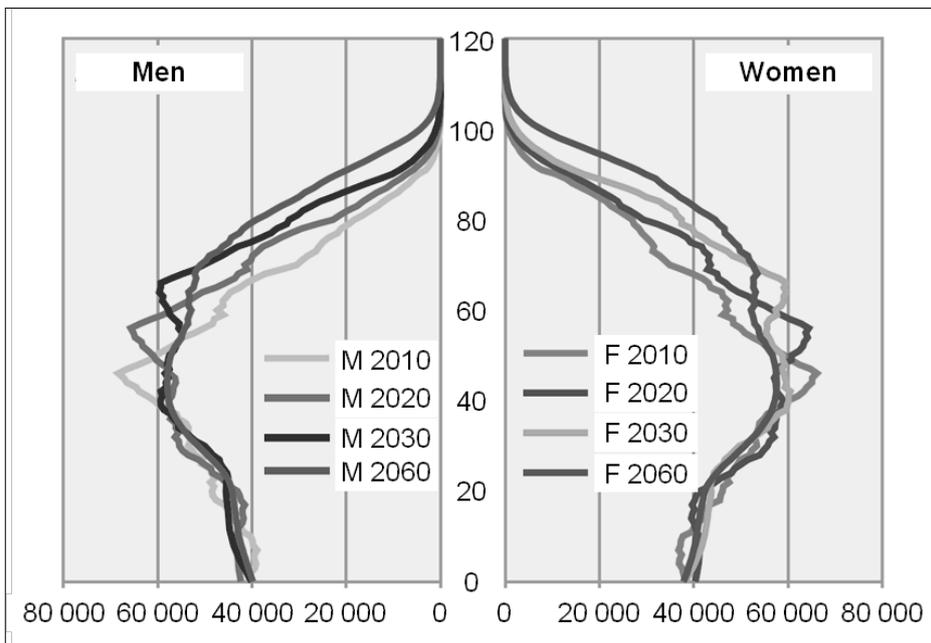
*Figure 1 - Population from 1960 to 2008*

(Bundesamt für Statistik, 2010a)



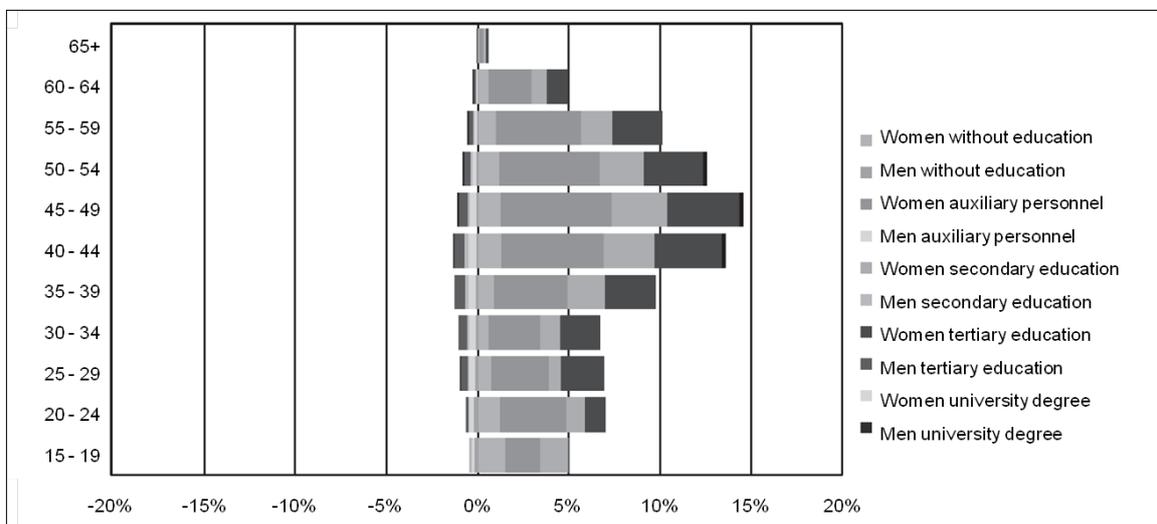
*Figure 2 - Age structure of the Swiss population 1960 - 2008*

(Bundesamt für Statistik, 2010a)



**Figure 1 - Age pyramid according to the middle scenario**

(Bundesamt für Statistik, 2010a)



**Figure 4 – Age pyramid of the medical staff in retirement and nursing homes, according to educational level, 2006**

(Jaccard Ruedin & Weaver, Ageing Workforce in an Ageing Society, 2009)

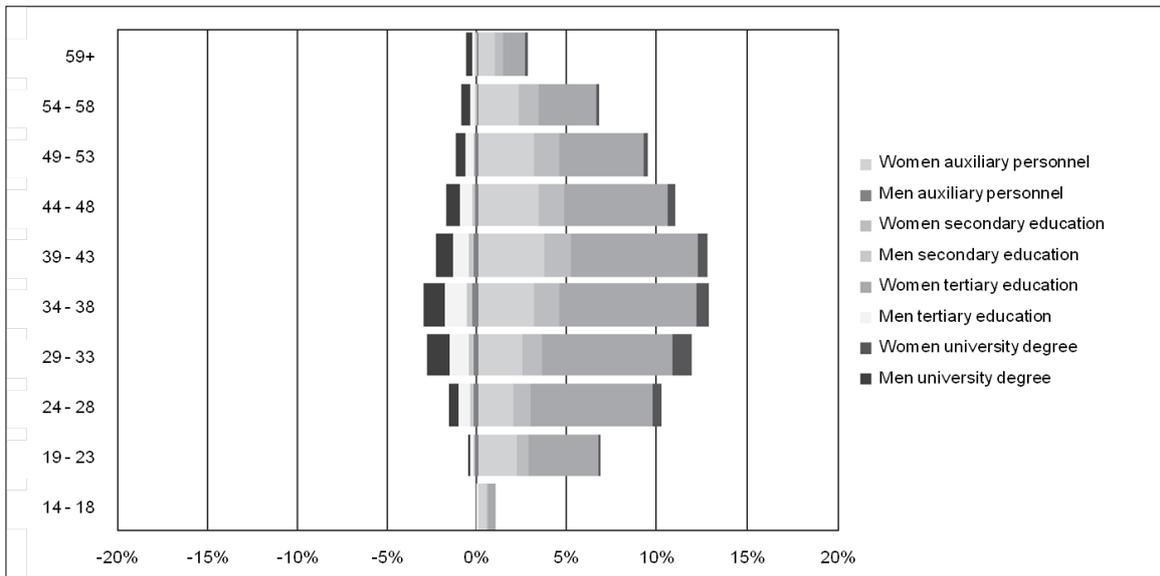


Figure 2 - Age pyramid of the medical staff in hospitals, sociomedical institutions and Spitex, according to educational level, 2000

(Jaccard Ruedin & Weaver, Ageing Workforce in an Ageing Society, 2009)

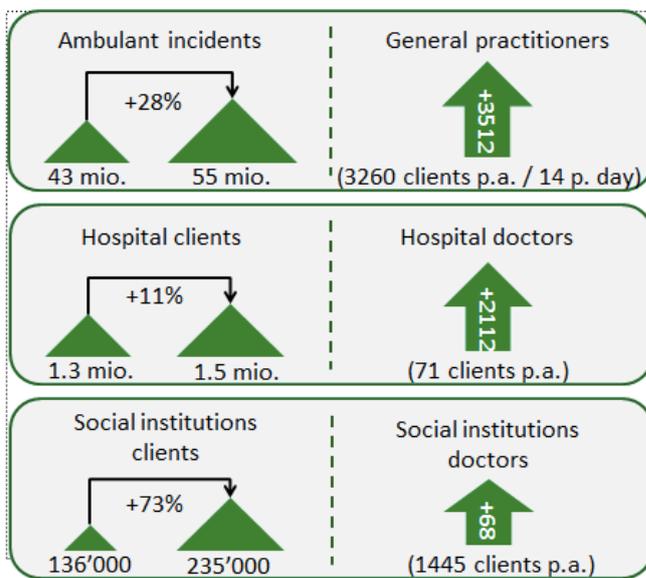


Figure 6 - Demand for doctors (own calculations)

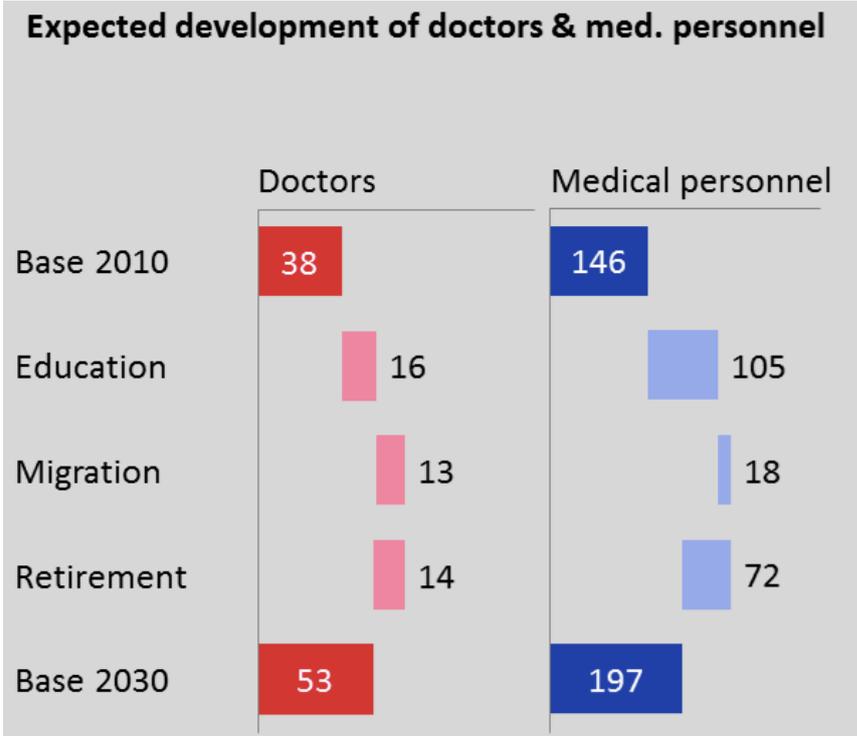


Figure 7 - Supply of doctors and medical personnel (own calculations)

## Doctors statistics

Assumptions			
Ambulant medical incidents per Person age 0-65 years	4 <sup>(11)</sup>	Total hospital clients 2010	1330825 <sup>(7)</sup>
Ambulant medical incidents per Person over age 65 years	13 <sup>(11)</sup>	Total social institutions clients 2010	135819 <sup>(8)</sup>
Factor full-time equivalents 2010	88% <sup>(12)</sup>	Total medicine students 2010	6327 <sup>(9)</sup>
Factor full-time equivalents 2010 - ambulant	83% <sup>(12)</sup>	Total medicine graduates 2010	672 <sup>(9)</sup>
Factor full-time equivalents 2030	85% <sup>(12)</sup>	Expected medicine students 2020	7698 <sup>(9)</sup>
		Expected share women 2030	56% <sup>(13)</sup>
		Immigrated doctors 2010	1045 <sup>(10)</sup>

Constants	
Ambulant incident per person	5.541
Hospital clients of total population	16.9%
Social institutions clients of population age >70	14.4%
Ambulant clients per doctor FTE	3260
Hospital clients per doctor FTE	71
Social institutions clients per doctor FTE	1445
Percentage immigrated doctors of total migration	2.0%
Percentage graduates of total medicine students	10.6%

Doctors Population Basis 2010 - Sectors				
	Male	Female	Total	Total FTE
Ambulant doctors	10930	5157	16087	13352 <sup>(5)/(6)</sup>
in %	67.9%	32.1%	100.0%	100.0%
Hospital doctors	10957	9372	21827	18818 <sup>(3)</sup>
in %	50.2%	49.8%	100.0%	100.0%
Social I. doctors	221	123	344	94 <sup>(4)</sup>
in %	64.2%	35.8%	100.0%	100.0%
<b>Total</b>	<b>22108</b>	<b>14652</b>	<b>38258</b>	<b>32265</b>

Doctors Population Basis 2010 - Age distribution				
Age	Expected Retirement			
	Year	Ambulant	Hospital	Social I.
65+	2010	10.2%	3.1%	10.2%
60-64	2015	17.7%	3.1%	17.7%
55-59	2020	17.7%	3.1%	17.7%
50-54	2025	17.3%	9.0%	17.3%
45-49	2030	17.3%	9.0%	17.3%

Population Forecast Basis 2010				
Year	Total		Net Migration	
	Population	65+ Population	70+ Population	in % abs.
2010	7856600	1345100	944700	0.65% 51067.9
2015	8155100	1536000	1092900	0.42% 34251.42
2020	8401900	1721800	1265700	0.34% 28566.46
2025	8561400	1973650	1448950	0.30% 25684.2
2030	8738500	2225500	1632200	0.26% 22720.1

Average Working pensum			
	Male	Female	Total
Ambulant doctors	89%	69%	83% <sup>(13)</sup>
Hospital doctors	101%	87%	97% <sup>(13)</sup>
Social I. doctors	88%	82%	87% <sup>(13)</sup>
<b>Total</b>	<b>74%</b>	<b>93%</b>	<b>88%</b>

Doctors Demand FTE							
	Ambulant incidents	Ambulant doctors	Hospital clients	Hospital doctors	Social Inst clients	Social Institutions doctors	Total Demand - FTE
2010	43532300	13352	1330825	18818	135819	94	32265
2015	46444400	14245	1381388	19533	157125.6	109	33887
2020	49103800	15061	1423193	20124	181969	126	35311
2025	52008450	15952	1450211	20506	208314.7	144	36603
2030	54983500	16865	1480210	20931	234660.5	162	37958

Doctors Demand Actual										
	Ambulant FTE	Ambulant Male	Ambulant Female	Hospital FTE	Hospital Male	Hospital Female	Social Institutions			Total Demand
							FTE	Male	Female	
2010	13352	6601	10837	18818	8198	12113	94	47	64	37860
2015	14245	7043	11561	19533	8510	12573	109	54	74	39815
2020	15061	7446	12224	20124	8767	12954	126	63	86	41539
2025	15952	7886	12947	20506	8934	13200	144	72	98	43137
2030	16865	8338	13687	20931	9118	13473	162	81	111	44808

Doctors Supply Actual									
	Students (per year)	Graduates (per year)	Migration (cum. FTE)		Retirement			Total Supply	
			(per year)	(cum. FTE)	Ambulant	Hospital	Social I		
2010	6327	672	1045	1045	-1641	-669	-35	38258	
2015	7013	745	3542	701	-2847	-669	-61	43819	
2020	7698	818	3906	585	-2847	-669	-61	47362	
2025	8000	850	4168	526	-2775	-1964	-59	50728	
2030	8000	850	4248	465	-2775	-1964	-59	52654	

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## Nurses statistics - in full time equivalents

Assumptions	
Total hospital clients 2010	1330825 <sup>(7)</sup>
Total social institutions clients 2010	135819 <sup>(8)</sup>
Total spitex clients 2010	352334 <sup>(13)</sup>
Total nursing graduates 2010	5250 <sup>(9)</sup>
Immigrated nurses 2010	1468 <sup>(12)</sup>

Nurses Population Basis 2010 - Sectors				
	Male	Female	Total	Total - FTE
Hospital nurses	20756	103921	124677	77792.9 <sup>(3)</sup>
in %	16.6%	83.4%	100.0%	
Social I. nurses	13411	62231	75642	52378.9 <sup>(4)</sup>
in %	17.7%	82.3%	100.0%	
Spitex nurses	1820	34589	36409	15683.3 <sup>(5)</sup>
in %	5.0%	95.0%	100.0%	
<b>Total</b>	<b>35987</b>	<b>200741</b>	<b>236728</b>	<b>145855</b>

Nurses Population Basis 2010 - Age distribution				
Age	Expected Retirement			
	Year	Hospital	Social I.	Spitex
65+	2010	-	-	-
60-64	2015	7.5%	15.0%	15.0%
55-59	2020	7.5%	15.0%	15.0%
50-54	2025	12.0%	15.0%	15.0%
45-49	2030	12.0%	15.0%	15.0%
	(10)	(6)	(6)	(6)

Population Forecast Basis 2010					
Year	Total	65+	70+	Net Migration	
	Population	Population	Population	in %	abs.
2010	7856600	1345100	944700	0.65%	51067.9
2015	8155100	1536000	1092900	0.42%	34251.42
2020	8401900	1721800	1265700	0.34%	28566.46
2025	8561400	1973650	1448950	0.30%	25684.2
2030	8738500	2225500	1632200	0.26%	22720.1
	(1)	(2)	(1)	(1)	

Constants	
Hospital clients of total population	16.9%
Social institutions clients of population age >70	14.4%
Spitex clients of population age > 70	37.3%
Hospital clients per nurse	17
Social institutions clients per nurse	3
Spitex clients per nurse	22
Percentage immigrated nurses of total migration	2.9%

Nurses Forecast							
	Hospital		Social Institutions		Spitex		Total
	clients	nurses	clients	nurses	clients	nurses	nurses
2010	1330825	77793	135819	52379	352334	15683.3	145855
2015	1381388	80749	157125.63	60596	407606.5	18143.62	159488
2020	1423193	83192	181968.99	70177	472053.7	21012.33	174381
2025	1450211	84772	208314.75	80337	540398.4	24054.53	189163
2030	1480210	86525	234660.5	90497	608743	27096.73	204119
	Pension		Students		Migration		Total
	Hospital	Social I.	Spitex	(cum.)	(per year)	(cum.)	
2010					1468		145855
2015	-5834	-7857	-2352	26250	985	6131	162193
2020	-5834	-7857	-2352	26250	821	4514	176913
2025	-9335	-7857	-2352	26250	738	3899	187518
2030	-9335	-7857	-2352	26250	653	3479	197702

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**Megatrend 'Global Demographic Change' –  
Tackling Business and Society Challenges in 2030 and beyond**

**Innovate For an Aging Society:  
New structures and business models to make longevity an achievement**

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## **Executive Summary**

One of the biggest current and future societal challenges in Switzerland is constituted by the enormous increase of average living age. Depending on the scenario, the share of the Swiss population reaching the age of 80 or more is projected to more than double until 2050. While a majority of the elderly are still relatively active, many are nevertheless dependent on some form of assistance or care. At the same time, families are shrinking and struggle to reconcile work, a stressful daily life and their tasks as caregivers. Moreover, fewer children are born and the active working force is declining relative to the number of retired people. Evidently, the prevailing health care system needs to be adapted to these societal changes in order to be able to respond to increasing needs and eventually new forms of care provision. Novel structures and business models are needed to enable the growing 80+ cohorts to enjoy their life in dignity and respect, and to cover their needs for care and assistance in an efficient and needs-oriented way. Looking at diverse practical examples of innovative projects and initiatives, the present paper assesses how to make longevity an achievement.

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## Abbreviations

AAL	Ambient-Assisted Living
ADL	Activities of Daily Living
CEO	Chief Executive Officer
CHF	Swiss Franc
DIHK	Deutsche Industrie- und Handelskammer
EL	Ergänzungsleistungen (Needs-Based Minimum Benefits)
IADL	Instrumental Activities of Daily Living
ICT	Information and Communication Technology
OASI	Old-Age and Survivors' Insurance
SFSO	Swiss Federal Statistics Office
SME	Small and Medium-Sized Enterprise
WHO	World Health Organisation
ZHAW	Zürcher Hochschule für Angewandte Wissenschaften (Zurich University of Applied Sciences)

## 1. INTRODUCTION

One of the biggest current and future societal challenges in Switzerland is constituted by the enormous increase of average living age. Depending on the scenario, the share of the Swiss population that reaches the age of 80 or more is projected to more than double until 2050 (Höpflinger, 2003: 6). While many of the highly aged people need regular care or assistance with diverse activities of their daily life, a constantly growing share of elderly enjoys a relatively healthy and disabled-free life during an increasingly long period of their older age. In many cases, chronic diseases and the dependence on care are concentrated on the final phase of life. Before that, elderly often manage their lives without being dependent on external support and care (Fäh et al., 2012: 29).

Against this backdrop, the question arises what societal changes and what new structures and services are needed to enable the growing 80+ cohorts to enjoy their “fourth stage of life” in dignity and respect. Families are shrinking and struggle to reconcile work, a stressful daily life and their tasks as caregivers, especially as more and more women enter the working life. Moreover, fewer children are born and the active working force is declining relative to the number of retired people. Evidently, the prevailing health care system needs to be adapted to these societal changes in order to be able to respond to increasing needs and eventually new forms of care provision. At the same time, new structures and business models are needed to cover the needs for care and assistance of our aging society in an efficient and needs-oriented way. Focussing on the latter, the present paper looks at diverse practical examples of novel models and arrangements that may contribute to making longevity an achievement.

The paper begins by introducing the reader to general characteristics of the 80+ cohorts in Switzerland. The focus is then on the diverse types of care this population segment is in need for, including the different ways these needs are approached by society. A third section of the first part evaluates how the demographic trends will change the quality and intensity of these needs and how socio-economic developments will change the current societal approaches to the provision of care and assistance. In a second part, the paper presents innovative ways how the 80+ cohorts can be enabled to continue living in dignity and respect. It assesses support structures that allow elderly to better manage daily life themselves, looks at possible ways to encourage informal caregivers and briefly discusses formal ambulant care models. Finally, the reader is incited to further engage in the topic by touching on possible ways to address the challenges of an aging society at the macro-level.

## 2. 80+ COHORTS IN SWITZERLAND – CHARACTERISTICS AND TRENDS

### 2.1. General Portray of the 80+ Cohorts

To provide a better understanding of the significance and the complexity of the impact that demographic change will have on our society with regard to health care services, a portrait of the 80+ cohorts in Switzerland is useful. According to the Swiss Department of Federal Statistics, 390'000 highly aged people (80+) were living in Switzerland in 2012 (BFS, 2013). While 90% of the 80-84 year-olds still live in their own homes, 45% of the 95 year-olds live in residential and nursing homes, and rely on inpatient care (Höpflinger et al., 2013: 13).

Despite increasing divorce rates, marriage and other long-term relationships still dominate among elderly people: at the age of 80+, only around one third of men and around two-thirds of women live solitarily.<sup>1</sup> Nevertheless, the general trend of the past decades indicates that the share of single highly aged people is increasing and will continue to do so (Höpflinger et al., 2011: 27). Similarly, the vast majority of today's 80+ cohorts have both children and grandchildren. However, this situation is likely to change as well, since the share of childless people is increasing within younger generations. As for today, surveys suggest that parents and children mostly live in proximity – even when not living in the same household anymore. Furthermore, close ties with family members outside the close family circle are common: only 15% of the people aged 74+ and living at home reported that they have none or no close relationships to any of their relatives (Höpflinger et al., 2011: 28-30).

Similar to other population strata, the socio-economic situation of the 80+ cohorts in Switzerland is primarily a result of their social and professional biography. Accordingly, it does in no way present a uniform picture – on the contrary. Nevertheless, there is one indicator for the socio-economic situation of the highly aged, namely the share of people that is dependent on subsidies to cover the costs for a minimum standard of living. In 2008, a fifth of the 80+ cohort in Switzerland relied on needs-based minimum benefits ("*Ergänzungsleistung EL*") in addition to the old-age and survivors' insurance (OASI). It should also be considered that today's 80+ cohorts face a higher poverty risk than younger retirees. One possible explanation for this trend is that today's 80+ cohorts benefited less from increasing wealth and social security services than subsequent generations. A second possible explanation is that the growing share

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<sup>1</sup> This significant gender difference can, among others, be explained with the longer average life expectancy of women, the fact that men are often married with younger women and that men more often than women enter a second relationship after widowhood or divorce (Höpflinger et al., 2011: 26).

of people in need of long-term care has to use private assets to finance care services (Höpflinger, 2011: 7).

After having provided this key data on the demographic group in question, the next section will assess the needs for care and assistance of today's 80+ cohorts by looking at their degree of autonomy in daily life.

## **2.2. Autonomy And Needs in Daily Life**

Before looking at the figures illustrating the autonomy of the highly aged, it is appropriate to define what is meant by care dependency and assistance dependency: When speaking about **care dependent** elderly, the present paper designates people who need support for the accomplishment of at least one of the basic daily activities (ADL) such as ingestion or body care; When talking about **dependency on assistance**, it refers to people who need support for the accomplishment of at least one of the instrumental activities of daily living (IADL) such as house keeping or administrative tasks (Höpflinger et al., 2011: 46).<sup>2</sup> Switzerland's care dependency rate shows that 13% of the 80-84 year-olds and 34% of the 85+ age group rely on care, regardless of their housing situation (Höpflinger et al.: 56). A more differentiated analysis reveals that the majority of care dependent people live in residential and nursing homes. Only 5% of the 80-84 year-olds and a total of 12% of the people older than 85 years who live in their own homes are dependent on care. This does not, however, mean that the remaining percentage lives independently. As the above-mentioned definition suggests, care and assistance dependency have to be carefully differentiated. In fact, a significantly higher proportion of the 80+ is dependent on assistance: one quarter of the 80-84, and half of the 85+ year-olds living at home need assistance. In addition, a relatively small percentage of highly aged people who live in residential and nursing homes are not care-dependent but would need assistance if they would not live in such institutions (Höpflinger et al., 2011: 47-53).

With this overview in mind, it is interesting to analyse how the Swiss society is currently addressing these needs. Before looking at the roles of different stakeholders involved, it is useful to distinguish between several types of care and assistance services. Broadly speaking, it can be differentiated between

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<sup>2</sup> See Höpflinger et al. (2011) for more information on what activities ADL and IADL compromise. Note furthermore that Höpflinger et al. differentiate care and assistance dependency according to three degrees of severity (light, middle, strong). What is defined in the present paper as care or assistance dependent is equivalent to Höpflinger's definition of being strongly care or assistance dependent.

informal and professional (or formal) care and assistance, as well as between ambulant and stationary care or assistance services. Informal assistance and care are provided by non-professionals. Informal assistance typically comprises different forms of support in the accomplishment of IADL, while care is primarily understood as support for ADL, excluding medical care in the narrower sense. The principal difference between professional ambulant and stationary care services is that the latter comprises the services offered at residential or nursing homes, whereas the former includes all forms of professional care services offered outside the context of specialized care institutions where people live permanently. In reality, however, people often rely on both informal as well as formal care and assistance services. As the second part of this paper will illustrate, new trends such as innovative housing models further contribute to blur the traditionally strict separation of ambulant and stationary care (Höpflinger et al., 2011: 67-68).

Now, who is providing these care and assistance services? As mentioned above, a large share of elderly live at home and need some sort of support. Research shows that the majority of the informal assistance, i.e. support to accomplish IADL, is provided by the partner and/or the children of the person in need. Extra-familial assistance still seems to play a relatively minor role. Given that informal care is often more time-consuming than simple assistance, it is mostly provided by the care recipients' partners, normally living in the same household. 10% of the 75-84, and more than one fifth of the 85+ year-olds live together with a care-dependent person and provide on average 14, respectively 23 hours of care a week. Furthermore, 2.2% of the Swiss population state that they provide care for adult relatives or friends. Although difficult to quantify, estimations indicate that in 2007, the Swiss population provided informal assistance and care worth 2.1 billion CHF to members of the same household and additionally provided similar services worth 1 billion to relatives and friends living outside of the caregivers' household. Overall, there is a trend towards a specialization of the different stakeholders: while relatives and friends tend to carry out informal assistance, professionals focus increasingly on care services (Höpflinger et al., 2011: 76-77).

The ambulant and hospital-external care – in Switzerland to a large extent provided by the subsidised non-profit organisation Spitex<sup>3</sup> – has gained in importance over the last decades. In 2008, almost half of the 210'000 people that relied on care and assistance services provided by Spitex were 80 and more years old. (Höpflinger et al., 2011: 85-86). Turning to the needs for stationary care services, statistics indicate that around one fifth of the 80+ cohorts lived in a stationary care centres in 2008. Not surprisingly, this share is rapidly growing

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<sup>3</sup> For more information, visit the website of the organisation: <http://www.spitex.ch/>.

with increasing age: almost half of the 95+ age group lived in a stationary care centre (Höpflinger et al., 2011: 98).

This analysis shows that elderly people differ strongly with regard to their needs for care and assistance services. Also, these services are provided by diverse stakeholders, including relatives, professional ambulant caregivers and specialised stationary institutions. A first trend that can be identified is the specialisation of the different stakeholders: relatives, friends and neighbours seem to increasingly focus on informal assistance, while professionals tend to take over the provision of care services (Höpflinger et al., 2011). Taking an outlook at the year 2030, the following section will identify further demographic and socio-economic trends, and assess their impact on the intensity and the form of care and assistance needs.

### **2.3. Outlook 2030 – Trends and Challenges**

Like many other highly developed nations, Switzerland faces the challenge of demographic aging due to increasing longevity and decreasing fertility rates. Yet, not only is longevity continually increasing, but so is the number of healthy living years, or so-called “disabled free living years” (Schmid Botkine & Rausa-de Luca, 2007: 16; Seematter-Bagnoud, Paccaud, & Robine, 2009: 11-13). In other words, people enter the stage of multimorbidity at a later stage of their life. It is important to note, however, that “healthy” or “disabled free” is not equal to being in best health, and that compared to the “disability-free life expectancy”, the so-called “painless life expectancy”<sup>4</sup> has remained relatively stable. It follows that people will overall enjoy more disabled-free living years but not necessarily more painless living years (Höpflinger et al., 2011: 113).

According to the Swiss Federal Statistics Office (SFSO), the share of 80+ cohorts in comparison to the total population will increase from 5% in 2006 to 12% in 2050. In absolute numbers this is an increase from 346'000 to 942'000 people (Schmid Botkine & Rausa-de Luca, 2007: 14). Against this backdrop, experts agree that one of the main challenges of demographic aging for our society will be the increase of people dependent on care and assistance in absolute numbers (Fäh, Rügger, Huber, & Wiesli, 2012; Höpflinger et al., 2011; Jaccard Ruedin & Weaver, 2009). Depending on the scenario of the trends of longevity and of disabled- and painless-free life expectancies, the estimated number of elderly who will be dependent on care in 2030 varies between 170'000 and 230'000 (compared to 125'000 in 2010) (Höpflinger et al., 2011: 59-61). It goes

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<sup>4</sup> “Painless life expectancy is measured according to the living years without serious physical complaints. (Höpflinger et al., 2011: 34)

without saying that the need for assistance services is also very likely to increase considerably among the growing 80+ cohorts.

Now what consequences do these trends have on the different forms of care and assistant services? Assuming an increasing share of disabled-free but not painless living years, the need for professional ambulant assistance and care is particularly likely to increase. Similarly, the growing number of people with dementia (from around 125'000 in 2010 to 218'000 in 2030) also speaks for an increasing need for professional ambulant care (Höpflinger et al., 2011: 64). The Swiss Health Observatory (Schweizer Gesundheitsobser-vatorium) estimates that Spitex will need to serve 400'000 clients by 2030 – double the number of today. Considering that ambulant assistance and care services contribute to maintaining the independence of elderly, and that ambulant support is significantly cheaper than stationary services, future models should encourage ambulant services – informal as well as formal.<sup>5</sup> Given the increase of 80+ year-olds in absolute numbers, the demand for stationary services is, however, expected to grow as well: On the basis of one possible future scenario, the number of days in care and nursing centres is projected to almost double from 29 million days a year in 2006 to 53 million days in 2030 (Jaccard Ruedin & Weaver, 2009: 10). As a consequence, one of the principal challenges in the near future will be to ensure the availability of a sufficient number of qualified caregivers. According to estimations of the Swiss Health Observatory, 120'000 to 190'000 professional caregivers will need to be recruited until 2030 (Jaccard Ruedin & Weaver, 2009: 14).

The striking scenario illustrated above could be alleviated by an increase in informal care and assistance provision. Is this a realistic solution considering the development of our society in the next couple of decades? The general portrait of elderly people presented in chapter 1.1 does in fact imply that the number of informal care- and assistance-givers will strongly decrease in the future. To put it bluntly, people have fewer children and more divorces, and to make matters worse, a constantly growing share of women is employed and their disposition for extended intergenerational care is likely to decrease. But this conclusion proves fallacious and premature. It is undisputed that socio-familial trends exist and that decreasing fertility rates result in a concentration of intergenerational care on fewer descendants. But many analyses anticipating a decline in familial care and assistance tend to be exaggerated. They ignore a number of important facts: First, despite increasing divorce rates, the share of the highly aged living in a couple relationships increases. Also, while there is an increase in the share of highly aged childless people, this increase is rather slow. And most importantly,

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<sup>5</sup> See chapter 3.5.

the decline in women providing intergenerational care will potentially be compensated by the fact that an increasing share of children see their parents to be care dependent only when they reach retirement age themselves (Höpflinger et al., 2011: 115-116). That being said, our aging society is a reality and demand for caregivers will inevitably increase. In what informal care- and assistance-givers are concerned, appropriate and flexible structures need to be built in order to strengthen and value their position in our health care system.<sup>6</sup>

Furthermore, the question arises what financial implications the above-discussed scenarios will have on the Swiss health care system. The principal cost drivers of the health system are a result of complex tendencies that include an increase in patients as well as in health care services used per capita, as well as different socio-economic trends such as more stressful living conditions and a decrease in intergenerational responsibilities. Therefore, making forecasts is quite difficult. The Swiss Federal Department Statistics has nevertheless developed a scenario: it estimates an increase of the total health costs from 64 billion per year in 2011, to 111 to 122 billion CHF per year by 2030. Given the fact that by 2050 the ration of employees and retirees will be 2:1, the financial feasibility of our health care system will be further challenged (Schmid Botkine & Rausa-de Luca, 2007: 17-18).

Against the backdrop of a massive future demand of caregivers and exploding health care costs, the Swiss society will need to rethink the current health care and social security systems. Obviously, no master solution for a challenge of this magnitude and complexity exists. Rather, diverse new structures and policies will be needed. These will have to target, among others, the transition to a more flexible retirement age, a more attractive educational system and work environment for caregivers and a better compatibility of informal care provision and career. Apart from such macro-level solutions, a complementary approach is to target a reduction of the demand for professional ambulant and stationary care services. For instance, conditions should be created to enable 80+ cohorts to continue to live autonomously in their own homes. Also, structures are needed to make it easier for friends or other non-professionals to engage in care and assistance provision. The second part of this paper will look at innovative business models and structures that promote such solutions at the micro-level.

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<sup>6</sup> See chapter 3.4.

### **3. NEW BUSINESS MODELS AND INITIATIVES TO MAINTAIN MOBILITY AND INDEPENDENCE OF THE 80+ COHORTS**

#### **3.1. Introduction**

The first part of this paper showed that while there are more and more elderly people dependent on assistance or care, there is also a growing lack of ambulant caregivers and family members who will cover these needs. The second part of the paper will assess possible ways to address the related challenges in Switzerland. It will discuss innovative solutions that allow elderly to better manage daily life themselves, analyse new models to support and incentivise informal caregivers and briefly look at formal ambulant care services that may complement informal support. Finally, it will touch on potential solutions to address the challenges on the level of society, thereby inciting the reader to further engage in the topic. In the centre of each section are various examples of innovative projects or businesses that illustrate promising ways how to make longevity an achievement. These include private, non-governmental as well as public initiatives and highlight the importance of a shared responsibility between the state, the market, professional institutions, as well as families and civil society (Wenger, 2012, p.33).

#### **3.2. The Importance of the Living Environment**

As mentioned above, the form of care or assistance an older person relies on is closely linked to the living space and environment. Given the increasing absolute number of highly aged people, nursing homes cannot be a general solution to provide care and assistance. Rather, new concepts and models are needed to make autonomous living at home possible for people needing assistance and/or care. Indeed, there are diverse housing alternatives blurring the traditional scheme of either private household or nursing home, including assisted living, self-organised residential communities or shared flats. While such housing models contribute to a shift from stationary to ambulant care and assistance, they also open possibilities for voluntary outside help and self-organised self-help (Schulz-Nieswandt, et al., 2011: 25ff; see also Höpflinger et al., 2011). Finally, such models may enable frequent social and intergenerational interaction, thereby reducing the risk of isolation and contributing to staying active and healthy at a higher age.

### **3.3. Help to Self-Help: Supporting Elderly to Live Independently**

Many challenges that elderly people face in living independently and staying mobile are related to the accomplishment of IADL and thus relatively easy to address (Höpflinger et al., 2011: 49). Limited ability to carry out certain household tasks or move in public space, for instance, can become major obstacles in living without support. A person's limitations to carry out such activities are not only linked to his or her personal adaptation strategies and informal networks, but also to the quality of housing and the infrastructure in the living environment (Höpflinger et al., 2011: 49). There is also a psychological component: already the fear of not being able to cope with important daily activities or to fall down may be a heavy psychological burden. It is therefore crucial to adapt the living space and environment so that elderly can live safely and comfortably in their home environment.

#### **3.3.1. Adapting Housing Facilities**

The share of elderly living in handicapped- and age-friendly housing is still relatively small – many homes and facilities are unsafe, uncomfortable or simply inaccessible for the elderly. Stairs restrict mobility, narrow doorframes and uneven surfaces are not compatible with walking frames and wheelchairs, or kitchen facilities unreachable (Höpflinger et al., 2011: 49; WHO, 2011: 31). Allowing elderly to move freely and safely at home and in their broader living environment may considerably enhance their autonomy and quality of life (WHO, 2011: 30). One of the leading Housing Associations in Northern Ireland, *Fold Group*<sup>7</sup>, tackles that challenge in a comprehensive way. It provides housing and support for elderly tenants and has developed a wide range of innovative services to support elderly to live independently in their own home. Among others, Fold offers age-friendly modifications to flats and houses, such as conversions of bath or shower (e.g. level access shower trays), designing of ramps or kitchen adaptations to make units reachable and create more space (Fold Housing Association, 2013).

#### **3.3.2. Assisted Living Technologies**

Lately, there has been a research boom on the potential of Information and Communication Technology (ICT) and most recently of Ambient-Assisted Living (AAL) tools<sup>8</sup> to deal with the challenges of a rapidly aging society. This research

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<sup>7</sup> For more information, visit the website of the association: <http://www.foldgroup.co.uk/>.

<sup>8</sup> AAL tools create digital environments that are sensitive and responsive to the presence of people – a concept called “ambient intelligence” –, and can thereby support assisted living of the

is motivated by the fact that an aging society places a high importance to living independently, as well as the concurrent rapid increase in the costs for care and the burden on caregivers (Rashidi and Mihailidis, 2013: 579). These new technologies – for the purpose of this paper summarised under eCare (in accordance with Dobrev et al., 2013) – can bring real benefits to older people as well as their caregivers and families. Enabling remote assistance, eCare can give elderly confidence to continue living at home. Furthermore, hospital stays can be shortened, admissions reduced; and it allows caregivers to work more efficiently and effectively. Thereby reducing health care costs, eCare solutions may further benefit the social and health care system in general (Dobrev et al., 2013; Von Rump, 2013). The following examples illustrate these opportunities.

A basic, commonly used type of eCare are personal alarm services: The customer receives a personal pendant that is linked to a telecare monitoring centre. When pressing it, an emergency call is placed to a call advisor who will offer immediate reassurance and support and arrange help if needed. Such alarms are a simple way to give older people confidence and security at home, especially when living alone. It is mainly the reassurance that help can be solicited in case of an emergency that increases the comfort of living autonomously but without being supervised. It also relieves anxiety of relatives, who are reassured that there will be support in case of an emergency (Red Cross, 2013a).

Another innovative solution, provided by the Swedish company Giraff Technologies<sup>9</sup>, is based on video technology, which is gaining in importance in the field of care for elderly. The “Giraff” is a videoconferencing solution that connects elderly with their caregivers and families in order to make professional care more immediate and efficient (e.g. by allowing ‘virtual’ and thus more frequent visits to check on the patient or observe the home) and to promote social contact by connecting family members and friends (Giraff, 2013; Von Rump, 2013). The technology is very simple to use, not requiring elderly to be mobile or to understand a complex interface. It allows regular conversations as well as instant presence via a call centre in the case of an emergency. Currently, the system is integrated in several research projects that illustrate the latest technological advances: The ALL project VictoryaHome<sup>10</sup> combines the presence of the Giraff with tools to transform homes in a whole care-network (including supporting devices e.g. to measure blood pressure). The project GiraffPlus<sup>11</sup> develops “smart home” solutions that monitor activities through a network of

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elderly. Such technologies range from mobile and wearable sensors and e-textile to assistive robotics and sensor-equipped homes (“smart homes”) (Rashidi and Mihailidis, 2013: 579).

<sup>9</sup> For more information, visit the website of the company: <http://www.giraff.org/?lang=en>.

<sup>10</sup> For more information, visit the website of the project: <http://www.victoryahome.eu/>.

<sup>11</sup> For more information, visit the website of the project: <http://giraffplus.eu/>.

sensors in and around the home that can for instance detect when someone falls down. According to the CEO and founder of Giraff Technologies, such developments are the future of technology-based solutions to deal with the challenges of an aging society (Von Rump, 2013; see also Dobrev et al., 2013: 42).

### **3.3.3. Adapting The Living Environment**

Enabling elderly to live autonomously not only means adapting their living space but also their broader living environment. By making public spaces and services more accessible to elderly, municipalities and cities can make important contributions to maintaining independence and mobility of the 80+ cohorts. The “Age-friendly City Guide” developed by the WEO supports such initiatives, encouraging cities to adapt their structures, services and policies accordingly (WHO, 2007: 1). Even and wide pavements, as well as accessible public buildings and public transport vehicles can make it much easier for elderly to move around. Furthermore, by encouraging older people’s participation in social activities, cities can contribute to fostering intergenerational interaction and solidarity. Other initiatives relate to the treatment of elderly in public spaces, such as guidelines for businesses on how to provide elderly-friendly customer service or training people employed by the city on how to support and treat elderly people (WHO, 2007: 13ff). In a nutshell, city planning must in the future comprehensively take into account the needs of the growing number of older people in order to cope with the challenge of an aging population.

### **3.4. Support and Incentives for Informal Caregivers**

While support structures and services like eCare solutions assist elderly in living autonomously, the presence and support of caregivers will still be essential to cover many of the needs of 80+ cohorts. As mentioned above, the more elderly continue a life in their own home, the more ambulant services are required (Land and Wintergerst, 2011: 27). At the same time, while the number of nursing relatives is decreasing, relying on professional ambulant services is very costly. In light of these facts, the present section will explore opportunities in providing incentives and support structures for informal caregivers to take over specific, non-medical assistance tasks (DHIK, 2011: 8).

An important part of informal care is assumed by relatives in working age. In their case, there is a need for more support structures to reconcile work and nursing, so action is required from the side of the employers (Perrig-Chiello, 2011: 30ff). At the same time, the informal assistance provided by civil society like neighbours, community members or active elderly gains in importance. To incite

civil society to assist elderly, but also to encourage the latter to accept their help, relationships based on mutuality must be established (Lang and Wintergerst, 2011: 160ff). It is therefore crucial to promote intergenerational solidarity on the micro-level and leverage the new opportunities for intergenerational exchange arising from the increasing life expectancy: Within families, grandparents may take over an important part of childcare of grandchildren; and children may have to take care of their parents only when they are retired themselves. Similarly, an intergenerational exchange can take place between active elderly and highly aged needing assistance (Lang and Wintergerst, 2011: 23ff). Attention should thus be drawn on the opportunity that many elderly are still willing and able to do certain jobs adapted to their capabilities and health status (Börsch-Supan, 2012: 12). Finally, mutual exchange relations between neighbours or within a community can contribute to better reconcile the wish of elderly to stay in their own home and the high costs of ambulant care and assistance: When people are embedded in mutual support structures already when they are healthy and active, it may be easier and less expensive to provide for their needs once they are highly aged (see e.g. Lang and Wintergerst, 2011: 26)

#### **3.4.1. Better Structures to Reconcile Work and Care – What Employers Can Do**

Employers can considerably support informal caregiving by providing appropriate structures for their staff to better reconcile work and care (DIHK, 2011: 8). The example of the forward-thinking German SME Dornseif<sup>12</sup> (offering winter services) illustrates what innovative policies employers can implement. Dornseif does not simply provide part-time work but agrees with each employee individually how many hours he or she will work, and when these hours will be carried out. Furthermore, Dornseif offers “trial part-time work”, allowing employees to reduce their work time during a limited time period for instance when a relative needs assistance after a stay at the hospital. Another solution to better reconcile work and care is to work from home. Dornseif therefore provides a “Home-Office-Suitcase” that includes the necessary equipment to do the job from home. Finally, the company partners with a family service provider offering consulting and coaching packages for employees and providing latest knowledge and advice on how to combine work and caregiving (Dornseif, 2012: 30ff).

#### **3.4.2. Retirees Support Each Other: the Example of Time Banks**

While there is an increasing number of care-dependent elderly, there are also more and more retired people that are still active – and have a lot of free time. In

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<sup>12</sup> For more information, visit the website of the company: <http://www.dornseif.de/>.

recent years, many innovative businesses and projects have been developed that engage active elderly in meaningful activities assisting the highly aged in living an autonomous life.

This is exactly the idea of so-called “time banks”, which engage younger retirees in voluntary work in order to support the highly aged with simple assistance, such as driving to the doctor, simple care treatment or read books. By providing voluntary help, retirees can secure a part of their own provision for old age – not in the form of monetary capital but in the form of time: For their work, they receive vouchers that can later be withdrawn from a time account and converted into hours of assistance once they need help themselves (Wenger, 2012: 17ff). A first time bank project in Switzerland<sup>13</sup> has been successfully launched in St.Gallen (Stadt St.Gallen, 2013). Existing research shows that the supported elderly do benefit from the offer, especially for household work or after a hospital stay when they still need simple care and assistance. However, it is also clear that time provision cannot replace professional care. Such projects further enable social interaction for elderly who live alone and are limited in their mobility. In addition, the younger elderly get the chance to do something meaningful after retirement and thereby to stay active and independent for longer (Wenger, 2012: 17ff).

### **3.4.3. Combining Innovative Living Solutions and Informal Care**

Why should we be concerned with helping our elderly neighbours or community members? Of course, it can be enriching to take part in the living processes of others and gaining new views on one’s own life. Human beings further have a need to be important for others, which can bring along the motivation to support our fellow beings (Land and Wintergerst, 2011: 34). Yet, incentives may be needed to make solidarity within civil society really happen. As the following two examples show, innovative forms of living can provide such incentives.

A recent project by the foundation Pro Senectute in Zurich teams young students who have a hard time finding an accommodation for a decent price and elderly people who live alone, dispose of unused living space and may need support for arduous housework.<sup>14</sup> The students get the chance to live at an elderly person’s place without paying a rent but commit to one hour of work per month and per square metre of their room. It is individually agreed on the type of services that will be carried out, such as shopping, cleaning jobs or help with computer problems (care services are explicitly excluded) (Trempe, 2012: 29). Pro Senectute talks with both partners in order to match ‘flatmates’, and facilitates

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<sup>13</sup> The Swiss project slightly adapted the ordinary model: to reach more people, one cannot only exchange time credits, but the services can also be bought with money (Wenger, 2012).

<sup>14</sup> Similar projects have also been implemented in German university cities (Montalbetti, 2011).

dialogue to clarify and harmonise each party's expectations. A primary goal of the project is to promote social interaction and contact between different generations. The results have been very positive: the shared living mostly worked very well and elderly sought new 'flatmates' when the former finished the studies and moved away (Age Stiftung, 2012: 2ff).<sup>15</sup>

So-called "Generationenhäuser" or multi-generation houses are another innovative way to promote social interaction and solidarity within civil society and between generations.<sup>16</sup> While some multi-generation houses provide housing, others simply offer a space for social interaction and intergenerational exchange. In the centre of the concept is the mutual exchange and solidarity between generations (Schulz-Nieswandt et al., 2012: 114ff). One example is the Giesserei in Winterthur, established by a collective and one of the largest self-administered housing projects in Switzerland. For residents who need professional care, some of the flats include a 24-hours care service from the Spitex. For the multiple support services that do not need professional help, the neighbours come up: Each inhabitant has to do 36 hours of volunteer work per year. This can include maintenance work in the building but also mutual support among the inhabitants, like exchanging shopping with babysitting. The multi-generation house provides not only mutual benefit but also opportunities for social interaction. It may help young families to reconcile job and children, and give elderly the opportunity to stay socially and intellectually active (Sonntagszeitung, 16.12.2012).

In Zurich, a different type of multi-generation house is being planned, namely a centre for intergenerational social and knowledge exchange, providing the opportunity to network both among elderly and between generations. The goal is to use the time and knowledge resources of active elderly and give them the opportunity to deploy their skills for instance by giving arts, music or language workshops for children, youth or other elderly. By allowing elderly to stay physically, intellectually and socially active, their healthy life years can be prolonged and they may live independently for longer. It also gives younger people the chance to benefit from the knowledge and experience of the older generations (Generationenhaus Zürich, 2013; Wettstein, 2012: 12).

#### **3.4.4. Informing and Training Informal Caregivers**

In order to further support nursing relatives and other informal caregivers, relevant information and knowledge should be made easily accessible.

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<sup>15</sup> The coordination effort was in a first phase financed by Pro Senectute and grants from Churches and other foundations. In a second phase, the project was expanded and volunteers were recruited as coaches to do the coordination and contact work (Age Stiftung, 2012: 2).

<sup>16</sup> In Germany, the concept is already implemented in many cities, and also in Switzerland there are more and more such projects (Generationenhaus Zürich, 2013).

Information platforms, provided for instance by ministries, municipalities or private institutions, should include advice on medical care, information on available professional services or on potential financial benefits. Informal caregivers should also be informed on psychological or physical distress such work can bring along. The aim should be to enable relatives to provide better conditions for care but also to better look after themselves (Perrig-Chiello et al., 2011: 86).

The city of Winterthur, for instance, has launched a consulting service for families with elderly relatives in a joint project with the Zurich University for Applied Sciences (ZHAW). The project offers free counselling interviews that consult families individually on how to arrange their daily lives. Advice is offered, among others, on how to optimally organise care, where to find the appropriate support if the nursing relative is unavailable or what to do when caregivers themselves are exhausted (ZHAW, 2013; Stadt Winterthur, 2012).

In parallel, education should be offered for informal caregivers on how to best organise and carry out the care tasks. For instance, the Swiss Red Cross or Home Instead offer specific courses for nursing relatives (Red Cross, 2013b; Home Instead, 2013). Such training may not only raise the competence of caregivers but also increase their confidence and give them opportunities to exchange with other people in similar situations (Perrig-Chiello, 2011: 30ff).

### **3.5. Formal Ambulant Care and Assistance**

Evidently, not all care and assistance can and should be carried out by informal caregivers, who may lack necessary skills or not have enough time, resources or energy to carry out the nursing tasks. It is therefore crucial that professional, ambulant services support and complement informal care (Perrig-Chiello, 2011: 33). Similar to informal care, professional nursing work should aim at sustaining, supporting and compensating an independent conduct of life (Land and Wintergerst, 2011: 27). Professional caregivers may even strengthen solidarity within families by relieving and supporting nursing relatives (Perrig-Chiello, 2011: 33). Their positive contribution can thus be enhanced by a regular exchange and coordination between formal and informal caregivers (Perrig-Chiello et al., 2011: 85ff).

#### **3.5.1. Tailoring Services to the Needs of the Elderly and their Caregivers**

Next to the publicly subsidised Spitex organisation, there are numerous private firms that offer a wide range of ambulant care and assistance services, ranging from the help with simple daily activities to medical care. Many of these formal

ambulant care or assistance providers tailor their offers to the diverse needs of the elderly and their informal caregivers.<sup>17</sup> As a result, not only can care services be used more efficiently, but informal and formal care and assistance can also be harmonised better. An optimal mix and use of formal and informal support may also contribute to reduce costs. To illustrate the flexibility of private caregivers, the small company Seniorenbetreuung mit Herz<sup>18</sup> provides a good example. As their manager emphasises, their clients have a very different health states and thus also widely differing needs. While some need assistance for simple tasks for two hours a week, others are assisted hundred hours per week. Focussing on non-medical care, the company offers individual assistance that is tailored to the clients' needs – they even accompany people in holidays (Gantenbein, 2013). Next to the company's fixed offer, customers may request for the specific form of support they need (Seniorenbetreuung mit Herz, 2013). Their assistance can also be pursued when a client has to move to a residential home (Gantenbein, 2013). This flexible offer is ideal to effectively complement informal assistance, as well as to allow an efficient use of support services.

### **3.5.2. Innovative Ways to Make Care Mobile: the Brain Bus**

To conclude the chapter, the following brief example illustrates that there are little limits to making care services mobile: The Brain Bus<sup>19</sup>, an initiative of Fold in Ireland, is a mobile therapy unit for older people and in particular dementia patients. Bus visitors receive physical and cognitive therapies, which help the management of dementia symptoms and enhance well-being in general. The interactive activities that can be performed in the bus engage participants in a fun and social way in a safe environment. The interface is personalised for each user and includes a tool to interact with families and caregivers (Brain Bus, 2013).

## **3.6. What Solutions on the Macro-Level?**

While this paper primarily focused on specific models and initiatives that enable the 80+ cohorts to stay independent and mobile, this last part will briefly touch upon possible solutions on the level of the broader society. Due to the limited scope of this paper, however, the following points are neither complete nor elaborated further, but are intended to serve as an incentive for the reader to reflect more thoroughly about the topic.

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<sup>17</sup> For instance Seniorenbetreuung mit Herz (<http://www.betreuungmitherz.ch/>); Seniorenzeitpunkt (<http://seniorenzeitpunkt.ch/>); or Home Instead (<http://www.homeinstead.ch/>).

<sup>18</sup> For more information, visit the website of the company: <http://www.betreuungmitherz.ch/>.

<sup>19</sup> For more information, visit the website of the project: <http://www.brainbus.co.uk/>.

On a general level, for the above-discussed initiatives and models to reach their goals, the condition is that the state provides the necessary infrastructure and financial resources. A further requirement for the success of informal care and assistance arrangements is that the state assures the provision of professional care and the adaptation of the health care system to social changes. Moreover, by means of an intelligent institutionalisation and a smart control of the health care system, the state should facilitate the collaboration of diverse players in providing the necessary structures and services to enable the 80+ cohorts a life in dignity and respect (Land and Wintergerst, 2011: 39). More specifically, the publicly subsidised Spitex could be incited to focus on medical care, which needs specialised, trained personnel, while private and informal caregivers could be supported in covering the needs for non-medical assistance. The state could further incentivise employers to give their staff more flexibility regarding working hours or financially support innovative projects aiming at intergenerational exchange and solidarity within civil society.

Another much-discussed topic is the reform of the current pension insurance scheme. Different ideas are being discussed how to adapt the system to today's socio-economic realities, including a shrinking working force and increasingly common "patch-work-biographies", where periods of full employment alternate with periods of part-time work, continuing education or caregiving (Lang and Wintergerst, 2011: 159ff). One suggestion is to bind pension entitlements not to the reaching of a certain age but to the accomplishment of a clearly defined number of working years – a number that could include the work related to nursing work of children or elderly relatives (see e.g. Grüne Partei Schweiz, 2013). It has also been suggested to tie the pension age to increases in life expectancy, thereby allowing a gradual increase of the former (European Commission, 2012: 9ff). A final interesting line of thought is to link the raise of the retirement age to the implementation of new forms of care services. It could be imagined, for instance, to give people the choice of either working until the age of 67 or to do carry out care or assistance service according to one's abilities and health status (Höpflinger et al., 2011: 117). In Switzerland, one could imagine a model similar to the Civil Service. Engaging active elderly, though, the model would not put further burden and responsibility on the younger generations, who already have to come up with a lot of resources today. At the same time, it would contribute to meeting the needs of an aging society without incurring large costs.

#### **4. CONCLUSION**

As the share of Swiss who will reach the age of 80 is expected to more than double by 2050, a key challenge of demographic aging will be the increase of elderly people depending on care and assistance in absolute numbers. Unless

new models are found to meet their needs, costs will explode and the lack of caregivers will increase sharply. At the same time, new opportunities are arising: more and more people live relatively healthily and independently during a long period of their older age. Similarly, while families are shrinking, new models of intergenerational solidarity arise within families as well as between the elderly themselves.

Building on these opportunities as well as on technological advances, innovative solutions are being developed that have the potential to enable the increasing 80+ cohorts to stay independent and mobile, while not leading to exploding health care costs. Age-friendly housing as well as accessible public spaces permit elderly to better manage daily activities. Promising technological advances allow for a more efficient provision of care and assistance, while increasing the safety and comfort of older people living in their own home. Moreover, new structures and housing models are emerging that encourage informal caregiving, if it is by offering opportunities to better reconcile work and care or by establishing mutual exchange relationships within the community. At the same time, formal ambulant care services that are tailored to the specific needs of the elderly and their caregivers permit an optimal use of professional services. A condition for the success of such arrangements, however, is the adaptation of the current health care and pension system to the socio-economic realities in order to assure the provision of the necessary infrastructure and financial resources as well as of professional care.

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Universität St.Gallen

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**Megatrend 'Global Demographic Change' –  
Tackling business and society challenges in 2030 and beyond**

**Flexible Retirement  
— a UBS case study**

Lecturer: Dr. med. Hans Groth, MBA

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Submitted by

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**LIST OF ABBREVIATIONS**

- HR = HUMAN RESOURCES
- UBS = NAME OF SWISS GLOBAL FINANCIAL SERVICES COMPANY
- SFS = SWISS FEDERAL STATISTICAL OFFICE
- AHV = SWISS OLD-AGE AND SURVIVORS' INSURANCE
- UK = UNITED KINGDOM

# 1. INTRODUCTION

## 1.1 Subjects and Goals of this Paper

Within the many subjects that were proposed to the class, our group was given the opportunity to discuss the relationship between flexible retirement and the challenges of an aging society. The complexity of this topic and the amount of different aspects that can be discussed are wide. The scope of this work therefore examines the potential internal and external changes which may affect UBS Switzerland.

In general, it is safe to consider that the environment in which UBS Switzerland operates is changing rapidly. The Swiss population, just like most other European nations is aging which results in a more senior labour market. Also, Switzerland introduced a flexible retirement option which is getting more popular. A survey showed that one third of Swiss employees work longer than the regular (former mandatory) retirement age (swissinfo.ch, 2012). The aging population coupled with the flexible retirement scheme leads to an expanding senior employee base at Swiss companies such as UBS. While the symptoms are not severe at the moment, firms have already started to implement some measures and UBS could avoid serious HR related issues if it starts preparations as soon as now. Developing career models and flexible work schemes (e.g. job sharing, short time) can be a first step in this process.

During our research, we realized that UBS has to face another important HR-related issue: the above industry average turnover<sup>20</sup> rate. While the average turnover initiated by the employee in the financial services industry is 3%<sup>21</sup>, UBS suffers from a significant higher rate of 6.7%<sup>22</sup>. The main drivers of this figure are the middle-aged employees: a relatively high percentage of workers in their 40s and 50s leave UBS. Research shows that implementing additional social sustainability offers is key to employee retention.

In addition, we propose a somewhat novel idea that can help UBS in tackling both challenges. This is the idea of mentoring. On the one hand, it provides an excellent opportunity for the senior employees to keep themselves active and to pass on their knowledge to the middle-aged while doing so. On the other hand, the knowledge employees can gain at mentoring is likely to be an instrument in increasing employee satisfaction and therefore the retention rate.

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<sup>20</sup> **Turnover** in % is the rate at which an employer gains and loses employees in one period. Sometimes denoted **churn** to avoid confusion with the revenue term turnover.

<sup>21</sup> Cf. AGV Banken, 2009, p.1

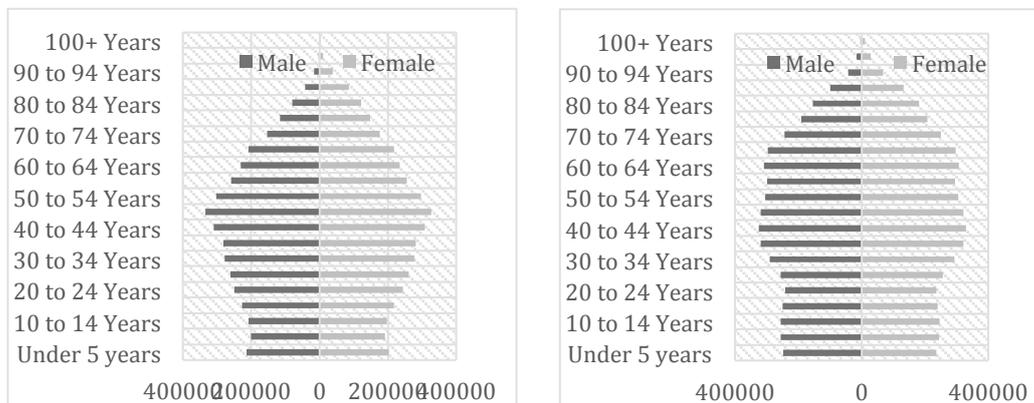
<sup>22</sup> Cf. Annual Report UBS 2012/2013, p. 263

## 1.2 Why aging population is a general issue

Switzerland, like most of the developed nations, is facing the challenge of a rapid aging population. This challenge translates into many potential issues in the near future which will need to be addressed sooner rather than later. For Switzerland in general, the aging population will put pressure towards tax burden on the working-age population, increasing medical resources demand, as well as additional demand on skilled-labor to maintain its competitive and innovative economy.

According to the Swiss Federal Statistical Office (SFS), the total population in Switzerland, as of end 2012, is around 8 million<sup>23</sup>. This number is likely to increase to 9.5 million by 2030<sup>24</sup>. As for the workforce, people who are in the close-to-retirement group will jump from 29 percent to near 36 percent of the entire population<sup>25</sup> as both graphs show below.

Figure 1 Swiss population pyramid 2012 (left) and projected for 2030 (right)



Source: Swiss Federal Statistical Office (SFS)

For corporations, an aging population also means a shrinking customer base and slower business activity. Moreover, the increasingly better educated and mobile workforce means that it will be even more challenging to obtain and retain the human capital than nowadays. In our study, besides the above mentioned challenging forces, UBS is facing this issue sooner than its other peers due to a high employee initiated turnover rate. Based on our projection as demonstrated by the graphs below, by the year 2030, UBS will have 25 percent of its senior workforce 60+. This shifting in its workforce has the following implications to UBS:

First, the critical knowledge of know-how and the valuable experience equipped with senior employees will be lost. In general, senior employees have more

<sup>23</sup> Actual Population: 8,039,100 (Swiss Federal Statistical Office, 2012)

<sup>24</sup> Based on Swiss Federal Statistical Office projection.

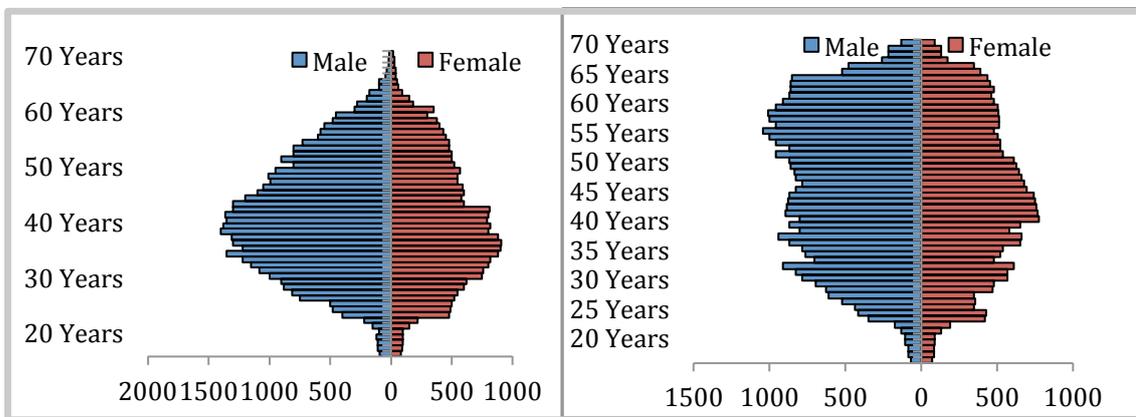
<sup>25</sup> The calculation is based on actual number provided by Swiss Federal Statistical Office for 2012 and median growth of population for 2030.

calm and experience to trouble-shoot issues which may be intimidating to less experienced staff. Moreover, they know how to keep a business running in top condition, they know their clients and customers, and have values and maturity to respond to problems quickly and adequately.

Next, if a group of senior employees retired within the same period of time, there is a danger some of their positions might not be replaced and certain skill-sets would be lost. A good example is that senior employees can be good leaders due to their advanced communication and inter-personal skills. This is especially important in the business environment.

Also, shrinking employee base will impact the UBS daily activities. The lack of adequate man-power means UBS will have to increase the workload for remaining workers. This can increase dissatisfaction of the existing workers and lead to possible quality reduction for its services or removal of some business functions.

Figure 2 UBS Age distribution 2012 (left) and 2030<sup>26</sup> (right)



Source: Own calculation based on 2015 UBS HR agenda

### 1.3 Differentiating the workforce

In order to allow a scientific relevant study we broke down the general statement of the problem into two different pillars. Following this metaphor we defined the middle-aged employee group ranging from the ages 40 until 60.<sup>27</sup> The senior employee group (60+) constitutes the second group and will be an increasing workforce due to our UBS model. During this work we will examine

<sup>26</sup> The projection leading to the UBS Age distribution of 2030 is based on following methodology: First, the current management target of 54,000 headcount will be maintained onwards from 2015 with slightly upward adjustment as growing of UBS. Second, we take 14 % reduction of each age group due to UBS HR agenda. Lastly, we fixed the new-hire at current rate with the same reduction (14%).

<sup>27</sup> Cf. Collin Dictionary, 2012, p. on search “middle age”

this two crucial groups and will give hints on how to solve characteristic problems of both groups which may encounter in 2030. Some of the steps have even to be taken today so it makes sense to start the discourse right now.

### **1.3.1 Effects on senior employees**

The notion of a flexible retirement scheme is not a new one. Several initiatives failed at the ballot box during the 1990s.<sup>28</sup> Finally, the Swiss Federal Government introduced a flexible retirement age scheme and brought it into effect in 1997.<sup>29</sup>

The system is encompassed in the three-pillar pension system (see Appendix fig. 8) where the first pillar (AHV) is the state pension, a mandatory element under the responsibility of the government. The employer is responsible for the second pillar, and the individual is for the third. The flexible age scheme is part of the first pillar and has no direct connection to the two others.

The flexible retirement age system offers senior employees the opportunity of early retirement and pension deferral. In case of the former, men and women can retire one or two years before reaching the regular retirement age. The amount of their pension will be subject to a lifelong reduction (see fig. 3). On the other hand, those choosing pension deferral will receive a higher pension every year. Deferral is possible for up to five years.

Polls suggest that the government's plan to prolong the working period of senior workers worked only partially. More than one third opt for staying at work after the regular retirement age of 64 for women and 65 for men. However, some 40% uses the early retirement option with the rest of the employees sticking to the regular retirement age (Trageser et al., 2012).

The main reasons behind staying at work are not monetary. Key factors behind an extended working life among older workers are a favourable working environment, a good work-life balance and flexible working. Financial imperatives and incentives inherent in the old age provision system appear to be of lesser importance." (Ibid, p. 33). This is not entirely surprising, as workers are probably aware that pensions are adjusted according to the retirement

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<sup>28</sup> It is important to note that the funding of the Swiss pension system is in jeopardy due to the demographic changes. Similarly to most developed economies, less people pay taxes which has to cover the pension of more and more benefactors. The government has considered a number of reforms (including gradually increasing the mandatory retirement age and increasing taxes) before implementing the flexible retirement age. Initially, there were concerns about a lot of people choosing early retirement which of course would tax the pension system. The solution implemented was a reduced pension for early-retirees.

<sup>29</sup> Cf. AHVG Art. 39 par. 1

option they use and therefore monetary gains (or losses) are not possible with the flexible retirement age scheme.

*Figure 3 Pension reductions and increases with flexible retirement*

	Number of years	Pension reduction	Pension increase
Early retirement	-2	13.6%	-
	-1	6.8%	-
Regular retirement	2013 (women born in 1949/men born in 1948)		
Deferred retirement	+1	-	5.2%
	+2	-	10.8%
	+3	-	17.1%
	+4	-	24.0%
	+5	-	31.5%

Source: AXA, 2013

Problems arise when the employer comes into the picture. The Swiss study by Trageser et al. (2012) only hints at the fact that employers have to take steps to adapt to the consequences of the flexible retirement age. A Finnish research paper, however, features numbers to support a similar argument.<sup>30</sup> Tuominen (2013) shows that only 13% of companies are willing to employ or retain people who have reached the retirement age. An even more interesting finding is that of those who would have liked to continue working, more than every second was denied the opportunity to do so by their employer (see Table 1).

*Table 1 Retired employee's views on their willingness and possibilities to continue at work*

Would your employer have accepted that you continued working?	Would you have liked to continue at work?	
	Yes	No
Yes	8%	71%
No	11%	10%

Source: Tuominen, 2013

<sup>30</sup> The similarities of the Finnish and the Swiss pension system, the retirement age (63 in Finland), the ratio of employees retiring late and the high living standards of the two countries make the Finnish paper a relevant benchmark to assess the situation in Switzerland.

This means that employers are reluctant to retain employees, often against the wish of those. What is even more troubling is that employer's views haven't changed significantly in the last decade (see Appendix fig. 9). Based on these findings, the situation is likely to be similar in Switzerland: there is a mismatch between employee's will of remaining in employment and employer's willingness to employ people over the retirement age.

According to a study conducted by the Department for Work & Pensions in the UK it is worth considering a further dimension of retaining older workers as that can have substantial impact on decreasing the employee initiated turnover rate. The same study reveals that a multi-generational workforce may benefit from:

- A broad range of skills and experience;
- Opportunities for mentoring;
- Transfer of skills across the workforce;
- Reduce staff turnover;
- Improve staff morale.<sup>31</sup>

### **1.3.2 Effects on middle-aged employees**

While the senior employees want to stay but struggle from the above mentioned obstacles, young to middle-aged employees are much more likely to switch the employer.<sup>32</sup> Middle-aged employees constitute the core workforce today possessing expertise on operational business. Therefore it is crucial for the employer to implement measures to keep middle-aged employees in their jobs.

Adapting the above-mentioned bias to UBS: When comparing employee-initiated turnover rates it becomes obvious that a value higher than average is detrimental for know-how retention purposes in the financial services industry. As we assume that senior people are rather willing to stay it becomes obvious that the employee initiated turnover rate is solely caused by the middle-aged employees. Those are seeking further career opportunities and create a talent outflow at the employer which creates inevitable follow-up costs. Based on the original work of Cascio (1991) examining the cost of turnover those are at least:<sup>33</sup>

- Separation costs
- Replacement costs

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<sup>31</sup> Cf. Department for Work & Pension, 2013, p. 1-20

<sup>32</sup> Cf. Finegold, 2002, p. 658

<sup>33</sup> Cf. Tziner, 1996, p. 113ff

- Training costs

In the last decade the sustainability approach to retain middle-aged staff was introduced to HR and examined in research.<sup>34</sup> Apparently social sustainability measures are capable to reduce staff turnover when employees are aware of them.<sup>35</sup> Next we describe what we understand under the term social sustainability to allow a concise comprehension.

#### **1.4 The role of social sustainability**

A lot of accounting and reporting literature has focused on the so called triple bottom line approach which apart from the financials takes up the non-financials. As those non-financials Holling et al. (2001) name the economic, environmental and social dimension.<sup>36</sup> In the following we examine the latter one to develop a thorough understanding of the term hereafter used regularly in this work. Social sustainability itself describes the way companies are coping with the employee, the way they report about social sustainability to the shareholders and to the public.<sup>37</sup> It ranges from assessment to the action of mitigating turnover risk. According to the principal agent theory, the investors are the ones that own the company and have a big stake in it due to their investment. Subsequently the investors are the ones that benefit most from an extensive and good social sustainability reporting as some risk may arise from there, e.g. reputation risk, turnover risk etc. which may be conflicting with the purposes of the investor. Following the available research in this field, we examined the correlation between social sustainability measures and its effects on turnover. We based our model on a sample (n=31 companies from the German Mid-Cap Index). The findings presented in chapter 3 suggest to incorporate measures promoting the employees' participation in decision making processes.

#### **1.5 Linking the pillars**

When developing a strategy for UBS to equalize the effects on the workforce for 2030 we came up with a solution sketch depicted in fig. 4 where the middle-aged staff are likely to fluctuate due to a high turnover rate. However, UBS has to take social sustainability measures to retain these top performers in the decade around 2030. Then senior staff which consists of today's middle-aged workforce will be a huge part of the workforce. Without adequate work propositions UBS might run into a vicious circle where middle-aged staff leaves

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<sup>34</sup> Cf. Boudreau, 2005, p.129ff

<sup>35</sup> Cf. Appendix Interview I, q.4

<sup>36</sup> Cf. Holling, 2001, p.390

<sup>37</sup> Cf. Dillard, 2008, p.10

the company to pursue own paths. Therefore we propose to incorporate measures to retain middle-aged workforce and make thus efficient use of the senior workers until they leave gradually into retirement.

*Figure 4 Solution sketch*

	<b>Current</b>	<b>Desired by UBS</b>	<b>Recommendation</b>
Middle-aged	Want to leave	Stay	Fill social sustainability holes
Senior	Want to stay	Stay and share knowledge	Job sharing Short time



*Source: Own illustration*

## 2. THEORETICAL BACKGROUND

### 2.1 Academic research

Before starting to build an elaborated research method, we researched academics regarding the topics of flexible retirement and social sustainability. The findings are summarized in section 2.2 paving the way for the model by providing the necessary theoretical background to solve the pillar 1 problems. Next in 2.3 we tackle the pillar 2 issues focusing on senior staff and the literature's view on how to make theoretically use of their knowledge and experience.

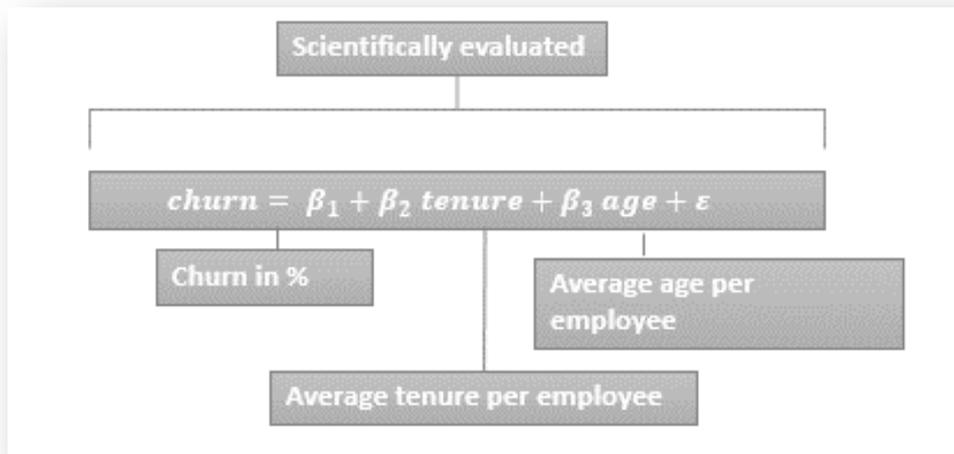
### 2.2 Conceptual basis on middle-age staff retention

In academic research many different types of approaches have been tested in order to quantify and determine quality of employee retention programs.<sup>38</sup> Since quality is not easily quantifiable, this task is a rather difficult one. In most cases the studies that have been conducted were based on some sort of regression model.<sup>39</sup> One parameter that has been used multiple times to measure the quality of retention programs is the turnover rate. Empirically a negative correlation between quality of retention programs and the turnover rate can be observed. As this correlation has been validated in many studies in the past, this provides a starting point for our own research on middle-aged employees: Parameters that are likely to affect the turnover on a natural basis are age and tenure.

<sup>38</sup> Cf. Cotton et al., 1986, p. 55-70; Arnold et al., 1982, p. 350

<sup>39</sup> Cf. Griffeth, 2000, p. 463

Figure 5 The formula found in scientific papers



Source: Own illustration

### 2.3 Conceptual basis on senior staff retention

Senior employees would like to work less<sup>40</sup>, according to several studies. 55% of people over 50 are not content with some aspects of their working life and half of them say that they would like to work less<sup>41</sup> (Maitland, 2010). As CIPD (2012, p. 7) notes “Organisations that ignore the aging of the workforce do so at their peril”. This implies that employers should take into account the wishes of this age group. This has another advantage, namely that old workers will have more time to participate in mentoring their younger counterparts.

Phased or gradual retirement refers to the changes in older workers’ employment arrangements. According to a paper by the British government agency, DWP (2013) phased retirement fits well with an aging workforce and the removal of the default retirement age. Nearing the pension age, many employees would like to gradually reduce their working hours (CIPD, 2012). This is a great solution for companies as well, since gradual retirement “enables the organization to retain critical skills<sup>42</sup> at reduced cost” (Ibid, p. 8). Several alternative (flexible) working arrangements exist, which can be grouped as follows (Papalexandris and Kramar, 1997, p. 586-587):

- Flexibility in working time arrangements (flexitime, annualization of hours, four-day week, individual/collective management of working hours);

<sup>40</sup> However, according to Redden (2013) employees aged 65+ at the finance industry are one of the least likely to prefer shorter hours than at present in their current job.

<sup>41</sup> Also, almost one-third of them would like to be able to work from home.

<sup>42</sup> Long-serving workers also have invaluable organization-specific knowledge (CIPD, 2012).

- Flexibility in the number of hours worked (part-time work, job sharing, compressed hours);
- Flexibility with regard to place of work (home working / teleworking, combination of working some days in the office and some days at home).

Some of the above measures (e.g. flexitime, part-time) are already implemented at UBS. Research on the effectiveness of some others (e.g. compressed hours) is inconclusive (Baltes et al., 1999; Armstrong-Stassen, 1998). In fact, popular alternative arrangements like home working have been deemed inefficient by companies recently<sup>43</sup>. Based on UBS's position and the research on the alternative working arrangements, the best options for UBS seem to be job sharing and short time.

- According to Vickerstaff et al. (2008), those 60-64 year olds who wanted to work longer, favoured part-time and short-time contracts. Short-time not only helps save jobs but keeps skilled workforce together. This eventually leads to a great deal of accumulated knowledge and skills.
- Apart from maintaining diversity at the workplace, job sharing is also a very flexible solution. Tombari and Spinks (1999) refer to examples from a financial group where three employees shared two jobs, job sharers have been promoted together and also managers have been successfully job-sharing.

It is worth noting that two main aspects of flexible working are highly debated. First, even though employees would like to have the opportunity to work less or under more flexible arrangements, the result of these on job satisfaction is not clear<sup>44</sup>. Also, managers often fear that organizing flexible work is expensive and time-consuming. According to Vickerstaff et al. (2008), "some employers don't promote or grant flexible working even when it is an option, because they fear that it can put a strain on company resources and hamper planning". A study by Schein et al. (1977) showed that flexible working hours had no adverse impact on productivity. Another study by CIPD (2012) argues that management's fears are unjustified. Still, managers are hesitant to introduce or promote such measures and therefore their availability is not sufficient, even though flexible

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<sup>43</sup> HP and Yahoo both encourage home working employees to return to the office. Companies argue that informal exchanges at the office are an integral part of corporate culture and cannot be replaced by virtual relationships

<sup>44</sup> Research by Shield and Wards (2001) shows that flexitime and job sharing have only a minor effect on overall job satisfaction. Morrell and Tennant (2010) come to the same conclusion, stating that there is little evidence that flexible working options and gradual retirement lead to a more positive experience of retirement. However, it clearly impacts some seniors. CIPD (2012, p. 17) cites one focus group participant saying "Working half the week has been great, I can spend time golfing and relaxing. When I start work on Wednesday I feel refreshed and ready for work."

working arrangements are becoming more widespread throughout Europe (Papalexandris and Kramar, 1997).

In addition to those concepts mentoring has been a highly discussed approach for employee retention. A lot of studies examine the effective of the mentoring program on employees. According to social exchange theory (Foa&Foa, 1974 and Homans, 1961) the mentoring program has many positive influences on employees' skills, connections, and psychological dimensions<sup>45</sup>.

A quantitative meta-analytic review by Underhill (2005) examines the effectiveness of mentoring based on 14 studies (see table 4 in appendix). According to this research mentoring has significant impact on career outcomes for mentored groups.<sup>46</sup> As shown in table 2, mentees have a significantly higher job satisfaction combined with significantly less work-family conflicts.

*Table 2 Effectiveness of mentoring on outcomes based on 14 studies in this field*

CAREER OUTCOMES	N	MES	SE	95% CONFIDENCE INTERVAL	
				Lower	Upper
OBJECTIVE					
<b>INCOME</b>	6	.149	.087	-.021	.320
<b>TENURE</b>	3	.037	.087	-.133	.208
<b>NUMBER OF PROMOTIONS</b>	2	.474	.257	-.031	.979
SUBJECTIVE					
<b>JOB SATISFACTION</b>	10	.387*	.073	.245	.979
<b>SELF ESTEEM</b>	4	.177*	.086	.008	.346
<b>INTENT TO STAY</b>	4	.099	.095	-.087	.286
<b>ADVANCEMENT OPPORTUNITIES</b>	4	.485*	.085	.318	.652
<b>ORGANIZATIONAL COMMITMENT</b>	3	.200*	.094	.015	.385
<b>OTHER WORK OPPORTUNITIES</b>	3	.036	.080	-.121	.194
<b>WORK STRESS</b>	2	.406*	.206	.0007	.811
<b>WORK-FAMILY CONFLICT</b>	2	.206*	.076	.057	.355

n, number of studies providing aggregated effect size; \*p < .05

Source: Christine M. Underhill (2005), p. 300

<sup>45</sup> Cf. Ensher, 2011, p.253-266.

<sup>46</sup> Cf. Underhill, 2005, p. 292

In short, mentoring has proven on a scientific basis to efficiently lower the turnover rate and it is perceived as a successful retention measure based on high job satisfaction. People who receive mentorship tend to remain in the corporate environment.

The multitude of existing studies show that there are many significant advantages for mentoring program as it improves many dimensions both on the personal and professional level. For example, a study by Allen et al. (2000), demonstrated people who received mentorship in general had a higher chance to succeed in an organizational environment.

We investigated a scientific gap in literature to the extent that mentorship is mostly implemented for career starters. According to our understanding there is no reason why mentoring couldn't be extended to the middle-aged and senior workforce in order to facilitate a life-long learning and feedback culture. In our strategy to compete with the challenges in 2030 for UBS we therefore made use of the mentorship approach.

### **3. MODEL**

#### **3.1 Research design and assessment of relevant parameters**

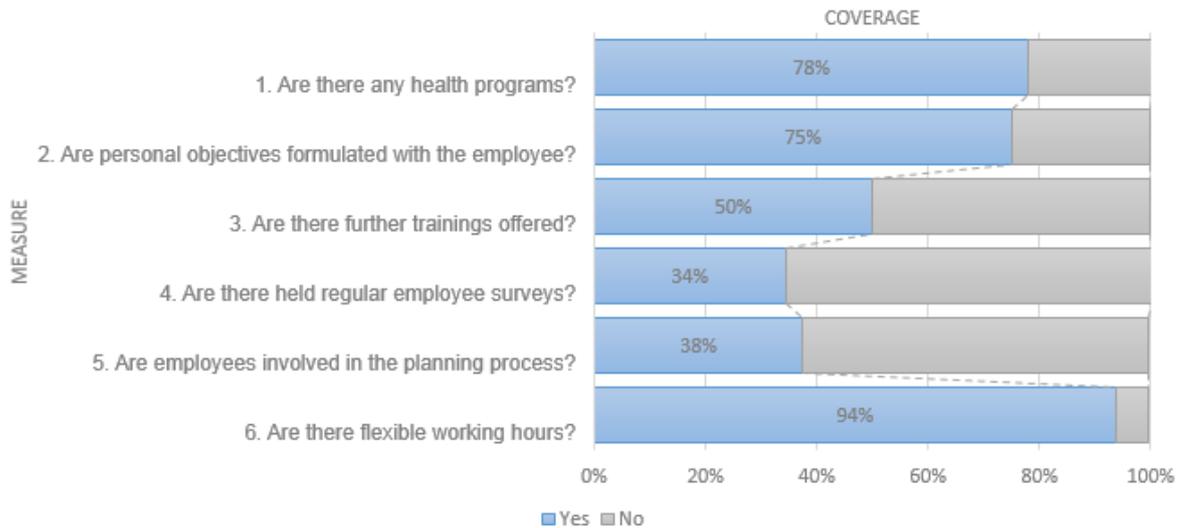
In order to generate new findings on the middle-aged staff regarding the relationship between turnover and social sustainability measures we decided to alter the before mentioned research formula in fig. 5. We based our research methodology on the approach by Knechel & Willekens (Knechel & Willekens, 2006). They scanned the relevant annual reports of companies in order to determine the degree to which different types of risk are disclosed in the reports (financial, compliance, environmental & safety, technology, internal process and change management risk) and gave 1 point if the risk was addressed and 0 point if not. We adapted the questions to our requirements maintaining the scoring methodology:

1. Are there any health programs?
2. Are personal objectives formulated with the employee?
3. Are there further trainings offered?
4. Are there held regular employee surveys?
5. Are the ideas of the employees involved in the planning process?
6. Are there flexible working hours?

According to this scheme, each company could have scored from 0 to 6 points depending on which categories were fulfilled and which not. Even though the evaluation criteria are fairly specific, this assessment has not been easy. This is primarily due to the fact that every annual or sustainability report, as well as its presentation of the measures, has a different structure and scope. Therefore

the allocation of points can be sometimes more subjective than expected. The following fig. 6 presents an overview of the social sustainability assessment.

*Figure 6 Overview of social sustainability assessment*



*Source: Own illustration*

This data reveals that almost all companies (>94%) have a flexible working scheme. On the other hand however, only 38% of the sample companies apparently do not involve employees in the planning process. Furthermore the lack of training is apparent in 50% of the sample. It is therefore a first hint for UBS HR to focus on lower scored measures (question 3 or 5) while the flexible working scheme is already exploited for retention purposes. However, the flexible working scheme seems a good approach to retain senior staff and should be extended to them.

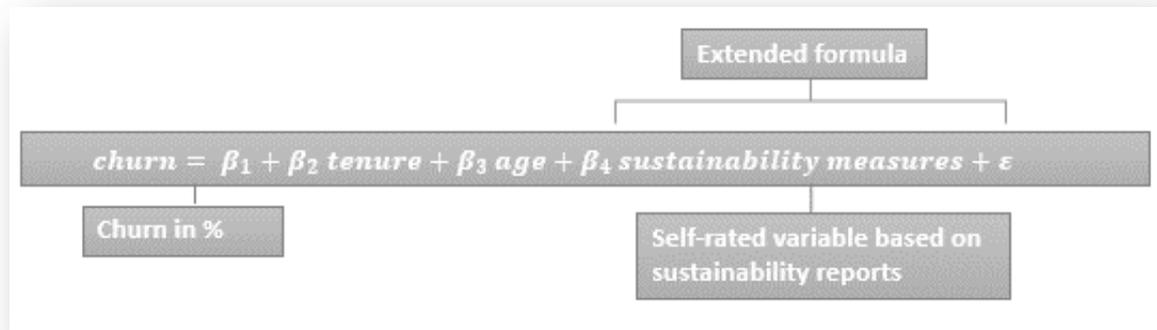
### 3.2 Middle-aged employee strategy approach

The following summarizes the underlying assumptions as well as the key outcomes of the conducted regression analysis. As a starting point we used a formula that was described in chapter 2.2 and altered it accordingly so that it would comprise social sustainability aspects which we believe make part of the solution. The main alteration to the established formula is the introduction of a new variable called social sustainability measure which was assessed as described in the previous section.

As other influences on the turnover, and as a kind of benchmark parameters, “age” and “tenure” were chosen. They could have easily been substituted by other variables which are said to have significant influence on the turnover rate.

Nevertheless those two were the ones that were used most in the past.<sup>47</sup> Since they are widely used as control variables it was interesting to see if sustainability measures were almost as significant as those variables to determine the turnover (here denoted as churn) rate.

Figure 7 Extended formula for the regression analysis



Source: Own illustration

In order to provide evidence that the social sustainability variable is statistically more relevant than the other variables we conducted a multi-linear regression. With SPSS statistical software we analysed the collected data and came to the following outcome represented in table 3. Based on the hypothesis that sustainability measures impact the turnover rate in the sample we describe the key elements of the regression analysis:

- All coefficients are negative alluding to a reciprocal relation to the turnover rate. So using our control variable age to explain the statistic we obtain a low fluctuation rate if age is high and vice-versa. The same relation holds for tenure and our assessed variable SUSTAIN being the placeholder for “social sustainability measures”.
- In addition the test seems significant due to a low p-value. A variable is said to be significant if it is below a certain boundary. Usually there is used a boundary of 10% meaning that the hypothesis holds true in 90% of all cases.

<sup>47</sup> Cf. Griffeth, 2001, p. 465

*Table 3 Regression analysis output*

VARIABLE	COEFFICIENT	STANDARD ERROR	T-STATISTIC	P-VALUE
Constant	41,133	11,166	3,684	0,018**
AGE	-,631	0,312	-2,020	0,053*
TENURE	-,449	0,278	-1,616	0,117
SUSTAIN	-1,006	0,553	-1,818	0,080*

Source: Own calculation on SPSS

Finally we investigated the UBS-specific data and examined information on engagement and enablement which were based on a Hay Group report conducting an employee survey at UBS in 2012. The survey result illustrated in appendix fig. 10 punctuates that the enablement through active planning involvement is perceived as below industry-average in terms of barriers and productivity obstacles. Both dimensions demonstrate that there is optimization-potential for social sustainability measures. This result is in line with the outcome obtained through the statistic sample (see question 3 or 5) where only 38-50% of all companies implemented these kinds of measures.

In other words, by providing measures of training, enabling active participation in planning and clearing up obstacles through mentoring programs could obviously increase employee satisfaction and decrease employee initiated turnover of middle-aged staff.

### **3.3 Senior employee strategy approach**

We believe in order to implement an effective mentoring program, UBS will first have to create a culture for mentoring. As UBS currently has mentoring programs, the target audiences should be widened and given more weight to both incoming employees and close-to retirement senior staff members. A possible implementation is a cascading mentoring system where senior staff members will coach mid-career employees, mid-career staff member will coach junior employees, and junior staff members will coach the community such as university students. As the senior staff gets older, they will gradually decrease their daily workload and focus more on guiding mentees.

The mentoring program will have different phases with different focuses:

Phase 1 - Establishing and Building Phase: Each potential mentor and mentee will be evaluated based on his/her strengths and weaknesses. UBS will make efforts to learn and understand their working style, cultural background, and

personality. Upon completion of the evaluation, based on their area of working, more senior staff will be assigned to either one or multiple mentees. If multiple mentees are assigned, a peer-mentoring program should be incorporated to achieve better performance. In this phase, the objectives of this relationship should also be established.

Phase 2 - Maturing Phase: In this phase, the mentor and mentee will have multiple discussions aiming to establish more concise career goals for the mentee. Once the goals are set, a reasonable timeline will be agreed to accomplish them and certain skill-sets will be supported either on-job training or continuing education. While mentees are developing en route, the mentor will also take on the role of sharing his/her experiences through active discussions and regular meetings.

Phase 3 - Declining and Exiting Phases: As mentor reaches his/her retirement age, in this stage, his/her daily task should be reduced to a minimum and more focus on mentoring. On the other hand, the mentee should be moving into a different career stage. We recognize that, perhaps, his/her goals might not be all achieved or developed. Therefore, a potential replacement mentor might be assigned. However, the most important part of this phase is also to prepare mentees to take on new employees once they themselves reach close-to-retirement age.

If this program is established, we believe that it will have following benefits:

- Performance Enhancement: The reorganization of strengths and weaknesses on which a potential mentor can assist. It allows utilizing the aggregated workforce in a more effective way and increasing overall performance.
- Confidence and Productivity: A more confident employee will increase his/her productivity and create self-esteem. The enablement perception will change and rank above industry average. Furthermore, better skilled employees mean more promotable candidates.
- Reduced Turnover Rate: Satisfaction will reduce turnover rate for UBS. According to the expert interviewed, Professor Dr. David Clutterbuck, an organization-wide mentoring program is likely to significantly reduce the turnover rate by one third.

Moreover, UBS should consider **Reverse Mentoring** and **Partial Mentoring with Engagement**<sup>48</sup>.

Reverse Mentoring is aiming for improving the cross-cultural age and gender understanding to create a more integrated organization culture. This is done

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<sup>48</sup> Professor Dr. David Clutterbuck

through mentor and mentee from different culture background, having young employees mentoring old employees, or different gender between mentor and mentees.

Partial Mentoring with engagement can be implemented when top management team spotting young talents in the organization as their mentees each year. Those mentees will be grouped into a “Shadow Board”. Through mentoring and coaching, the mentees will be involved later for simulation on Board-Level decision making. The potential benefits for partial mentoring with engagement are that those mentees will learn how to think strategically and act as ambassador within the organization.

#### **4. LIMITATIONS AND CRITICAL POINTS REGARDING OUR RESULTS**

Of course, as with every research, there are limitations or critical points. First, regarding the sample selection we took from a German mid-cap index there are some degrees of freedom regarding the conclusions we have drawn and its fitting to the Swiss financial service industry. However, the expert interviews revealed that the questions interpolating the social sustainability measures are highly relevant for Swiss financial companies, too.<sup>49</sup>

Second, the expert interview showed that the companies calculate the turnover for every career level and compare it to a target turnover rate. In our model the data is always aggregated based on the available data in annual and sustainability reports which might restrict its validity for career levels. We therefore assumed for UBS that it is rather the middle-aged staff who leaves the company than the senior staff and that turnover rate is highly influenced by the middle-aged staff today.

Third, from a theoretical point of view there could be raised critics about mentoring studies as many of them are survey based and examine subjective dimensions (e.g. satisfaction, self-esteem). Therefore we consulted practitioners to challenge our previous findings. According to them it is promising to extend the mentorship and training culture to a broader range though there is limited data available on that.

Fourth, an in-class survey followed by an animated discussion revealed that trust is a critical dimension when considering to implement mentoring.<sup>50</sup> Though we assumed that the senior staff would be eligible based on wisdom and their stage in career there could, of course, arise trust issues without additional provisions. While most studies<sup>51</sup> connote trust with mentorship there are studies

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<sup>49</sup> Appendix Interview I, q.5

<sup>50</sup> Cf. Results from the in-class survey

<sup>51</sup> Cf. Bouquillon., 2005 ,247 ; Cf. Erdem ,2008, p. 55ff

whereupon mistrust in mentoring can be provoked by stereotypes.<sup>52</sup> Thus it is important to know about this critical point when allocating mentors to their mentees.

Last but not least, it seems that as it is a prospective challenge not many companies are already considering to implement strategic efforts: “Especially in the financial service industry the discussion has not yet arrived to its full extent”<sup>53</sup>. Experts as Prof. Clutterbuck from the UK who we consulted in Interview II broadened our view on the possibilities to circumvent aging staff obstacles.

However, both experts assured us of the relevance of turnover analysis for retention matters and confirmed the disposition of our statistical results. We therefore consider our work to provide interesting contribution to a domain which is unknown in its entirety but throws a huge shadow ahead of many companies already today.

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<sup>52</sup> Cf. Cohen, 2002, p. 303-327

<sup>53</sup> Appendix Interview I, q.1

## APPENDIX

Figure 8 Switzerland's three-pillar pension system.

Switzerland's pension system

Needs-oriented pensions					
Pillar 1		Pillar 2		Pillar 3	
State pensions		Occupational benefits insurance		Private pensions	
Mandatory				Voluntary	
AHV/IV	Supplementary benefits (EL)	Mandatory benefits BVG/UVG	Extra-mandatory benefits	Tied pension (Pillar 3a)	Flexible pension (Pillar 3b)
Responsibility of the government		Responsibility of the employer		Responsibility of the individual	
<ul style="list-style-type: none"> <li>■ AHV/IV contributions                             <ul style="list-style-type: none"> <li>– Employer and employee: each 50%</li> <li>– Self-employed persons and those not gainfully employed: 100% self-funded</li> </ul> </li> <li>■ EL contributions                             <ul style="list-style-type: none"> <li>– Funded with federal and cantonal tax money</li> </ul> </li> </ul>		<ul style="list-style-type: none"> <li>■ UVG contributions                             <ul style="list-style-type: none"> <li>– Employer: Occupational accidents</li> <li>– Employee: Non-occupational accidents</li> </ul> </li> <li>■ BVG contributions                             <ul style="list-style-type: none"> <li>– Employer and employee: Employer contributions must equal at least the total contributions of all employees</li> <li>– Self-employed persons: 100% self-funded</li> </ul> </li> </ul>		<ul style="list-style-type: none"> <li>■ 100% self-funded (to close individual pension gaps)</li> </ul>	
<ul style="list-style-type: none"> <li>■ Retirement pension</li> <li>■ Child's pension</li> <li>■ Disability pension</li> <li>■ Disabled person's child's pension</li> <li>■ Widow's/widower's pension</li> <li>■ Orphan's pension</li> </ul>		<ul style="list-style-type: none"> <li>■ Daily benefits</li> <li>■ Retirement pension/capital</li> <li>■ Retired person's child's pension</li> <li>■ Disability pension</li> <li>■ Disabled person's child's pension</li> <li>■ Widow's/widower's pension</li> <li>■ Orphan's pension</li> </ul>		<ul style="list-style-type: none"> <li>■ Insurance or banking solution</li> <li>■ Any other savings and assets</li> </ul>	

<sup>1</sup> Art. 111 para. 1 of the Swiss Constitution serves as the legal basis

Source: AXA, 2013

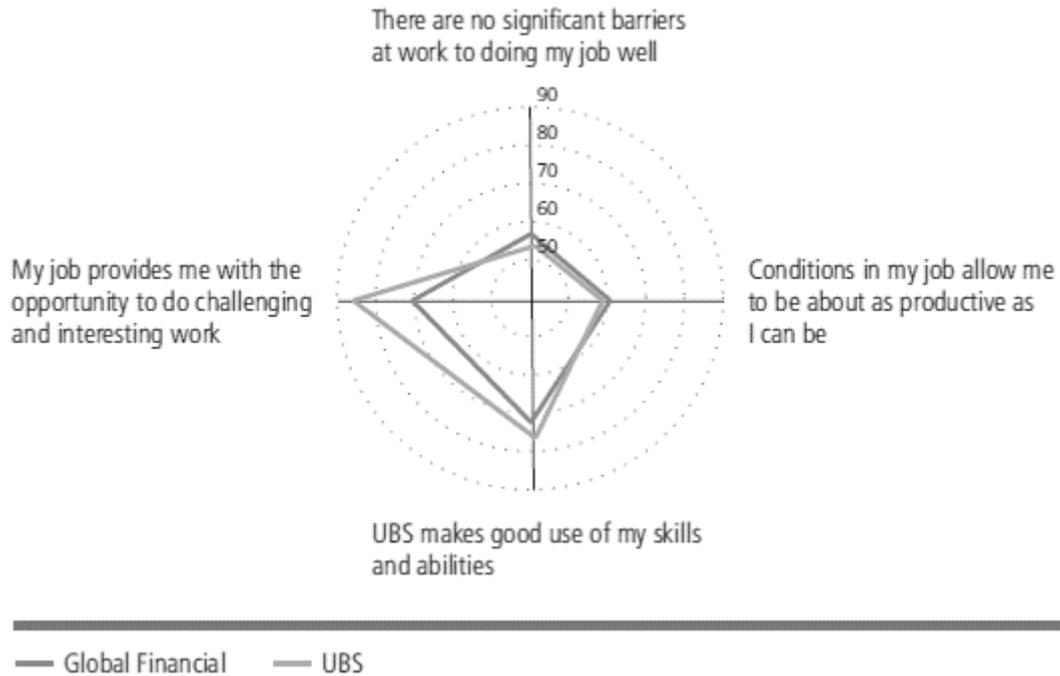
Figure 9 Employers' and employee's view on support for continued working in Finland in 2003/04 and 2011.

	Employers' support for continued working until retirement age					
	Strong support	Some support	Slight support	No support	Do not know	Total
	%	%	%	%	%	
<b>Employers</b>						
2004	14	46	26	9	5	100
2011	16	46	24	10	4	100
<b>Employees</b>						
2003*)	9	31	33	16	11	100
2011	9	33	32	18	8	100

Source: Tuominen, 2013

Figure 3 Employee survey UBS 2012

## Enablement



Source: Hay Group (2012)

Table 4 Studies on mentorship effectiveness

Studies included in meta-analysis

Authors	Year	Protégé <i>n</i>	Non-Protégé <i>n</i>	<i>k</i>	<i>MES</i>	<i>SE</i>	95% CI	
							Lower	Upper
Baugh, Lankau, and Scandura	1996	164	111	4	.362*	.06	.240	.483
Chao	1997	151	93	2	.303*	.05	.215	.392
Chao, Walz, and Gardner	1992	265	284	2	.179*	.06	.068	.289
Corzine, Buntzman, and Busch	1994	92	115	3	.324*	.08	.163	.485
Day and Allen	2004	61	64	2	.422*	.13	.171	.673
Fagenson	1989	86	150	3	.508*	.08	.351	.665
Fagenson	1994	46	54	3	.132	.12	-.095	.359
Mobley, Jaret, Marsh, and Lim	1994	66	51	1	.690*	.15	.401	.979
Nielson, Carlson, Lankau	2001	272	219	1	.178	.09	-.0003	.356
Ragins and Cotton	1999	614	548	7	.106*	.02	.065	.146
Schwerin and Bourne	1998	612	649	2	.169*	.03	.105	.233
Seibert	1999	18	43	6	.255*	.11	.043	.468
Wallace	2001	152	79	2	.249*	.06	.137	.360
Yoder	1992	236	154	2	.249*	.06	.131	.366

*k*, number of outcome effect sizes provided.

\*  $p < .05$ .

Source: Underhill, C. M. (2006)

## Head of HR from a leading financial service firm: Interview I

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Date: 29<sup>th</sup> October

Place: Zurich

Subject: Flexible retirement and its implication for financial service companies in 2030 and beyond

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### **1) Are companies ready for the effects of flexible retirement namely the increased share of senior workers?**

Especially in the financial service industry the discussion has not yet arrived to its full extent. There may exist some ideas how to involve the growing senior employee group into an efficient company structure but that is all still conceptual. For example, we consider to build up a retirement partner network with the goal to retain their knowledge. However, working in the financial service industry means a lot of pressure today so that people often consider rather the opposite. Some employee aged 50+ think about an early retirement. Others mainly at 45+ start their own business and quit.

### **2) Our work is based on a mentoring and training approach where the senior staff share their knowledge with the middle-aged. How can mentoring contribute to knowledge and employee retention for the middle-aged who may have the intention to leave as you indicated before?**

The mentoring approach is for sure a good measure to facilitate the business start. We see that the mentor himself profits from such arrangements. Nevertheless the mentoring is often a concept at the career-start. We don't have that measure on higher career levels, e.g. between middle-aged and senior staff.

To me the concept of mentoring and training at those more senior levels is promising. I think it is necessary to assist middle-aged employee in their career planning to retain the high potentials.

### **3) Do you think that is a good model to keep senior people active in the company?**

That is a quite personal view on a subject which may be differently answered from individual to individual. But as a HR responsible I think we should leave it to the employee to decide on what to do. We should give

him opportunities to roll out his career. So mentoring could be one way, part-time working another.

**4) After what we discussed so far: Do you see any pitfalls for mentoring to consider? In your opinion, what are the exact strategies and implementation a finance firm should consider?**

You have to communicate about the program so that people learn about it. It is quite difficult to introduce a new HR method without any attention-raising. Even to the public you should report about the impacts as human capital is becoming more and more important. Investors want a clear strategy, even on the non-financials. You see that in the rise of the sustainability reports where companies report about their sustainability approach. Investors expect that nowadays.

The exact strategy on how to implement sustainability measures like for example cross-generational mentoring is highly related to the chosen sustainability approach, the workforce-characteristics and the segment/level-turnover.

**5) In a model we tried to evaluate the impact of social sustainability measures onto the turnover rate. Do you think it is appropriate to measure employee retention?**

Indeed, we look closely at the turnover rate and it is obvious that this number is a good proxy to evaluate the strength of employee retention. We even go one step further and slice the turnover rate into finer parts, e.g. we distinguish between the different career levels and attribute to them a target-turnover rate. When we investigate that the turnover rate is rising over the target-turnover rate, we try to counteract.

**6) So you would have a problem when many middle-aged staff would leave at a time?**

Sure, like most companies our firm is structured like a pyramid. At a certain point in your career you have to take more responsibilities. The requirements begin to change. While you were hired because of your skills you have to stand out in terms of personality in your middle-ages. And like in many industries that means: Increasing sales. Can you imagine what happens when a lot of those middle-aged staff leave the company?

**Yes, profits might decrease.**

**7) Based on a German sample, we have researched sustainability measures (Health programs, flexible working hours, etc.) to retain employees in the company. In your opinion, what kind of measures have Swiss financial services companies introduced today?**

**HR is always seeking for measures bearing the ability to increase retention. I would say that good health programs and flexible working hours are already implemented though flexible time arrangements are used mostly by women. On senior level that concept is not common today, but may come up due to the aging workforce issue and demand.**

**Thank you very much for taking your time and sharing your thoughts from a practical viewpoint on that subject of flexible retirement with us.**

## **Results from the In-class Survey**

Given the theoretical basis of our work, we were eager to get real-life validation. After the expert interview, we had the chance to present our findings to a class at the University of St.Gallen on November 5, 2013. We were interested in the opinion of the students and therefore included a survey at the end of the presentation. 12 Master students and two experts answered our questions and provided us with new insights.

### **1. What are the first five words that come to your mind when you think of UBS as an employer?**

Survey participants had to answer this question in a short period of time. From the very obvious answers like “bank”, through the extreme like “Credit Suisse”, we received varied responses. However, we observed that the majority of associations about UBS as an employer were negative.

### **2. What do you think of working in the banking sector in general?**

Responses here were equally negative which indicates that respondents have a negative feeling towards working in banking in general and not necessarily specifically towards UBS.

### **3. Have you heard any stories from people working at UBS? If yes, do these employees like working there? Why?**

From the three respondents who have acquaintances working at UBS, only one mentioned that his contact likes working at the company. The main sentiment, again was negative.

### **4. Would you consider a career at UBS? Why?**

Not surprisingly, the majority (63%) of respondents don't want to start a career at UBS. Their reasons correspond to the previous answers.

### **5. Finally, participants were asked to rate the following statements on a scale of 1 to 7 (1 meaning “I don't agree at all”, and 7 meaning “I fully agree”).**

Table 5 Average, standard deviation and conclusion regarding the answers to the rating questions (5).

	<b>Average, s.d.</b>	<b>Conclusion</b>
<i>I consider social benefits when I apply for a job</i>	3.2, 1.1	Students are not motivated by social benefits. This may have to do with their young age
<i>I consider career development opportunities when applying for a job</i>	4.3, 1.4	Students are somewhat motivated by career development opportunities. Again, this may be in connection with their age
<i>I consider mentoring a significant value-added opportunity of a job</i>	2.7, 1.5	Mentoring is perceived as an opportunity with low value. It is interesting to note that the three students who have already participated in a mentoring programme, rated it absolutely ineffective (average: 1.33)

	<b>Positive terms</b>	<b>Negative terms</b>
<i>1. What are the first five words that come to your mind when you think of UBS as an employer?</i>	Good salary Prestige Swiss	Bad Dislikeable Unhuman practices Not innovative No personal life Stress
<i>2. What do you think of working in the banking sector in general?</i>	Compensation	Money driven Close-minded
<i>3. Have you heard any stories from people working at UBS? If yes, do these employees like working there? Why?</i>	Challenging job	Boring job Distant, hard to reach boss

Table 6 Typical answers to Question 1, 2 and 3.

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Universität St.Gallen

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**Megatrend 'Global Demographic Change' –  
Tackling Business and Society Challenges in 2030 and beyond**

**A Model on Using Demographic Indicators for Strategic Planning  
—Taking the Chinese government as an example**

Lecturer: Dr. med. Hans Groth, MBA

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Submitted by

Weihong Li

Xueqin Chen

## **EXECUTIVE SUMMARY**

This paper seeks to develop a model to integrate the Key Demographic Indicators (KDIs) into the process of strategic planning. To develop the model, a comparison is first made between a government and a corporation. It makes sense to view the government as a corporation to make strategic planning when they are both looking to serve the interests of the stakeholders and to ensure their development to be sustainable in the long-term. The important role that Key Performance Indicators (KPIs) play when a corporation makes a strategic plan provokes the possibility of applying KDIs for a government to make a strategic plan. Specifically, this model is applied in the China context and serves as a tool for the government. Four KDIs, the low population growth rate, aging population, shrinking labor force, and gender imbalance are chosen based on the risk analysis. A thorough situation analysis around the four indicators is conducted and the strategic plan for the government is accordingly set and discussed. Possible solutions include relaxing one-child policy, improving people's skills and qualifications through education, caring for the aging population and working towards a more equal gender balance.

All in all, the strength of the model lies in its simplicity. The KDIs are usually readable, standardized and relevant, so it's easy to set benchmark to measure the progress. And this model with KDIs surpasses the application of a set of indicators, because it makes the execution of strategic process more practical and systematical. However, this model also has its limitations because the difference between a government and a corporation still exist and cannot be overlooked. Thus, some pilot projects made at the local government level are suggested to test the effectiveness of the model. Meanwhile, due to China's typical one-party political system, the current largest population base in the world and the dramatic transition over last 30 years, other countries may encounter quite a few different situations when applying this model. But the concept of regarding the government as a corporation and the use of the KDIs to make the strategic plan may help them to set up their own strategic plans.

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## **1. INTRODUCTION**

Demographic changes are happening at unprecedented speed and will quickly change the face of the whole world. When conducting a strategic planning, it is necessary to know the current situation and seize the future trend. With their power of rapidly shaping the whole society and economy, demographic indicators should not be neglected in strategic planning.

As a country having around one fifth of the world's whole population, China is faced up with bigger demographic challenges than any other country. It is important for the Chinese government to be aware of these demographic changes, make a strategic plan, get ready for the coming challenges and achieve its goal of sustainable development.

This paper seeks to develop a model on how to use Key Demographic Indicators for the purpose of strategic planning. In the first part, a model is built up. In the second part, such a model is applied in the China context and serves as a tool for the Chinese government. Specifically, this paper points out the key demographic changes in China and drafts a strategic plan for the Chinese government to meet these challenges. In the third part, an evaluation of the model is made and hurdles to overcome are discussed. The last part is devoted to conclusion and further discussions.

## **2. MODEL**

### **2.1 Concept Clarification: Demographic Indicators**

In order to identify the areas where demographic change threatens the nation's wellbeing in the future and where intervention may be needed, demographic statistics are analyzed over the years. Firstly, the indicators include population size and density and changes over time. These are characterized by nativity, mortality and mobility factors. Secondly, in order to identify demographic challenges, the sex ratio and dependency ratio are also taken into account. Lastly, the life expectancy at birth and its development over time provide valuable insight into demographic change.

The sum of these indicators allows for a structured understanding and comparison over time and with other countries. These factors also facilitate the channeling of government efforts into programs to attain short-term and long-term goals.

### **2.2 Concept Clarification: Strategic Planning**

Strategic planning is "the managerial process of creating and maintaining a fit between the organization's objectives and resources and evolving market

opportunities” (Charles et al, 2010). This definition suggests the appropriate steps that a nation can take to achieve its long-term mission. First, the nation could conduct a risk analysis of its environment. Then it could review its major resources as providing key indicators to what it can accomplish. The environment and resource analysis together allow the nation to formulate new and appropriate goals that is achievable in the planning horizon. Strategic planning should be a “disciplined effort” that produces “fundamental decisions and actions” that shape and guide “what an organization is, who it serves, what it does, and why it does it, with a focus on the future” (Balanced Score Card Institute).

### **2.3 Define the Model**

The idea of our paper is to make a feasible strategic planning based on Key Demographic Indicators (KDIs) in a nation. That is, we try to deal with a nation’s challenges brought by the demographic change through a risk analysis of a nation with several KDIs and accordingly set up a practical strategic planning process at the national level.

The formulation of demographic strategy is a combination of rational and scientific consideration. The following is our model for a possible national strategic planning process:

1. Conduct a risk analysis about a nation to find out 3 - 5 KDIs for further analysis.
2. Conduct the situation analysis at the national level with the KDIs.
3. Review the goals of the demographic development the nation previously set, and re-align them with the KDIs.
4. Implement the strategy, assess the execution process and make further adjustments according to the KDIs.

### **2.4 Rationale for this Model**

When comparing the apparent goals of a corporation with those of a government, the former is to make profit and serve the interests of the shareholders and the latter is to maintain a sustainable development which include make economic development, maximize the employment rate and secure the social stability etc. to serve the whole nation. But if we look at the goals of the government into more details, we may find out the goals are mostly realized by a similar way of making money just as a corporation does, through taxation and money printing. What’s more, the goals of the corporation are becoming wider at the same: serving not only the interests of the shareholders but also those of the stakeholders and seeking not just its profit in the short-term, but also its possibility of making sustainable development in the long-term.

Thus, when what the government and the corporation serves are towards the same group with a same focus in the long term, it may make sense to regard a government as a corporation.

What's more, the widespread use of planning techniques in corporations has led to many comparisons to government strategic planning (Weidenbaum et al, 1977). If corporations are preparing to pay attention to where their companies are heading, it seems appropriate for the government to do the same.

Many corporations integrate Key Performance Indicators or KPIs into their strategic planning process. KPIs can be defined as “financial and non-financial measures or metrics used to help an organization define and evaluate how successful it is, typically in terms of making progress towards its long-term organizational goals” (Wikipedia). And one important role that KPIs contribute is to “give substance to the high level aspirations outlined in the corporation’s strategic documents and in doing so to make them both more tangible to those who must make progress towards them and those whose job is to measure this progress.”

As far as a government is concerned, it may be appropriate to integrate the Key Demographic Indicators which serves the similar roles of the KPIs into its strategic planning process to make the strategic planning more tangible to the local governments who must make progress towards them (execution) and the central government whose job is to measure this progress (implementation, measure and adjustment).

### **3. APPLICATION: TAKE CHINESE GOVERNMENT AS AN EXAMPLE**

#### **3.1 Critical Demographic Indicators in China**

In general, the demographics of the People's Republic of China are identified by having the largest population in the world, low fertility and mortality rates, a relatively small youth division, an aging population and an unbalanced gender ratio with more males than females. The vast majority of China's populations live in the East. There are 56 ethnic groups, Han being the largest and accounting for 91.51% of the total population, and a high level of internal migration and urbanization.

In many respects, China’s demographic transition deserves praise: the Chinese government has controlled the Chinese population to a limited level, limiting the heavy burdens on the environment and resources. The whole population’s life expectancy was dramatically increased and an unprecedented decline in mortality rate was achieved. “Nine Year Compulsory Education”(九年义务教育) has been implemented and millions of students have gotten access to school in all regions. The social status of Chinese women has been largely improved and gender equality is getting closer.

But behind these achievements, there have been strict policies and controls, among which the most influential and debatable is the one-child policy (计划生育政策). Such policies have contributed to limiting the total population in the past. However, the transition has been accomplished in an unnatural way and happened too rapidly, causing structural problems such as too low fertility rate, unbalanced gender ratio and ageing population.

Therefore China is entering a new demographic era: the overpopulation in the country has been efficiently controlled, but meanwhile different structural problems are emerging and posing new challenges to the Chinese government. In order to understand China's current demographic challenges, four indicators are critical: low population growth rate, aging population, shrinking labor force, and gender imbalance.

Why should China care about these four indicators among many others? Because they are under rapid transition, historically unprecedented. They are imminent and inevitable. For example, China's aging process is happening far more quickly than in any other country. And different from developed countries, China's population is growing old before getting rich enough to afford taking care of the elderly. These are not slow-moving developments, not long-existing phenomena, but are imminent crises. These demographic changes will in the future drive the country's economic and social dynamics, and will redefine China's position in the global economy. With the proper strategies, these challenges can be taken as opportunities to reform the country's structure. Without the right steps, they will develop into a real crisis.

## **3.2 Demographic Situations in China**

### **3.2.1 Low Population Growth Rate**

China conducted its sixth national population census on 1 November 2010 and released its major results in April 2011. This census was claimed by the National Bureau of Statistics to be of high quality and shed new light on China's demographic situations. According to the 2010 Chinese Census, the total population of Mainland China was 1,339,724,852 persons, an increase of 73,899,804 persons from the 2000 population census.<sup>54</sup> The whole population increased by 5.84 percent during the ten years from 2000 to 2010, and the average annual growth rate was 0.57 percent (NBSC, 2011). The population growth rate has continued to be low in the new decade. In 2012, the population growth rate in China was only about 0.49%, ranking 152th in the world (World Bank, 2013)

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<sup>54</sup> This figure excludes foreign nationals, residents of Hong Kong, Taiwan, and Macau temporarily staying in Mainland China, and Chinese citizens who have permanently settled abroad, but includes Chinese citizens who were temporarily abroad when the census was taken.

The UN predicts that China’s population will peak at 1453 million in year 2030 and then start falling (Table 1). China will be overtaken by India to become the country with the largest population in the world. And that will have a tremendous economic and social impact both on the domestic and international level. No society in human history has had a consistently declining population and has yet been able to sustain high economic growth rates (Oliver, 2013). China’s share and influence in the global markets will also be revalued by other countries and multinational companies.

*Table1: China Population Projection (2020-2050)*

Year	Population
2020	1,432,868,000
2030	1 453, 297,000
2040	1 435, 499,000
2050	1 384, 977,000

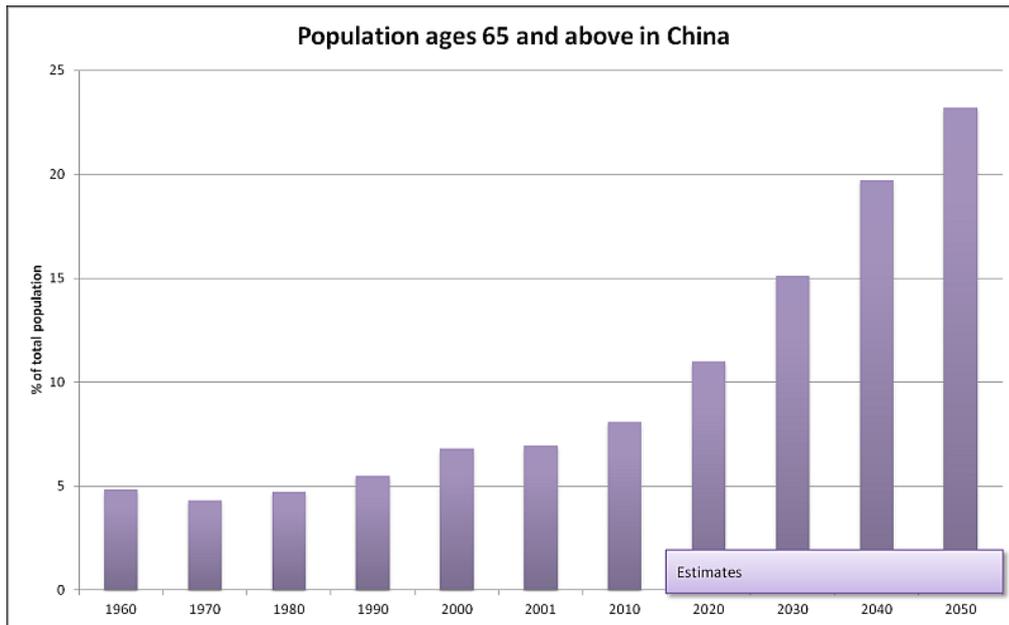
*Source:* Based on data from Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, *World Population Prospects: the 2012 Revision*

### **3.2.2 Aging Population**

Another demographic trend to pay attention to is aging, as China experiences a dramatic fall in fertility and mortality rates. The Chinese population’s overall health has significantly improved and China has achieved in 50 years—increasing life expectancy from the 40s to over 70—what it took many European countries a century to accomplish (Wang, 2010). Its mortality rate has dropped to a level approach that of the most developed countries. Meanwhile, the 2010 census reported a total fertility rate (TFR) of 1.18 (Wang & Fu, 2013), which is falling below the replacement rate and is among the lowest level in the whole world, partly due to the “One Child Policy”. Because of the high speed of transition from high to low fertility and mortality rates, as well as the large size of Chinese population, China is faced up with a much more challenging demographic change than other countries that have experienced aging population. The time left for china to get ready for a rapidly aging population will be far less than for other countries.

At the moment the people at and above the age of 65 accounts for about 8% of the whole Chinese population. But it is projected that by 2050 the percentage will dramatically increase to 23% (See Figure 1).

Figure 1: Population ages 65 and above in China



Source: Leeder et al., Columbia University, 2005

Traditionally the elderly in China are looked after by their families, which was a main drive for the Chinese parents in the past to give birth to more children as a guarantee of secured life standard when getting old. But now, thanks to the One Child policy, an only child will have two parents and possibly four grandparents to look after, which is sometimes described as “4–2–1” formula (Bare, 2011). This means that in the future the elderly clearly will not be able to rely on their children to care for them as they have in the past, leaving the state to carry the burden, which could be a massive problem.

### 3.2.3 Shrinking Labor Force

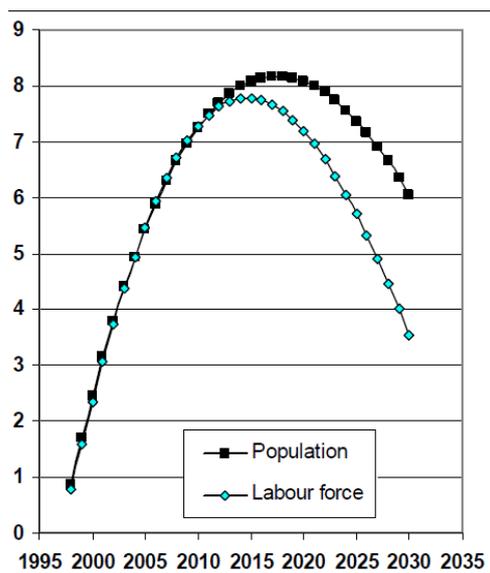
In the past three decades, China’s economy has taken off and rapidly expanded, which is largely due to a highly favorable demographic context: its large youth population. More than 160 million internal migrants supplying abundant labor provide a quickly growing and cheap workforce, allowing China to become the “world factory”. Manufacturing with low cost for almost every product largely contributed to this country’s booming economy. This demographic benefit, sometimes measured as a “demographic dividend”, is estimated to have accounted for 15 to 25 percent of China’s economic growth between 1980 and 2000 (Wang, 2010).

But the demographic dividend will soon be used up. According to statistics released by China’s National Bureau of Statistics in January, 2013, the size of the labor force (people aged 15 to 59) in China shrank slightly to 937.27 million people in 2012, a decrease of 3.45 million from 2011 (Jamil & Ed, 2013). This trend, resulting from the extremely low fertility rate, will continue for at least the

next 20 years until 2030 (See Figure 2). Fewer young people will join the work force, and working-age population in China is now shrinking for the first time. The era of abundant supplies of young, cheap Chinese labor is soon to be history.

Without the benefits from an endless stream of labor force, is China losing its competitiveness in the global market? Wages will be pushed up and might also cause inflation pressure in China. Global manufactures might leave China and seek for cheaper labor in other countries. How can China deal with this challenge, maintain its competitiveness and obtain sustainable development? China needs to find a way out.

Figure 2: China's Projected Populations and Labor Forces



Source: Rod T. & Jane G., 2006

### 3.2.4 Gender Imbalance

Another challenge for China will be the serious gender imbalance, which has resulted from the one-child policy and sex-selective abortion due to the traditional value of preferring boys over girls.

According to the 2010 census, in mainland China the males accounted for 51.27 percent of the 1.34 billion people, while the females made up 48.73 % of the total. The sex ratio (the number of males for each female in a population) was 105.20%, 1.54% lower than that of the 2000 census (NBSC, 2011). Optimistically, the sex ratio will decline in the future and go back to balance in the long run: It costs much more to bring up a boy than a girl because many Chinese parents have to pay for their son's wedding, buy a flat for the new couple etc. Also the traditional idea of a daughter "marrying into" another family is gradually disappearing, with more and more new couples living separately

from both sides of parents and having their own family. There is even a sense in China now that a daughter may look after her parents better than a son. Therefore, we could foresee these high ratios to come down gradually in the future; however, it will take a long time till it reaches a balanced level.

Despite this, today China still faces challenges in balancing its gender ratios, as the sex ratio at birth was 118.06% in 2010, which was still beyond the normal range (See Table 2). At the moment there are about 9 million more boys than girls in China (Wang, 2011). The gender imbalance in china is leaving a large amount of young men unmarriageable and unsatisfied. They are likely to become a force for instability and crime, threatening the country’s economy or social cohesion. These situations led the government in July 2004 to ban selective abortions of female fetuses. And yet we must continually pay great attention to this problem and take more effective measures to promote sex equality in terms of employment and salaries.

*Table 2: Sex Ratio at Birth in the World (2005-2010)*

Sex ratio at birth	Percentage of male births	Number of countries and territories	Percentage of countries and territories
101	50.2	1	0.5
102	50.5	4	2.0
103	50.7	38	19.4
104	51.0	14	7.1
105	51.2	72	36.7
106	51.5	43	21.9
107	51.7	11	5.6
108	51.9	7	3.6
109	52.2	1	0.5
110+	52.4 - 54.5	5	2.6
Total		196	100.0

Source: Data from United Nations (2011)

### **3.3 Strategic Goal and Priorities in the Demographic Policy**

It is people that make up the most important and precious asset to a nation. They have “a right to a worthy existence and adequate participation in society, to good health and productive life in harmony with nature”. (National Demographic Strategy of the Public of Bulgaria, 2006 - 2020)

The demography policy is an integral part of the overall policy of a country. Sustainable development is a means to ensure the prosperity of Chinese citizens – both of the present and the future generations. And sustainable development can be achieved by creating a rational and balanced management of population, resources and environment.

The National Population Development Strategy Research Group in China made a clear the strategic goals of national population development for the first time in 2007:

*By 2010, to markedly improve the quality of the population; to guarantee that people enjoy basic medical services; to popularize the nine-year compulsory education policy; to lower the poverty rate; to adjust the rising gender imbalance; to alleviate the widening gap between rural and urban regions; to improve living conditions.*

*By 2020, to significantly improve the quality of the population; to ensure better healthcare system; to reduce the size of the impoverished population; to balance the sex ratio; to narrow the gap between rural and urban regions; to significantly improve people's living conditions.*

*By 2050, to reach the population peak and slowly reduce the population size; to ensure the per capita income of the Chinese people is equal to that of a moderately developed country; to improve the quality of the Chinese population; to establish a reasonable population distribution and employment structure; to realize a balanced development between urban and rural areas; to create an environmentally friendly and modern living environment; to basically realize national modernization.*

It can be concluded that, the goals set for the short-term (by 2010) can only be achieved gradually through several phases till 40 years later (by 2050). These goals that are persistently carried out from the short-term to the long-term, such as to improve the quality of the population, to improve the healthcare system, to narrow the gap between the rich and the poor and to balance the sex ratio, are all around tackling the problems addressed by the four critical demographic indicators: low population growth rate, aging population, shrinking labor force, and gender imbalance. So instead of making too many goals one time, it makes more sense to monitor these four KDIs and conduct the strategic plan accordingly.

### **3.4 Strategic Plan of the Chinese Government**

The Chinese government should be clearly aware of the demographic challenges and the crisis they might pose. Both short-term and long-term strategies need to be made. Fast actions are recommended, because the current high economic growth rate offers a great opportunity to adjust social structures. Among all kinds of strategies, the following four are essential:

#### **3.4.1 Relaxing One-Child Policy Won't Really Work**

When trying to solve the problem of low fertility rate and shrinking labor force, there is a misconception that relaxing the one child policy will do the magic. The

Chinese government is also trying some pilot programs to boost fertility rates, such as allowing only-child couples to have two children. It is true that the one child policy has had an impact on dramatically cutting down fertility rate in the past, but it won't necessarily work the other way around.

It is important to acknowledge the significant change in reproductive culture in China. Mostly because of the high cost of bringing up children and the international influence shaking the traditional values, more and more families tend to prefer having only one child or even stay without any child. Even if the Chinese government relaxed its family planning policies it is very unlikely that China's fertility would bounce back to and stay around the replacement level (Zhao & Chen, 2011). Also, even if the fertility rate does go up slightly, it will take at least 18 years until the workforce grows again.

The fertility rate in China will never reach a natural and balanced level, until the affordability constraint is solved. The Chinese government is responsible for creating a friendly environment for babies to get born and to grow up: lower property prices to solve housing difficulties, affordable access to education and medical treatments.

### **3.4.2 Improve People' Skills and Qualifications through Education**

China's workforce is inevitably shrinking, but there is space for improvement in productivity and innovation. China is forced to move from a low cost manufacturer towards an innovation-driven economy. To achieve this goal, education plays an important role.

The Compulsory Education Law of the People's Republic of China (中华人民共和国义务教育法), which took effect on July 1, 1986, guaranteed school-age children the right to receive at least nine years of education (six-year primary education and three years secondary education) (Wikipedia, 2013). However, to make sure that every child benefits from this law, further steps have to be taken. Special funds from the central and local governments should be raised to improve schooling conditions in impoverished areas. The tuition fee in rural areas should be waived without any conditions or new other fees to make sure that the children from poor families can also seize the chance to get at least the basic education. The local government and community, especially in rural areas, should raise the parents' awareness of the important role of education and encourage them to support the children's education.

Meanwhile, higher education in China is continuously growing, changing and developing. There are over 2,000 universities and colleges, with more than six million enrolled students in total (Yu, 2013). However, more creative thinking and real-world experience should be added to these universities if China wants to adapt to the global market and aims for excellence. Also, for those students who are not able to excel in College Entrance Exams (高考), there should be

more high-quality institutions focusing on developing students' practical skills in different industries.

### **3.4.3 Care for the Aging Population**

The aging population in China is forcing the government to reallocate resources and shift priorities. More funds meet the rising demands for public services.

In the past the health care and pension system only covered people working in big companies and government sectors. The Chinese government is already taking measures to expand the scope of coverage, especially to those who are in the most vulnerable situations. For example, the New Rural Cooperative Medical Care System (NRCMCS) is a new initiative that was established in 2003 to overhaul the healthcare system, particularly intended to make it more affordable for the rural poor (Dib & Pan Xilong & Zhang, 2008) More efforts to expand access to government pensions and to encourage saving for private pensions should be made, to guarantee a proper living standard for the elderly and lighten the burden of the young generation.

Besides building a social security net through extending health care and pensions, more care should be given to support the elderly people. Seeking for better opportunities, many young people are leaving home to live and work in another city, leaving their old parents alone in their hometown. These lonely old people are called "empty-nesters" (空巢老人) and are drawing more and more social concerns in China. The local governments should invest more in community construction, entertainment activities for the elderly and social networking to create a friendly environment for the elderly.

### **3.4.4 Gender Equality**

To insure the balance of the gender ratio in the future, the Chinese society has to achieve real gender equality. Anti-discrimination laws and rules on equality and female rights will have to be completed and strengthened. Selective abortions of female fetuses need to be strictly banned. The government needs to protect the rights of the females in the rural areas to get equal quotas of housing and land, protect the females in the urban areas to have equal rights in employment and income.

## **4. EVALUATION OF APPLYING THIS MODEL ON CHINESE GOVERNMENT**

### **4.1 Strengths & Applicability of this Model in China**

As far as the model alone is concerned, the strengths are showing in the following aspects: 1) Regarding the Chinese government as a corporation makes sense when making the strategic plan due to their converging underlying goals; 2) using KDIs surpasses the application of a set of indicators, because it

simplifies the demographic problems for a giant like China and makes the execution of strategic process more practical and systematic; 3) KDIs are usually readable, standardized and relevant, so it's easy to set benchmark to measure the progress.

As far as China is concerned, the one-party-system Chinese Communist Party ensures China could formulate a long-term strategic planning for national development and ensure stabilization of its policies without being affected by changing of the parties and ideology. The trend thus can consistently be reflected by the chosen KDIs and the effectiveness of the strategy is also testable. On the other hand, the Principal Officials Accountability System in China is also gradually improved and officials hold accountability for their mistakes or incompetence at any time when the problems are found out. This system thus defines the roles and responsibilities assigned in the demographic development strategy concretely.

#### **4.2 Hurdles to Overcome during the Application of this Model**

The application of this model in China has also its limitations. Firstly, the model can easily be regarded as static rather than dynamic. The party has already presumed that its opinion represents the collective interest of the whole nation. If the policy-maker makes one strategic mistake, it takes years to adjust or recover. On consideration of this point, we conclude it may be easy to find out update the KDIs but maybe very difficult to communicate effectively with all the members and to make in-time and necessary adjustments on the strategy. Secondly, it may be very difficult to get accurate demographic data due to the vast territory, the extension of economic activities and frequent movement of floating population (National Bureau of Statistics of China, 2010). So some bias may exist in the KDIs. Thirdly, the KDIs may lose their validity if there is a dramatic change in government policy.

Given the current political system in China, it's necessary to form a think tank including economists, sociologists, historians and departments of defense and environment etc. to conduct the risk analysis together instead of making a critical demographic decision via the internal discussion between demographers and the Family Planning Commission, thus reducing the huge opportunity cost of making a strategic mistake in China. The reliability of the data can only be improved with a gradual well-established legal system and record system. With respect to testify the validity of the chosen demographic indicators if the government policy shifts, we may further conduct sensitivity analysis within a certain time frame to include and exclude the occurrence of several demographic events in history.

## **5. CONCLUSION**

Among all the aspects that need be considered when making a sustainable strategic planning, is the demographic development strategy of pivotal significance thanks to its radical impact on economic growth, policy-making, environment dynamics and technological change (Misoulis, 2003).

The use of Key Demographic Indicators when the government makes a national strategic plan is comparable to the use of the Key Performance Indicators when a corporate makes a corporate strategic plan.

However, we take a lot of presumptions when compared the government to the corporation and only apply this concept when making the strategic planning. The difference between a government and a corporation still exist and cannot be overlooked. Some pilot projects made at the local government level are suggested to test the effectiveness of the model.

Due to China's typical one-party political system, the current largest population base in the world and the dramatic transition over last 30 years, other countries may encounter quite a few different situations when applying this model. But the concept of regarding the government as a corporation and the use of the KDIs to make the strategic plan may help them to set up their own strategic plans.

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Universität St.Gallen

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**Megatrend 'Global Demographic Change' –  
Tackling Business and Society Challenges in 2030 and beyond**

**Population Dynamics and Its Implications  
— Northern vs. southern Europe**

Lecturer: Dr. med. Hans Groth, MBA

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Submitted by

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## **Executive Summary**

The present paper focuses on population dynamics in Northern and Southern Europe. After giving an overview of the main trends of demographic changes in Europe as a starting point, differences and similarities between the two regions are examined and explained by specific underlying mechanisms via the PESTEL analysis. As looking only at trends does not give any information about what opportunities and challenges they represent, the paper afterwards focuses on their implications for business and society. The discussion focuses on the implications of demographic ageing, as according to forecasts, this will be the main phenomenon that humanity will face by 2030. In the end, two illustrative cases are presented - Sweden and Italy – to discuss whether they fit the framework of their regions and what the main implications will be for them. The paper found the following main trends: the Nordic countries have higher fertility rates and a more stable demographic structure than the Southern, but both regions show signs of demographic ageing, as well as increasing dependency ratios and population numbers. Main reasons for differences are varying infrastructures, education basis and societal conditions. The similarities can mainly be explained by political factors. The implications for business and society till 2030 can be specifically addressed with respect to four domains - the economy, fiscal and immigration policies, health and financial markets.

## 1 Introduction

Across many European countries it is highly doubted from the side of the public and the media (e.g.: in Switzerland<sup>55</sup>) that pensions are secured in the future. People acknowledge that their society is transforming and fear that they will not receive sufficient assistance once they reach retirement age. However, pensions are only one issue among many others - such as changing needs of the society due to aging - to be addressed in the future. All this impressively demonstrates how important it is to examine the demographic changes in order to be prepared with policy alternatives, financial market adjustments and business and health care models adaptations.

How well countries will do in the future and especially how well they will handle population dynamics depends strongly on infrastructural circumstances and other initial country-specific conditions. The sample of countries from Northern and Southern Europe do not only show geographical distance, but also political, economical, societal, technological, educational, cultural, legal and environmental differences. In this paper, demographic trends will be examined, the North and the South compared, implications analysed and illustrative cases provided. Policy options and areas which require special focus will be suggested for Italy and Sweden.

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<sup>55</sup> <http://www.tagesschau.sf.tv/Nachrichten/Archiv/2009/01/28/Schweiz/AHV-mittel-und-langfristig-nicht-gesichert>

## 2 Differences and Similarities between Northern and Southern Europe

Every country has its own specificities. Whether due to culture, environment, politics or simply a different mindset, these specificities fundamentally set the pace of its development and the well-being of its inhabitants. Nowadays, economics are so interconnected that one country's decisions strongly affects those of others. Despite being situated on a relatively small area, European countries show fundamental differences in all spheres of their existence, the spread being astonishing from the most southern to the most northern parts of the continent. In this section, the differences and similarities in the population dynamics drivers between the Southern and Northern parts of Europe will be investigated. For this purpose, first a short overview of the general trends that are present in the EU-27 countries, together with Switzerland, Iceland, and Norway will be given. The purpose is to provide average population dynamics trends for Europe to serve as a starting point for regional comparisons. EU-27 gives the most comprehensive average data, complemented by that of the above-mentioned non-member states. Then the paper takes a more granular regional level and investigates how the countries from the South and the North deviate.

Various research papers and agencies define the countries from the two regions quite differently. For the purposes of the paper, we have chosen countries that are commonly defined as either northern or southern in all literature, so that there is no contradiction about the results. As representative of the northern countries, we use the Nordics – Denmark, Sweden, Norway, Finland, Iceland (Nordic Cooperation, 2013). The representatives of Southern Europe will be Italy, Spain, Portugal, Greece, Malta, Cyprus. Comparing countries at a regional level evens out the discrepancies that might come up if we compare only countries. For example, a comparison between a country like Malta to a country with a much larger population, such as Sweden, might not give us meaningful results (European Commission, Eurostat, 2012). Both sets of countries exhibit relatively similar characteristics with respect to wealth, culture, etc., therefore we expect to be able to draw conclusions based on the averages, as we will not have noisy outliers.

Throughout Europe, as a part of the developed world, countries find themselves in the 4<sup>th</sup> stage of demographic evolution. This will generally mean that population ageing, decreasing mortality, and increasing dependency ratios will be omnipresent phenomena (Lecture 1, Dr. Groth, 2013). When talking about population dynamics, it should be pointed out that there are two main change drivers. The first one is the natural change of population, which is the difference between total births and total deaths. The second one is the net migration (foreign citizens that became residents of the country minus local citizens that left the country), which might counterbalance or exacerbate the effect of the first one. Intuitively, this section will be looking into the mechanisms of those drivers and their trends. The first change will therefore mainly come from the changes in fertility rates and life expectancy, which will be

complemented by the effect of net migration (European Commission, Eurostat, 2012). Net migration is, however challenging to forecast and expect, so the main trends will come from fertility rates and life expectancy. Based on the results, conclusions will be drawn about whether the population is facing an increase, stagnation or decline, what is its age structure and most importantly what the forecasts, future implications and challenges be.

Europe's population is increasing. However, since the 1980s this increase has been at a slower pace. The main factor is the natural population change, which has been negative for the majority of European countries. Persistently low births and continuously increasing life expectancy are resulting in an older population age structure, which is already apparent in some European regions (see appendix, fig.1). The population of EU-27 has increased by 98.5 mln. inhabitants between 1960 and 2010. Until 1964 the driver of the population increase was the natural population change, which was positive. Until 2003 it was balanced, meaning that total births almost equaled total deaths. For the years between 2003 and 2010, the rate was positive at about half a million people on average within the EU. Total fertility rate in European countries was on average about 2.5 in the 1960s and has currently dropped to about 1.6 (See appendix, fig. 2 & fig. 3). Net migration on the other hand, during the 1960s, was balanced around zero, followed by low levels until approximately 1992. Ever since, it has been a stronger factor in the population change increase. In 2010, it was 1.7 per 1000 inhabitants, compared to a natural rate increase of 1 per 1000 inhabitants. From the non-member states, Norway, Switzerland and Iceland reported population increases in 2010. Norway and Iceland (Nordic countries in general) reported a higher than average birth rate, while Southern and Eastern European countries reported the lowest rates. As for the age structure of the population within Europe, the current dependency ratio (relationship between elderly population 65+ and working-age population 15-64) is 25.9% as from 2010 (European Commission, Eurostat, 2012). Based on the numbers, we can conclude that even though on average the European population is growing, it is growing at a slower and slower pace with uneven distribution among countries and there has been a change in the main drivers. Currently, net migration is outweighing the natural population change in numbers. This will be discussed further in the implications part of the paper, but in short, this might be a problem, because net migration is very difficult to forecast. Therefore, countries might be faced with challenges when planning future policy changes. Due to the persistently low fertility rates, increasing life expectancy, European population is ageing – the number of elderly is increasing, while the number of people in working age is decreasing. These outcomes will require business, economic and social changes in the future and even now, such as healthcare, social security, education and labor force adjustments.

After having given a short overview of the general trends in the EU-27 countries, we will move to a more granular regional approach. Despite those trends, the population changes are spread quite unevenly among the different regions. The discussion

focuses on two regions – Northern and Southern Europe – as two extremes according to demographic indicators. The best population dynamics scores were given to the northern countries, led by Iceland and Sweden, while the lowest were given to the distant southern and eastern countries (Berlin Institute for Population and Development, 2008). Next the paper focuses on their general population dynamics, what are the similarities and differences between them and how they deviate from the European average.

## **2.1 Nordic Countries**

The Northern region is represented by Denmark, Finland, Iceland, Norway and Sweden, as mentioned above. The Nordic countries are ranked with the best scores of population dynamics indicators. At the beginning of the 20<sup>th</sup> century, there were almost 12 mln. people living in the Nordic countries. In 2012, there were 25.1 mln. inhabitants in the region and the expected increase is 3 mln. inhabitants over the next 40 years (Nordic Co-operation, 2013). Population is still increasing, despite the slower pace. They have above-average fertility rates, relatively stable demographic structure, good education and employment levels, as well as a high GDP (See appendix, fig. 4). The high fertility rates and sustained positive migration are reasons for stable population levels. Academics attribute the decline in fertility rates to the change in the society roles of women from 1960s onwards – mainly to equal access to education, which results in more career aspirations. However, giving more equality to women was successful in the northern states. Average fertility rate ranges from about 1.7 to 2 and above (the highest in Europe is Iceland) (European Commission, Eurostat, 2008). According to studies, a fertility rate of at least 1.7 will be able to keep the population levels stable in the presence of moderate immigration. (Berlin Institute for Population and Development, 2008). However, the fertility rates are high when we compare them to the EU average. If we take the Nordic population per se, it is ageing – life expectancy has been increasing, while mortality and fertility rates have been decreasing (See appendix, fig. 5). Currently, the share of population of 80+ years old in total population is 4.7%, while in 2040, it will be 8.5%. Looking at the dependency ratio, it is currently 28.5 %, not that different from the EU average. Projections show that by 2030, the ratio will be 41.5% (Nordic Yearbook, 2012). The trend is common for all Nordic countries. The Nordics have more elderly and more young people than the EU average, however, they have fewer “young adults”. Life-expectancy has been increasing steadily throughout the 20<sup>th</sup> century, while mortality rates have been decreasing. The reasons are mainly welfare, better living conditions, and other factors, which will be discussed in the next section. The average life expectancy between men and women is about 80.91 years. Finally, we need to consider net immigration. It has been positive for the Nordic countries, which has contributed to their relatively stable population level. While Sweden has been the main immigrant destination of all, the average immigration for the region as of 2004 was 7.1

immigrants per 1000 inhabitants. We take this number, because later estimations fail to differentiate the immigrants that had already obtained the country nationalities (Rauhus et. al, 2008).

## **2.2 Southern Countries**

In comparison to the success story of the northern countries, we have a very different situation in the South. The region has been faced with a large number of negative demographic phenomena, such as extremely low fertility rates, large outward migration of young people, and remaining aged population, which is not socially well off. As of 1<sup>st</sup> January 2011, the enumerated countries have a total population of approximately 129.9 mln. people. Projections show that by 2050, the population of the region will have reached 150 mln. (Vienna Institute of Demography, 2012). Fertility rates are currently well below 2.1, which is the necessary number to sustain long-run population stability. According the national statistics offices, by 2030 the population (taking only the natural rate of population into account, without migration) in Southern Europe will decrease by between 0% to 6%, most dramatically in Northern Greece, Southern Italy and Northern Spain (Berlin Institute for Population and Development, 2008, see appendix, fig. 4). The majority of southern regions have average fertility rates of between 1.2 and 1.4, which is below the European average (European Commission, Eurostat, 2008, see appendix, fig. 6). Similar to the northern countries, the general European trend of population ageing is valid as well. Currently the share of population of elderly above 65 years old to the total population is 18.8%, above the European average and much above the northern European countries'. Projections show that by 2050 this will be exacerbated and the ratio will reach 32.4% again one of the highest. Looking at the dependency ratios, the trend is the same (Vienna Institute of Demography, 2012). Net migration in the region has also been and continues to be positive. According to Eurostat, the total immigrants in the region in 2010 have been about 1.1 mln. people, which is a driver of the population increase, counterbalancing the natural population rate.

Comparing the two regions between each other and to the European average, we can observe that the northern countries have a brighter future not only with respect to the south, but also with respect to Europe as a whole. They have higher than average fertility rates and a more stable demographic structure. A similarity is the common trend of population increase and ageing on the continent. Furthermore, dependency ratios in both regions have been increasing and are projected to increase, but while for the southern countries the ratio is currently and forecast to be higher than the European average, the northern manage to keep it lower (See appendix, fig. 7, 8, 9).

### 3 Explanations with the PESTEL Approach

In this part of the paper it is issued how those aforementioned differences and similarities of Northern and Southern European countries can be explained. This requires a tool which is able to serve a well structured answer and considers interdependencies of the elaborated demographic facts - the PESTEL analysis. Hence, both regions are examined on their underlying mechanisms. More precisely, the following six spheres function as basis for the analysis: political, economic, societal, technological, environmental and legal.

First order in business is the higher average fertility rate in the Northern part of Europe than in the Southern. A primary point to make here is the positive correlation between participation of women and fertility (Del Boca, Pasqua & Pronzato, 2003, p.2). This participation can be interpreted in terms of political, societal and economic factors. Economically spoken, in the Southern countries a lower employment rate of women can be detected, mainly due to fewer part-time jobs (p.4). Hence, it simply lacks of a supporting labor infrastructure which would encourage women with children to enter the market. This in turn is closely linked to the political and societal sphere. Especially problematic in this regard is the education system since school days often end early and therefore childcare would be needed for the rest of the day if the mother chose to work (p.5). Another tremendous disadvantage of the south is the more instable market situation where young adults find it difficult to acquire a secure job and therefore often stay at home way longer than it is usual in the North (p.8). This additional burden of the society in Southern countries sure isn't promoting fertility rates since a lot of families simply don't have the means to afford many children and support them. Average unemployment rates and average income levels<sup>56</sup> help to reinforce this argument. In the northern countries - Denmark, Sweden, Norway, Finland, Iceland - the estimated average unemployment rate was for 2011 6.4% and the average income level 42'080 US Dollars. For Southern Europe -Italy, Spain, Portugal, Greece, Malta, Cyprus - the estimated average unemployment for 2011 was 12,37% and the average income level 27'717 US Dollars. (date from Index Mundi, 2013) These figures illustrate clearly the tremendous economical differences between the two European regions. A second point to explain the higher fertility rate in Northern Europe concerns equality between men and women fostered by the legal framework, for instance regarding education. Particularly working life equality increases the number of born children, although it is also highly dependable, as already mentioned above, on the possibilities to unite job and family given by countries (Berlin-Institute for Population and Development, 2008, p.9). Technological reasons to account for fertility rate differences between Northern and Southern Europe are hardly applicable since the process of delivery doesn't require extraordinarily advanced technologies which could link better endowed countries like

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<sup>56</sup> Gross Domestic Product per capita

the Northern to a favorable position. Also environmental factors seem irrelevant for fertility rates.

Second order of business is the more stable demographic structure in the Northern European countries than in others and particularly Southern. An explanation for this fact refers to political, societal and legal factors. The infrastructure - an issue closely linked to all these three factors - of the Northern countries delivers one possible solution. Since their social systems, especially health care, are splendidly constructed and aid programmes are evenly distributed, meaning also in parts of the country with low population density, it enables an extensive development (Berlin-Institute for Population and Development, 2008, p.15). With an advantageous infrastructure demographic challenges can be tackled more appropriately and this again leads to a more stable demographic structure. Another supposedly argument for the more stable demographic structure in the North is also referring to the three aforementioned factors. It's about migration. Since Southern countries are the primary contact point of refugees and other immigrants, demographic numbers change constantly whereas in the North exists a much more systematic shelter-providing of immigrants and therefore a more stable structure could emerge. Although, by considering net migration as percentage of the entire population in each country, there are no significant varieties between states and there's no evidence to promote a distinction between Northern and Southern countries in terms of migration (European Commission, 2012b, p.297). Hence, the more stable demographic structure in Nordic Europe can only be explained through their superior social, political and legal infrastructure.

Thirdly to be discussed is the first regional similarity – the common trend of population aging, linked to the longer life expectancy in all parts of Europe. HelpAge has established a global age watch ranking where countries get compared on the basis of four factors - income security, health status, employment and education and enabling societies and environment - and each factor gets graded with a value while 100 is the highest number achievable (2013). All of the data is focused on elder people and includes implicitly all the six factors from the PESTEL analysis and is therefore highly relevant in order to understand how that trend of population aging is affecting each country. By adding the values of each country in the region and taking the average of the values of each of the four factors, Southern Europe presents itself as follows: 72, 65, 33, 66 (HelpAge). Ergo, Southern countries have in terms of elderly a pretty high income security, satisfying health status, lacking employment and education and also satisfying enabling societies and environment linkages. Compared to northern countries with 86, 70, 65, 80 (HelpAge), the Southern are considerably worse-off. Nevertheless, globally compared still in an acceptable range which enables aging and makes it even attractive. To summarize, the trend of population aging across Northern and Southern Europe as well is made possible mainly due to relatively secure pensions, low old age poverty rates, high pension coverage, a high healthy life expectancy and a high physical safety.

The aging process in combination with declining, but still sufficient fertility rates and ongoing immigration explains rudimentarily the forecasted population growth in Northern and Southern Europe. This holds true only for the next few decades. In the long run, however, European population numbers will decline.

Another similarity arises from the dependency ratios, which are increasing in both regions. Nevertheless, there is a pivotal difference between Northern and Southern Europe: Northern will, as forecasted, manage to keep them below the European average, while Southern countries will be struggling with an above average dependency ratios. However, the common trend is being focused on here. An increasing dependency ratio means that the working-age population shrinks relatively to the overall population within a country and thereby follows simply the logical ramification that there will be proportionally less workers which finance the young's education and the elder's retirement. This matter of course is enormously interdependent with the trends of population aging trend and the decreasing fertility rates. Required policy measures, such as raising the retirement age or setting incentives for elderly people to continue working voluntarily, are not easily feasible. They are closely linked to other spheres as the societal, economic and legal ones. This issue will be further discussed in the implications section. The main point here is that it currently lacks an adequate legal framework, which would allow politicians to raise retirement age to a sustainable level autonomously and hence, increase the working-age population. From a societal perspective, it might be unfavorable in the eyes of the citizens to work longer. Therefore, it is also hard to bring a change in the legal arrangements in democratic states. It will be elaborated more specifically in the illustrative cases.

## **4 Implications for Business and Society till 2030**

So far this paper looked into the main trends of the population dynamics drivers, of the differences and similarities between Europe as a whole, Southern and Northern Europe and of the underlying mechanisms that were the cause for today's situation. Logically, this section attempts to investigate the forecast demographic changes and their implications for business and society as a whole.

In summary, the European countries face many demographic challenges with common trends throughout the continent. Our analysis of the underlying mechanisms do not indicate any future reversals of those trends. Even though the European population will be increasing in the foreseeable future, this will be happening at a slower pace than before. Natural rates of population will remain negative, principally due to fertility rates below replacement rates and increased life expectancy. In the near future migration might prevent population decreases, however, it is a phenomenon, which is not stable and cannot be forecasted reliably, so a country should be ready for multiple scenarios. Europe's population is ageing, which results in increasing dependency ratios. We presented Northern Europe as a successful case from a demographic point of view. The contrast was made with Southern Europe, where demographic problems are more challenging and at a more advanced stage. True, population changes will be unevenly distributed among countries and years, passing through different stages, but at the end of the day, the implications of an ageing society will have to be dealt with everywhere. This is why we believe the following implications for business and society will be common. Advancing population ageing and increasing longevity will have an impact on the overall economy of a country and its competitiveness, on its fiscal, monetary and immigration policies and politics as a whole, on its healthcare and pension plans, and finally on financial markets. We look into each of those below.

### ***4.1 Population Ageing and the Economy***

Any economy that wants to prosper needs to be competitive. Competitiveness can result from capital endowment, innovation, technological progress or simply from the economy's human capital, namely the population. Different age groups have different productivity levels and different needs. Therefore, as the population structure of a country changes, so will its economy's characteristics. Let's look at the economy at a granular level of the competitiveness building blocks, namely the firm-level. Firms are directly influenced by labour supply – its knowledge base, capabilities, productivity, etc. An ageing and in the future shrinking population means a lower labour supply and increasing labour costs for the companies. Smaller labour force will be able to create a lower gross domestic product, lowering the income per capita through time and thus, having a negative effect on economic growth. The intuition is that

accompanying the drop in productivity, a smaller labour force decreases the total saving level, which would result in lower levels of capital investment (Feldstein, 2006). Firms will be faced with the challenge to optimize their processes and activities so that technological advances make up for that decreasing labour supply, but also for the change in knowledge transfer. In short, population ageing is a strategic issue for companies. While they need to deal with the supply side of human resources, they will also have to deal with the demand side of consumers. There will be a shift of the consumption goods that customers require and maybe more visible in the services they require – people are expected to become more dependent and to need support in their basic everyday activities as well as new and innovative caring facilities. From one point of view this can be seen as a niche opportunity to enter and develop new markets, but from a supply point of view, it is a challenge. And it is a major one. Studies show that if a given population is ageing and shrinking as a whole, then these changes are most pronounced for the labour force. While until 2030 ageing will be the main issue rather than population shrinking, labour supply is expected to decrease. Therefore, firms will need to change their organisational structures in a way to both take care of their older employees, but also to be able to attract young workers, especially in the high-tech fields. New workers will be the “scarce good” and is likely to have much higher demands from the employer (Tivig et. al, 2008). If we look into the relationship between population ageing and economic growth as a whole, studies show that it is negative, but not insurmountable of a challenge. Possible solutions for organisational changes can be, for example, more flexible working hours for the current employees in a retirement age and female employees on maternity leave or entering new developing markets to take advantage of the increasing labour supply there, hence outsourcing. Studies recommend shifts in the reallocation of labour supply from low productivity sectors, such as agriculture, to high productivity ones, such as the service sectors. Furthermore, technological progress is stressed as an essential determinant of economic growth in such a setting to compensate for that loss in productivity (Bloom et. al, 2011).

#### ***4.2 Population Ageing and Policy Implications***

One of the most straightforward implications of an ageing population is the challenge to social security systems. Increasing dependency ratios mean that there will be more and more elderly people in a retirement age and fewer working-age people. According to Bloom, Canning and Fink (2011) when talking about policy implications, there are a number of things to be taken into account. The older an individual gets, the less he or she tends to work and save, providing the economy with less capital and labour. The share of population of 60+ years old will require more healthcare and in some countries will rely on social pensions as a large part of their income. Increasing the share of that population group will mean that they get more politically

strong. Therefore, the political behaviour of a country might change in order to tend to their needs rather than to the ones of the young. The share of population of 80+ years old will have even more different needs – full-time or part-time care and support. They might also require financial support, as pension plans have not been structured to take the longevity challenge into account and private savings might not be sufficient to cover the higher life expectancy. As the shares of those two population groups increase, so does their demand for government and private resources and savings. Furthermore, as mentioned above, business investment will go down because of the lower levels of savings of the decreased labour force. The result is a strain on the government budgetary constraints to increase spending and financing. Resulting public debt and financing need to be counterbalanced if the country does not want to end up in a default.

There are a few important implications here. First, we need to take into account the longevity change. For example, a 64-year-old woman in one country can be at a very different point of her working life cycle than another at the same age in another country. Therefore, state policies need to take this into consideration in their design. Second, even though population is ageing, it is now healthier than preceding generations. In order to fight increasing costs for the elderly, one option is for countries to incentivise people to stay longer in the workforce, thus starting to use their savings at a later stage of their lifecycles. Studies show that if this is the road to be taken, the optimal solution is to increase the number of working years proportionately to the number of years in retirement (Bloom et. al, 2011). Restructuring of the social insurance systems is essential. Of course, other incentives can be used, such as a more flexible working schedule, flexible and compulsory pension plans based on defined contribution to counteract the drop in total private saving rate and a gradual exit from the work force, but the main implication is the increase in costs that needs to be financed. Third, in case a state decides to finance the increased costs of an ageing population without altering retirement or social security plans, then it will need to turn a change in its fiscal or monetary policies. The intuition follows from the basic macroeconomic framework – government spending can be financed by taxes, money creation or public borrowing. A country can increase taxes or public debt in order to finance increased costs for the elderly, thus affecting its fiscal policy. However, some economists claim that raising taxes will have detrimental distortionary effects on economic growth and value added. For example, one feasibility is the introduction of a compulsory savings programme, which is used by the government as an investor manager. Alternatively, introducing a defined contribution pension plans (where employees manage a given amount of money themselves, which is half a part of their earnings and half employers contribution) rather than defined benefit pension plans (where a certain pension annuity is guaranteed by the employer in the future) is a step towards facing the demographic problem (U.S. Department of State, 2007). On the other hand, the alternative of increasing public debt can make the economy of the country vulnerable

to different shocks, such as a financial or banking crisis (Fiscal Sustainability Report, European Commission, 2012). The details are beyond the scope of that paper, but the main point is that there are main alternative implications and solutions to the ageing population problem, but each comes with each benefits and costs.

Finally, the implications for immigration policies will be discussed. As stated in the first part of the paper, currently immigration is a main driver in keeping a stable population structure of some European countries. It is indeed very difficult to find trends and to forecast it. Nevertheless, ageing population and shrinking labour force have implications on immigration policies. Feldstein (2006) claims that one way for a country to finance its growing government expenditures is to incentivise immigration of young and middle-aged workers. It is not their incomes that will help, but the taxes they pay in their new host country. However, there must be a limit on the immigration levels. Above certain levels, hence in the long-run, the tax revenues from non-native workers will no longer cover the needs of the ageing native population, but will be spent on additional expenditures for education and healthcare of those non-native population. Therefore, even if ageing population will have an implication on immigration policies, it is up to the government of the country to identify the optimal immigration levels.

### ***4.3 Implications on Health***

In the previous paragraph it was argued that compared to previous generations, people are on average healthier, resulting in higher life expectancy. We have advanced medicine, which has made some diseases obsolete, albeit not everywhere in the world. It is true that with the proportion of population increasingly ageing, there will be more expenditures on full time care and for some countries, more government spending to cover for healthcare of the elderly that cannot afford it. However, let us take a medical point of view rather than a governmental one and turn to the implications of the current demographic changes on health, because there are some significant shifts in the main diseases that humanity will have to battle. In the next one to two decades a strong shift in the disease epidemiology will be witnessed. According to the U.S. Department of State (2006) the main cause of health and life loss in every region of the world will come from chronic or non-communicable diseases, such as diabetes, cancer and heart disease rather than parasitic and infectious diseases by 2030 (See appendix, fig. 10). In their report they attempt to assess the total number of healthy years of life lost to disease and injury, the burden of disease. Up to 2002, its share for non-communicable diseases in developed and high-income countries was 85%, compared to around 44% in the low and middle-income ones. By 2030, the burden of non-communicable diseases in middle and low-income countries will rise to 54%. Here the implication of an ageing population is the fact that already even today the burden of non-communicable diseases of the 60+

share of population is 87% throughout all income countries. This means that along with the increase of that population group, some countries, especially the low and middle-income ones will be faced with the challenge to reallocate resources and to fight and overcome the non-communicable diseases, even though they are still trying to fight the highly prevalent parasitic and infectious ones.

#### ***4.4 Implications on Financial Markets***

Finally, let's look for the implications of an increasingly ageing population outside the country and economy level and investigate its effect on the financial markets. Starting from the fact that the number of elderly citizens will rise sharply in the near future (e.g. the baby boomers from the mid 1950s will soon retire), while the working population will remain relatively the same or even shrink. Therefore, as stated below, many people are investigating what implications will increased pension and healthcare costs have on the financial markets. Financial markets see pensioners not only as consumers, but also as people with wealth who make investment decisions. There are also unexpected correlations. For example, data shows that since 1960, equity markets in the USA have followed the same trends as demographic change. Pensioners are indeed wealth holders and prospective investors, however, they tend to avoid risk and thus equity markets. As their segment grows, market participants will expect a poor performance by the equities. Moreover, ageing population, accompanied by a shrinking labour force results in lower productivity rates, lower return on capital investments, which means a decrease in all asset values. To account for those lower asset values, the corporate sector is already building liquidity reserves instead of value adding investments. Insurance companies and pension funds are required by regulators to seek those risk-minimising portfolios invested mostly in fixed income instruments and not equities (Pfister, 2012). Therefore, it will be a challenge for the financial markets to adjust to those high demands for safe assets, taking into account that institutional investors, such as pension funds are some of the largest investors as a whole. Furthermore, the economy state of decreased investment funds, slower economic growth and decreased productivity are prerequisites for credit crunches. One implication might be for Central banks to keep interest rates low, as this should theoretically encourage investment and give a boost to the economy. However, this is not sustainable in the long term.

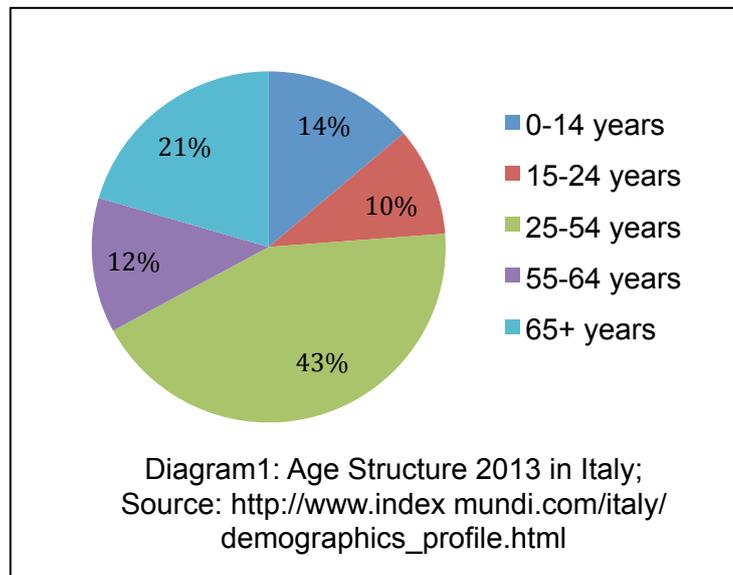
## 5 Illustrative Cases

In this section, the paper focuses on two countries - Italy and Sweden - in order to illustrate the demographic differences between Northern and Southern Europe. Therefore, the first step is to analyze each country's situation, elaborate economic adaptations and policy options. In the second part, the two countries will be compared mainly with the focus on health care.

### 5.1 Italy

Italy has a current population of about 60.9 mln., whereby 27% of all inhabitants are 60+ years old (HelpAge, 2013). As seen in figure 11 (appendix), the population pyramid indicates a proportional lack of young people in Italy, resulting from decreasing fertility rate and emigration over the past decades. Figure 12 shows that this trend of an inverted pyramid will continue, resulting in an aging society. In 2030 a

considerably high number of inhabitants will be over 45 years old. Back to the present, the detectable current age structure of the Italian society is presented in diagram 1. Data shows that in Italy, the population is ageing and the dependency ratios are increasing as a result of a shrinking working-age population share. The country faces problematic implications following these trends. The



current working-age population amounts to approximately 65% (European Commission, 2012b, p.299). Although Italy shows quite a high unemployment rate at the moment - ca. 11% (Index Mundi, 2013) - and net migration is positive (European Commission, 2012b, p.297), increasing dependency ratios cannot be sustainably overcome by additional migration or keeping a low unemployment rate, since those are both short-term solutions. Nevertheless, since 25.4% of the youth (15-24 years old) are unemployed (Index Mundi, 2013), creating more jobs for young adults would mitigate the shrinking working-age population problem at least for the foreseeable future.

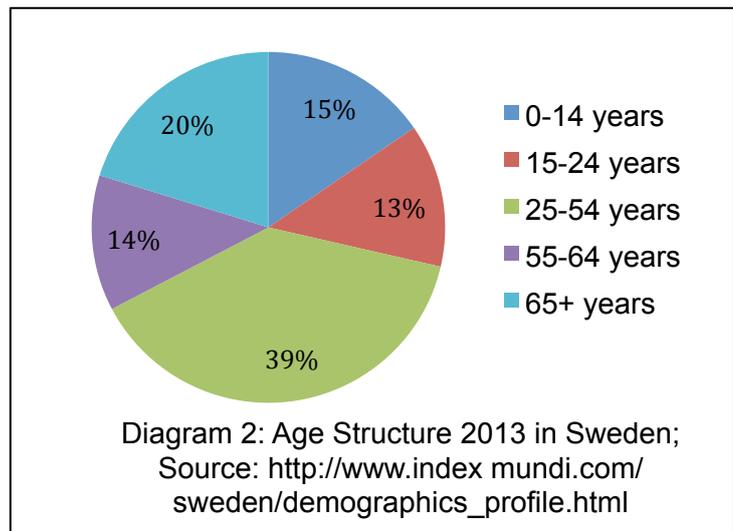
As elaborated earlier, there are ramifications for the economy, politics, the health care system and financial markets as a result of population ageing. First, the economic aspect: A forecasted increase in labor productivity (p.303) indicates an

enhanced handling of the scarce resource of labor in the future. Policy-wise, the government needs to communicate clearly that since the working-age population is shrinking, retirement age might need to be adjusted, more flexible options to be presented, and incentives to be given to increase fertility rates. For instance, following the example of the Nordic countries, women on maternity leaves can be presented with part-time opportunities or working-from-home options. Only then, a sustainable demographic structure can be achieved. It is important to raise awareness among citizens and to let them understand the measures taken from the side of the government. The higher retirement age has already been decided in 2010. The current age in the private sector for men is 65 and for women 60, in the public sector it is 65 for both. Retirement age in Italy will be raised by three years by 2050 (Professional Pensions, 2010). To reach higher fertility rates, the Italian government could set incentives for having more children by lowering taxes for families, increasing child allowance, fostering family supporting social institutions or by creating free public day nurseries. To reduce the dependency ratio via introducing more young people in the working world requires incentives for companies to hire young employees. Concretely, it could be solved, for instance, by distributing a certain amount of subsidies to firms per employed adolescent. Not only need the companies be stimulated, but also young people themselves, in order to prevent migration. Possible measures therefore would be subsidies for apprenticeships or further education and tax reduction for the youth.

Policies will especially have to address the South of Italy, since the economic situation is worse than in the rest of the country. The South produces roughly only a quarter of the Gross Domestic Product (GDP) and shows much higher unemployment rates than northern parts of Italy (Maresso et al., 2009, p.7).

## 5.2 Sweden

Sweden currently has a population of about 9.5 mln. people, whereby 25.4% of all inhabitants are 60+ years old (HelpAge, 2013). The current age structure of Sweden is presented in diagram 2. Consulting figure 13 (see appendix), the population pyramid shows the slightly decreasing fertility rate in Sweden over the past decades. As figure 14 illustrates, there will be a torpedo-shaped, pointy-ended population pyramid which plausibly demonstrates the increase in life expectancy.



Furthermore it, shows that in comparison to Italy, Sweden faces much less problematic implications regarding the dependency ratio since its future population pyramid is not inverted. The current working-age population amounts to approximately 64% (European Commission, 2012b, p.299). The net migration is positive (p.297) and the unemployment rate roughly 7.5 % (Index Mundi, 2013), hence since still significantly more labor supply than demand is existing at the moment. Furthermore, Sweden shows a high work force participation among elderly citizens – e.g.: 12% among 65–69 year olds male in 2007 (Anell, Glengard & Merkur, 2012, p.7). So, even after the retirement, many continue to work. Nevertheless, there need to be measures taken to fight off disadvantageous implications in the long-term. As already seen in the case of Italy, Sweden also shows a high unemployment rate of youth ages, namely 25% (Index Mundi, 2013).

The ramifications for the economy as such, policies, the health care system and financial markets will be addressed quite similarly to the Italian case. The economic aspect first: The labor productivity is forecasted to increase also in Sweden, but only in the next few years. In the long-term, it will stagnate (European Commission, 2012b, p.303). Thus, a stronger awareness of the scarce resource of labor will be present soon. Considering policies, the government might have to induce measures in order to raise the retirement age, clearly communicating that at the moment, Sweden should protect its sustainable course. This process has already started in Sweden: the debate is about raising retirement age up to 75 years. Currently, the cut-off age, hence the latest possible retirement age, is at 67 and the earliest one is 61 (EurActiv, 2013). The social welfare present in Sweden has kept fertility rates higher than the European average and sustainable with a given level of moderate migration. Therefore, for now, An increase in the fertility rate needs not to be pushed hard by

the government. Much more attention needs to be paid to the unemployment rate of the youth. Incentives in order to get more young adults into the working process are required. For possible measures see the case of Italy.

### **5.3 Further Comparisons**

The paper paid a special attention to the fiscal and healthcare implications of an ageing population. Therefore, the last section will cover the illustrative cases from that perspective. Regarding pensions, Italy has defined contribution pension plans (OECD, 2008a, p.221), and therefore measures to counteract the drop in total private saving rate and a gradual exit from the work force are already in force. The same applies for Sweden as well (OECD, 2008b, p.279). Concerning the public expenditures on pensions, Italy shows for 2030 a forecasted 14.5% of GDP, while Sweden has a prognosis of 10.1% (OECD, 2012, p.212). Therefore, Italy currently spends - and will continue to – a larger share of its GDP for pensions in comparison to Sweden. Consequently, the southern country is more vulnerable to the aging structure of society. Less of the budget can be spent on other social welfare issues, such as medical support or youth unemployment alleviation.

Both countries face a struggle with chronic or non-communicable diseases, taking up a large share of health care related expenditures. An advantage for Swedish citizens compared to the Italian is that in Sweden exists a “socially responsible system with an explicit public commitment to ensure the health of all citizens” (Anell, Glenngard & Merkur, 2012, p.9). Both health care systems are based on three levels: national, regional and local. The Swedish is more decentralised than the Italian, which gives local authorities with more freedom in decision-making and allows them to fight issues on the spot and not going through a lengthy approval process by the state. It is an advantage, as every region knows its most urgent problems and can address them efficiently. Moreover, it allows to spend its health care budget not generally, but to channel it where it is most needed. The Italian system appears to be way more hierarchical (compare Anell, Glenngard & Merkur, 2012, p.17-20 with Maresso et al., 2009, p.17-18). In conclusion, the Swedish health care system has more appropriate structure in order to overcome issues. Two facts further enforce this argument. First, the health care services in Italy are below European average and second, the satisfaction with the system is comparably low (European Parliament, Directorate General for Research, 1998, p.77).<sup>57</sup>

Finally, the financial markets are required to adapt their structures for the purpose of meeting the needs of the aging society. Hence, move towards sectors where less risk is involved in order to attract elderly.

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<sup>57</sup> Although this source is quite old, other, more current literature is pointing in the same direction.

To a great extent, the differences between Italy and Sweden are noticeably strong. Studies point towards a better initial situation for Sweden in order to face challenges triggered by global demographic change. Since Italy and Sweden show typical features of southern, respectively northern countries, these cases illustrate neatly that the North is much better off than the South and is more likely to overcome demographic issues.

## 6 Conclusion

The paper investigated population dynamics trends in Europe. Specifically, the differences and similarities between Northern and Southern Europe were discussed, together with their relation to the European average. The common trends of decreasing fertility rates, increasing life expectancy and net positive migration can be seen. Moreover, populations are expected to increase along with the dependency ratios in the European regions. The two phenomena are most broadly due to a negative natural rate of population growth in the regions, counterbalanced by a positive net migration.

The difference between Southern and Northern Europe is best outlined by the severity of those trends. Northern Europe, represented by the Nordic countries, has a much more stable demographic structure and faces fewer, or less urgent, challenges of an ageing population. Opposite the success story of the North, the South needs urgently to take measures against the implications of fast increasing dependency ratios due to much lower fertility rates.

Regarding the implications of an advancing ageing population, the main challenges to be faced by 2030 in Europe are concerning the economy, politics, health care and financial markets, as discussed. The illustrative cases of Italy and Sweden showed that the Nordic country initially implemented a good deal more measures to battle those implications and even does so nowadays, while Italy is lagging behind in the adoption of many necessary mechanisms.

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## Appendix

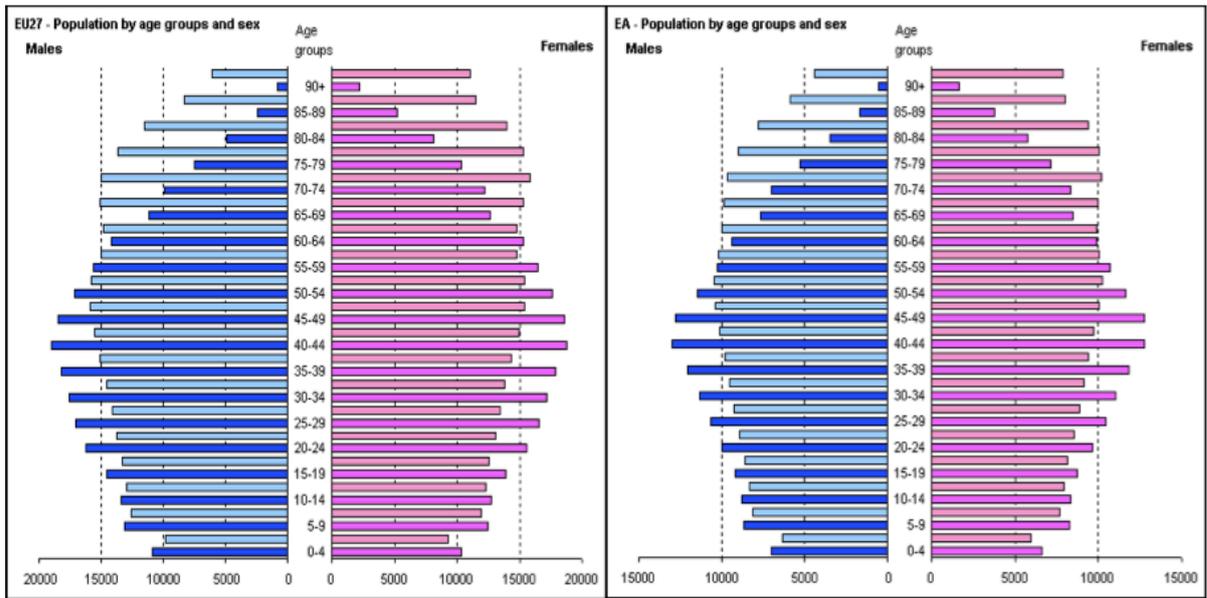


Fig. 1 Population pyramids (1000s), EU27 and EA, in 2010 and 2060; Source: *The 2012 Ageing Report. Economic and budgetary projections for the 27 EU Member States (2010-2060)*

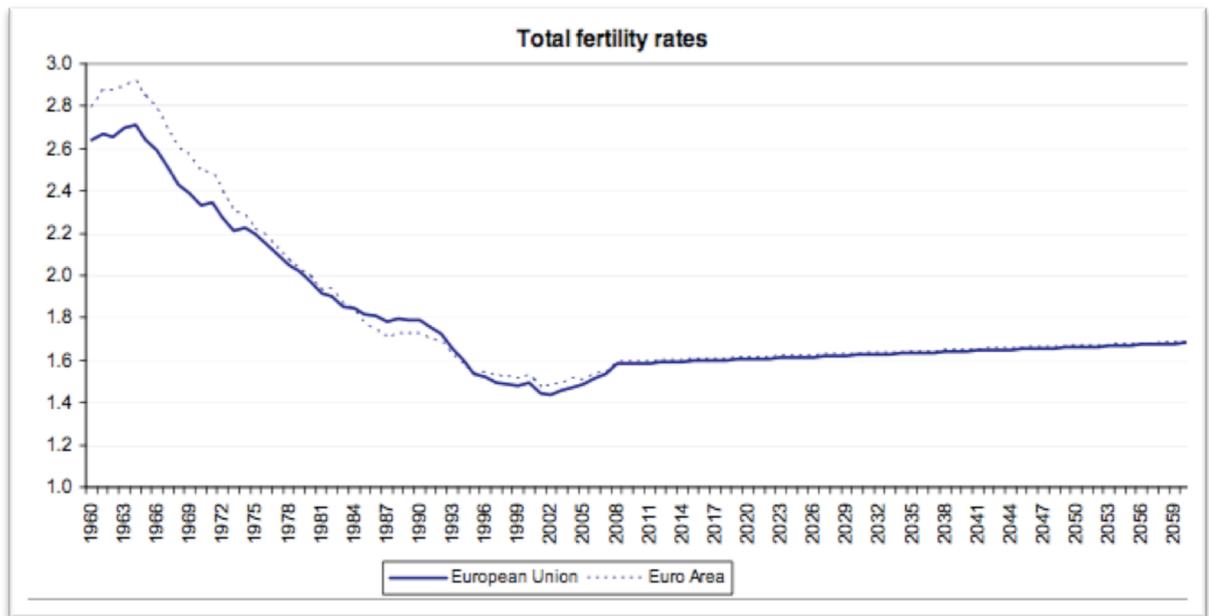


Fig. 2 Total Fertility Rates in the European Union; Source: *The 2012 Ageing Report. Economic and budgetary projections for the 27 EU Member States (2010-2060)*

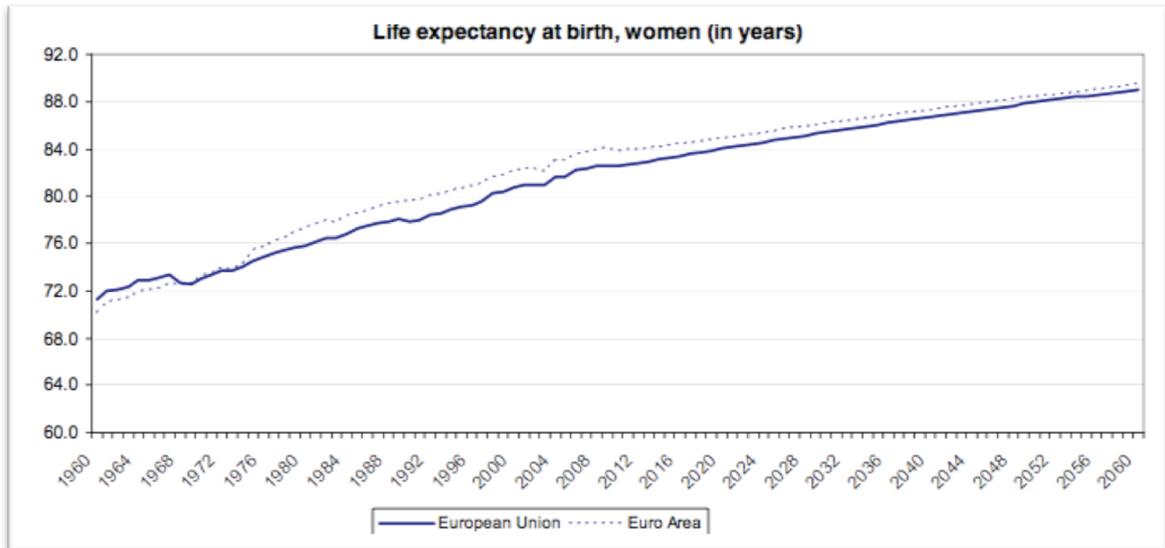


Fig.3 Life Expectancy at birth in the European Union (women, representative);  
 Source: *The 2012 Ageing Report. Economic and budgetary projections for the 27 EU Member States (2010-2060)*

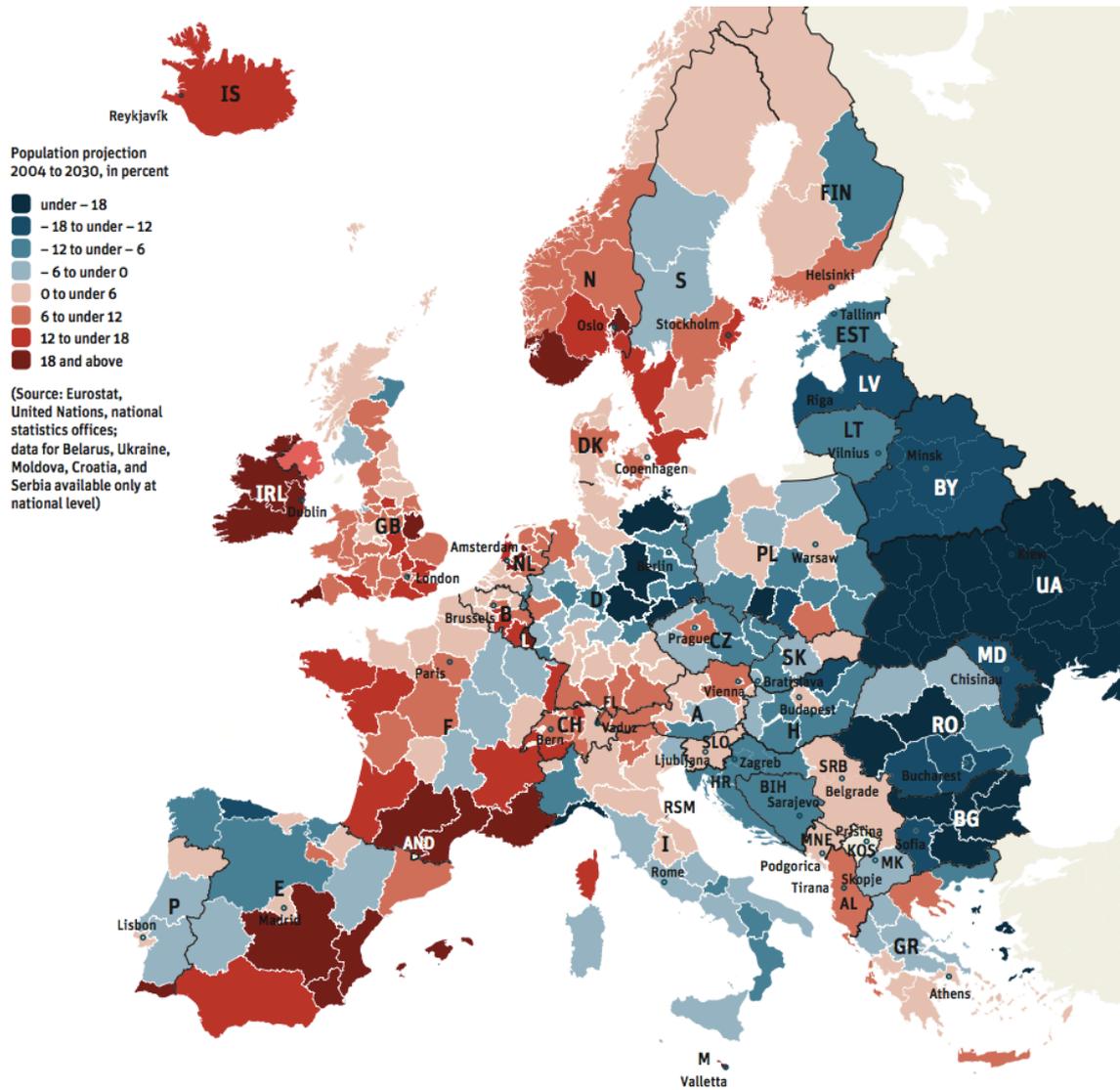


Fig. 4 Population Projections 2030; Source: *Europe's Demographic Future - Growing Imbalance*

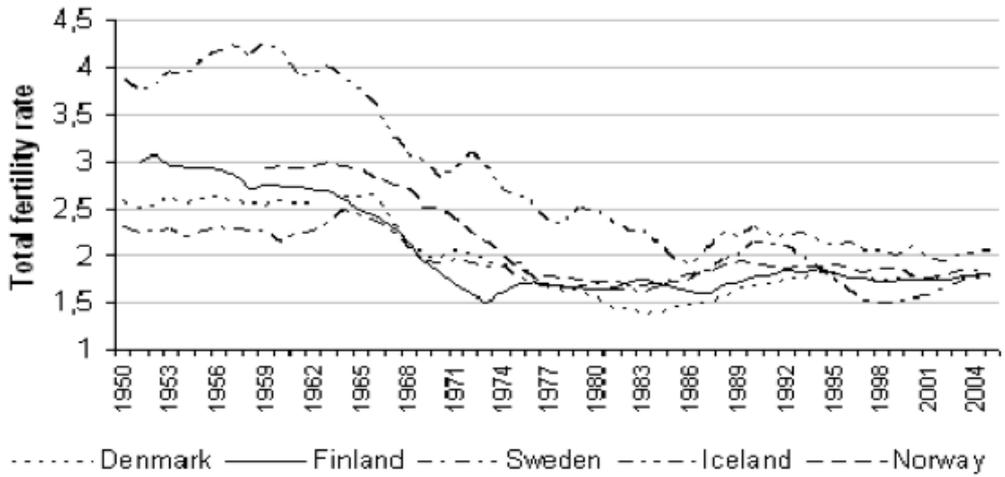


Fig.5 Total fertility rates in the Nordics (1950-2005); Source: *The Demographic Challenge to the Nordic Countries*

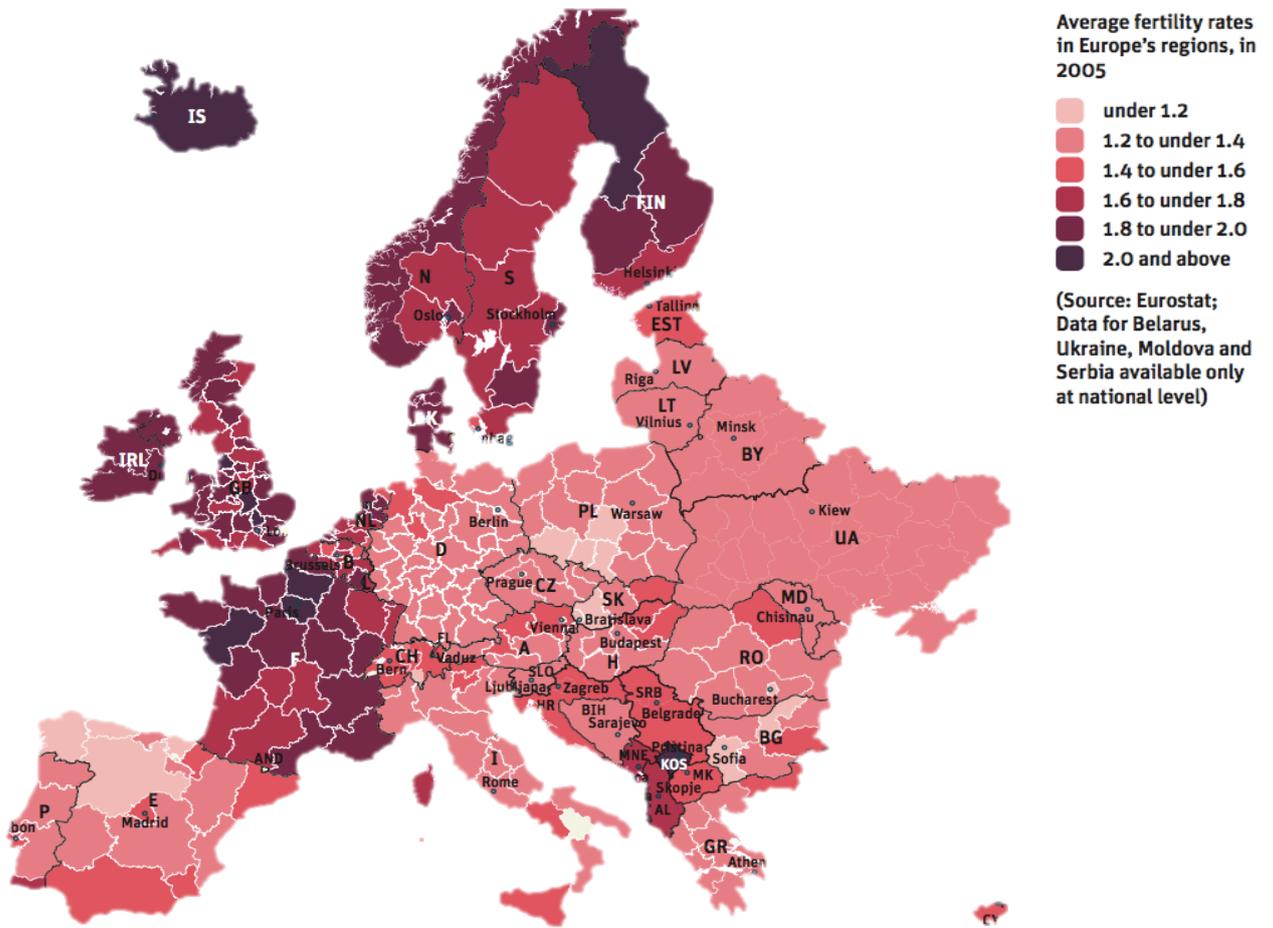


Fig. 6 Total Fertility Rates by country; Source: *Europe's Demographic Future - Growing Imbalance*

Region	Total fertility rate, 2010	Tempo-parity adjusted TFR, 2008	Mean age at first birth, 2010	Completed cohort fertility rate, women born 1970
Southern Europe	1.40	1.54	29.4	1.50
Western Europe	1.96	2.08	28.1	1.92
German-speaking countries	1.40	1.68	28.8	1.52
Nordic countries	1.93	1.98	28.5	1.98
Central-Eastern Europe	1.40	1.67	26.9	1.83
South-Eastern Europe	1.42	1.61	25.5	1.87
Eastern Europe	1.51	1.65	24.5	1.59
Caucasus	1.84	1.81	24.4	-
EU-27	1.59	1.77	28.0	1.71
EU-15	1.65	1.81	28.6	1.69
EU-12 (new members)	1.38	1.62	26.4	1.79

Fig. 7 Fertility indicators; Source: *The 2012 Ageing Report. Economic and budgetary projections for the 27 EU Member States (2010-2060)*

Region	Proportion of the population aged 65+, 2011 (%)	Projected proportion of the population aged 65+, 2050 (%)	Old-age dependency ratio 65+/20-64, 2011 (%)	Projected old-age dependency ratio 65+/20-64, 2050 (%)
Southern Europe	18.8	32.4	30.5	65.2
Western Europe	16.5	27.0	27.8	52.3
German-speaking countries	20.1	32.9	32.8	66.1
Nordic countries	17.2	26.5	29.1	51.2
Central-Eastern Europe	14.7	30.4	23.0	57.7
South-Eastern Europe	15.3	28.7	24.3	51.3
Eastern Europe	13.2	24.7	20.0	44.2
Caucasus	8.8	22.8	14.0	40.1
EU-27	17.5	29.9	28.7	58.7
EU-15	18.2	30.0	30.1	59.3
EU-12 (new members)	14.9	29.8	23.3	55.5

Fig. 8 Population ageing; Source: *The 2012 Ageing Report. Economic and budgetary projections for the 27 EU Member States (2010-2060)*

Region	Population size on January 1 <sup>st</sup> , 2011 (millions)	Projected population size, 2050 (millions)	Annual rate of population change, 2004-2008 (per 1000)	Projected annual rate of population change, 2011-2050 (per 1000)
Southern Europe	130.0	150.3	6.6	3.9
Western Europe	158.2	191.6	5.0	5.3
German-speaking countries	98.0	97.0	-0.4	-0.3
Nordic countries	25.6	31.3	5.9	5.6
Central-Eastern Europe	77.4	71.7	0.4	-1.8
South-Eastern Europe	42.1	35.1	-1.8	-4.1
Eastern Europe	200.5	172.9	-2.1	-3.4
Caucasus	16.8	18.8	7.8	2.9
EU-27	500.5	545.1	3.2	2.2
EU-15	397.4	451.8	4.1	3.4
EU-12 (new members)	103.1	93.3	-0.2	-2.4

Fig. 9 Population change; Source: *The 2012 Ageing Report. Economic and budgetary projections for the 27 EU Member States (2010-2060)*

**THE INCREASING BURDEN OF CHRONIC NONCOMMUNICABLE DISEASES: 2002–2030**

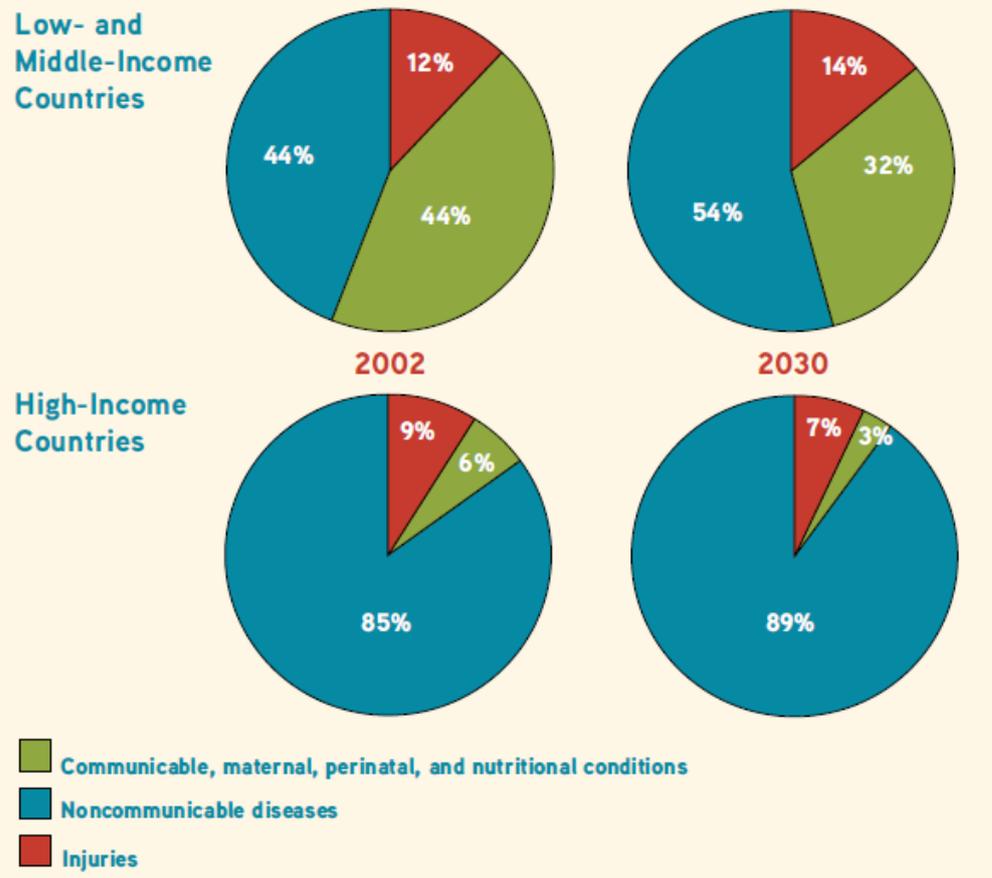


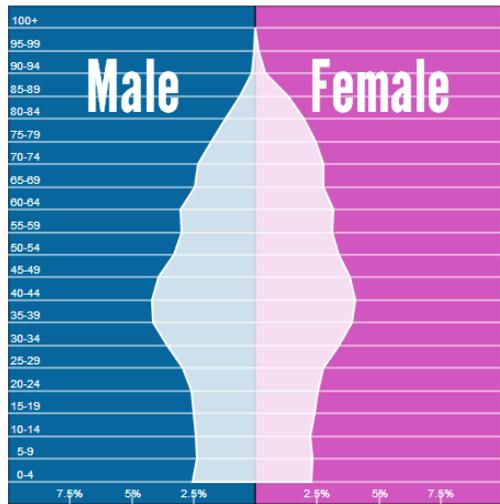
Fig. 10 Source: *Why Population Aging Matters: A Global Perspective*

Italy  
2010

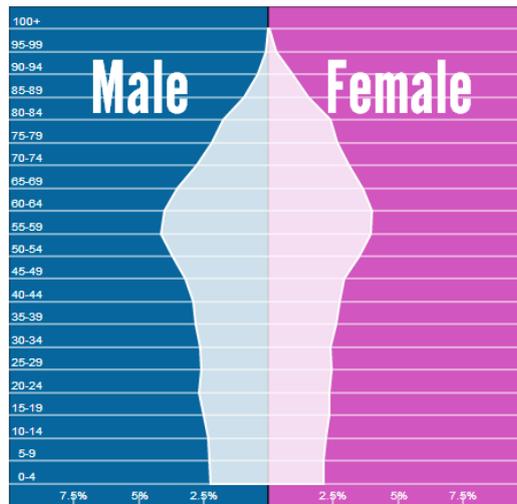
Population: 60.552.000

Italy  
2030

Population: 60.851.000



Link to this graph: <http://populationpyramid.net/Italy/2010/>



Link to this graph: <http://populationpyramid.net/Italy/2030/>

Fig. 11: Population pyramid of Italy in 2010

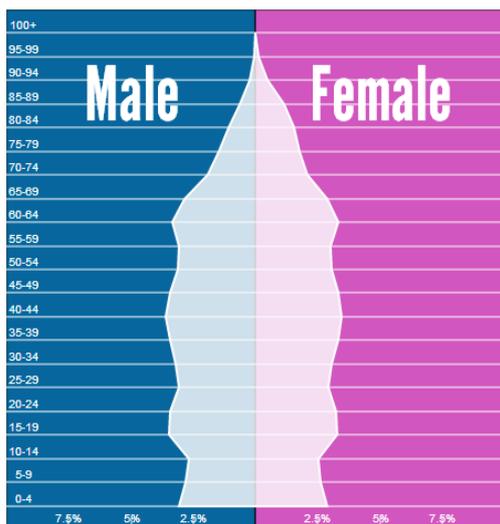
Fig. 12: population pyramid of Italy in 2030 (forecast)

Sweden  
2010

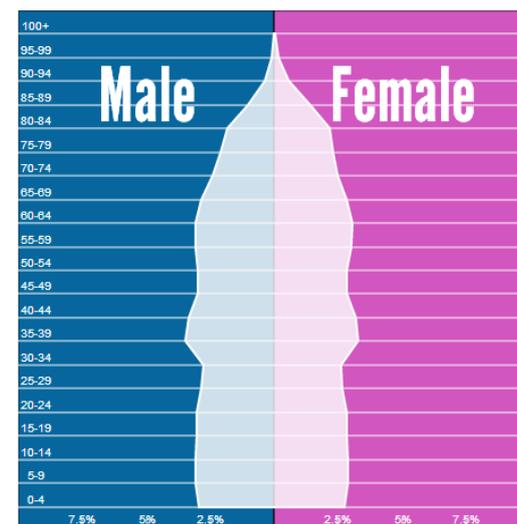
Population: 9.380.000

Sweden  
2030

Population: 10.381.000



Link to this graph: <http://populationpyramid.net/Sweden/2010/>



Link to this graph: <http://populationpyramid.net/Sweden/2030/>

Fig. 13: population pyramid of Sweden in 2010

Fig. 14: Sweden's population pyramid in 2030 (forecast)

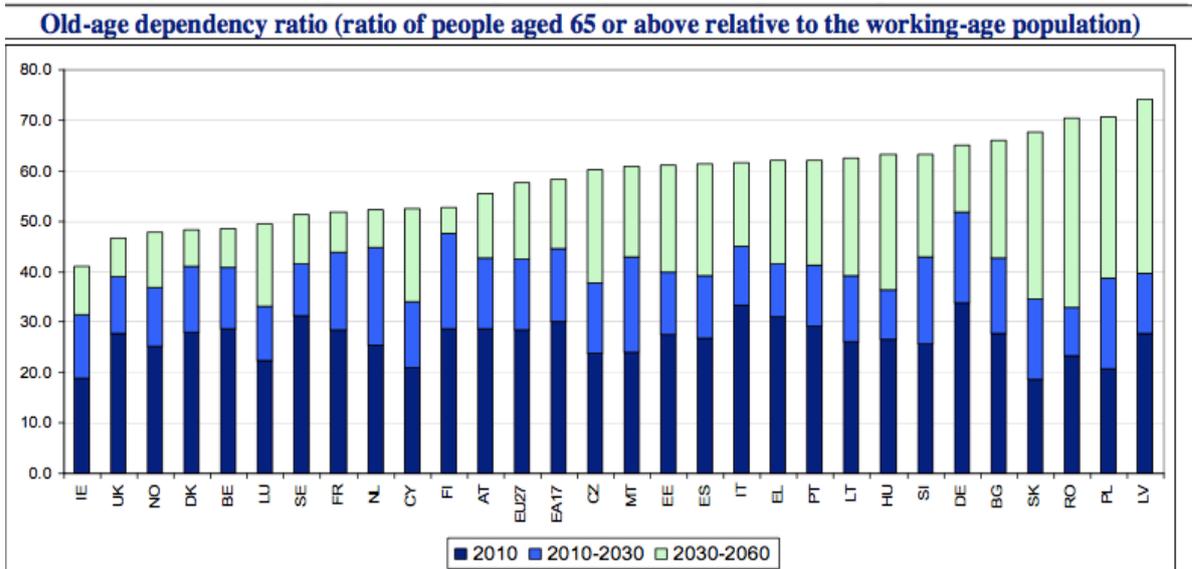
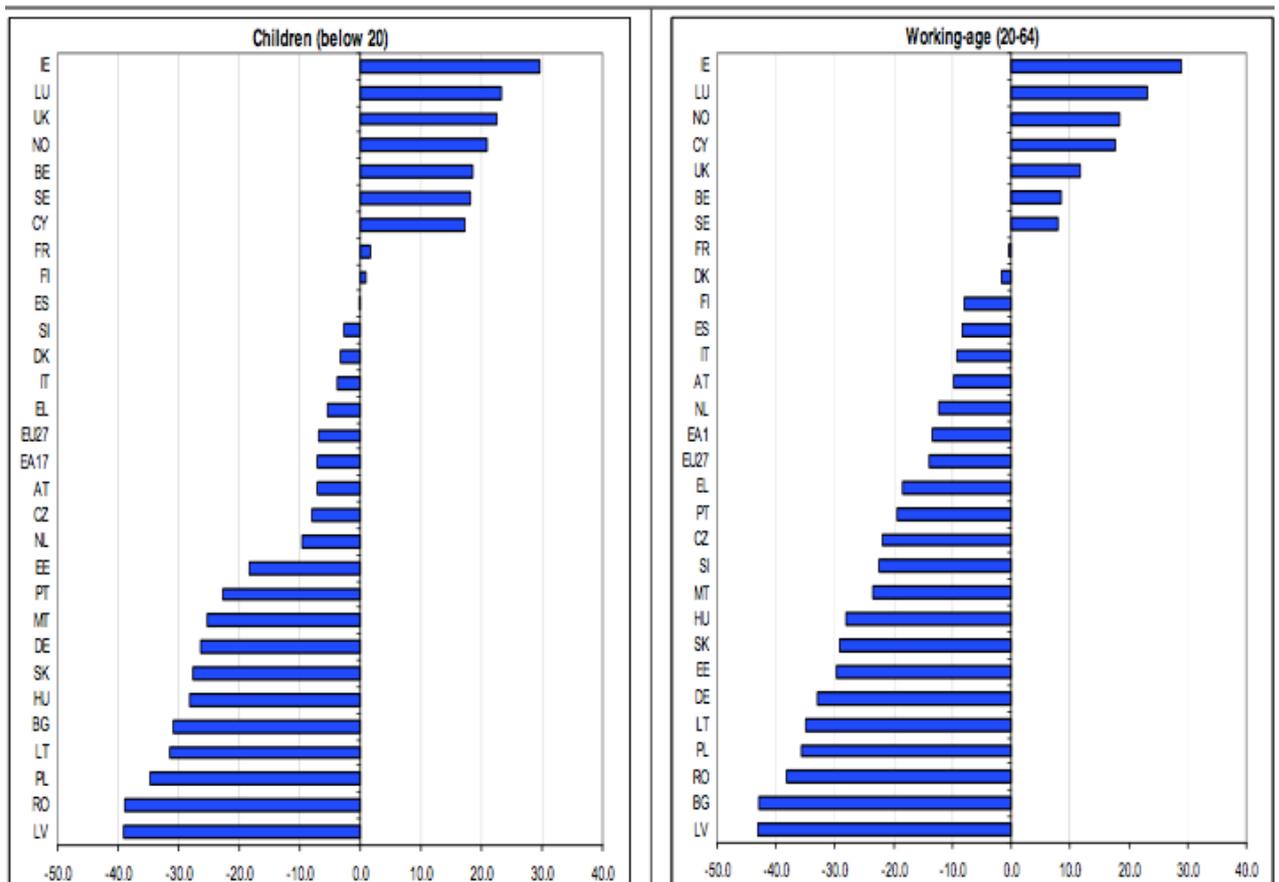


Fig. 15 Dependency ratios projections (%); Source: *The 2012 Ageing Report. Economic and budgetary projections for the 27 EU Member States (2010-2060)*



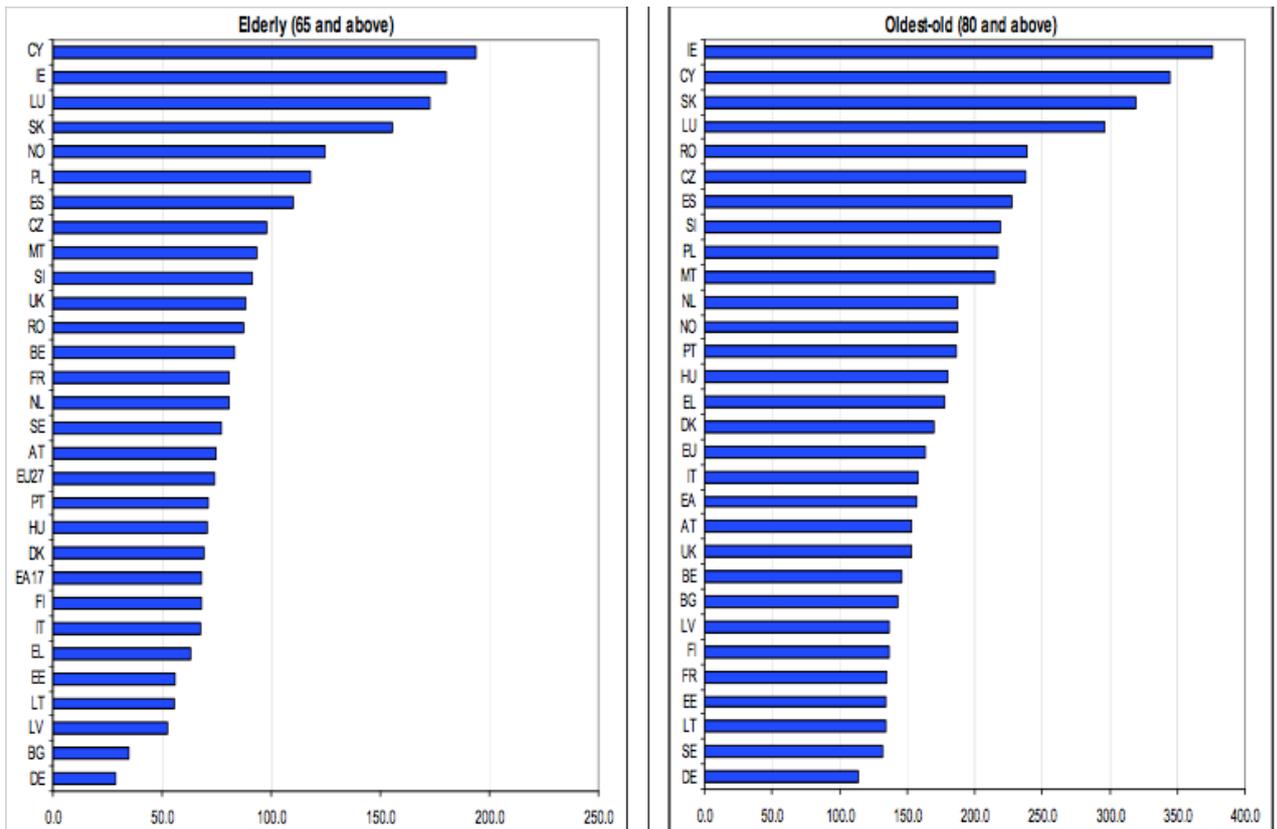


Fig. 16 Projected Change of Main Population Groups (percentage change over the period 2010-2060); Source: *The 2012 Ageing Report. Economic and budgetary projections for the 27 EU Member States (2010-2060)*





Universität St.Gallen

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**Megatrend 'Global Demographic Change' –  
Tackling Business and Society Challenges in 2030 and beyond**

**The Emerging Markets**

Lecturer: Dr. med. Hans Groth, MBA

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Submitted by

Cosima Bader

Thomas Elm

Carlotta Maerna

## **Executive Summary**

This paper seeks to investigate the position of emerging countries compared to the developed and developing ones in the light of demographic issues. Increasing life expectancy results in an ageing population. Coupled with a decreasing fertility rate this creates major opportunities and challenges in terms of economic growth and policies aimed to facilitate it.

In particular, three of the major emerging economies – China, India and Brazil – have been analyzed in depth. It has been found that each country faces a specific set of opportunities and challenges. Whereas economic development will already slow down in China within the next two decades due to a shrinking and ageing work force, India will continue to grow but has to overcome gender imbalance and low education coverage. Brazil faces similar challenges as developed countries due to low fertility rates but additionally has to tackle serious issues regarding low per capita income and weak social security.

It became evident that similar demographic conditions can result in very different economic results. The success in taking advantage of the opportunity that the demographic dividend provides depends crucially on implementing suitable policies to channel population dynamics into economic growth.

In conclusion, demography provides a clear framework through which it is easier to identify specific opportunities, future challenges and priorities but what really makes the difference in the end is the ability of policy writers to put in place what is needed in order to take advantage of the present and future conditions. Population composition should be used as an important tool for the creation of sound and meaningful country policies. Demography can only explain the economic potential of a country or region: the realization of such a potential depends from a vast array of factors, which in turn could have an impact on the demographic variables as well.

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## 1. Introduction

The world is currently experiencing unprecedented changes in terms of demographics. Over the last 300 years humanity has undergone a dramatic development: a substantial decrease in mortality rates caused a significant increase in population. The world's population has been growing exponentially and is expected to exceed 8 billion before 2030. The trend of increasing life expectancy is complemented with a reduction in fertility as the economies mature. The result is an ageing society with fewer young people to support the elders which poses a significant challenge which all countries eventually have to solve.

In this article the authors focus on the role of the emerging countries in this challenge. The central question of this research is to compare the demographic characteristics of developing, emerging and developed countries, determine the unique demographic footprint of emerging countries by 2030 and analyze to which extent population dynamics help to explain the forecasted economic power.

In order to thoroughly analyze this question, a macro view is taken on the broad economic cluster. The authors will follow the definition of the United Nations Population Division to divide countries into developed, emerging and developing ones. Subsequently the unique demographic characteristics are described, which lays the groundwork for the subsequent analysis.

In order to understand the opportunities and threats of demographic dynamics, it is necessary to move the analysis to a micro level. This study will focus on China, India and Brazil for two reasons. First, these countries account for almost 40% of the current world's population and thus have a major impact on the world-wide economy. Secondly, similar demographics have led to different economic developments which may shed some light onto the mechanics of demographic change.

Finally the impact of population dynamics on forecasted economic power is critically assessed. The example of Latin America has shown that despite promising demographics, economic success is not guaranteed. The authors conclude that suitable policies are crucial to benefit from population dynamics. Therefore demographic change can be considered as a window of opportunity which only translates into actual benefits if the necessary policies are in place.

## 2. Cluster Analysis

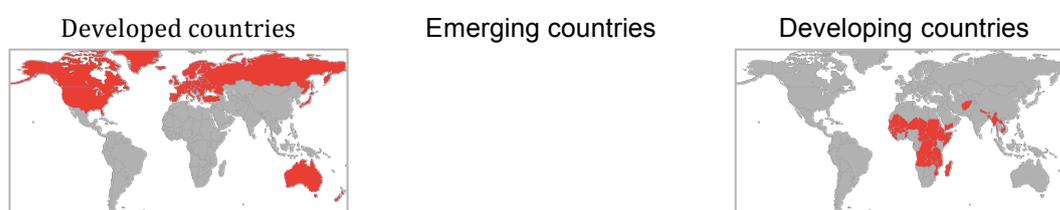
### 2.1. Definition of Clusters

The definition of the clusters developed, emerging and developing countries used in this paper is based on the definition used by the United Nations Population Division in the World Population Prospects - The 2012 Revision. In the UN denomination countries are classified as more developed, less developed, least developed and other less developed. In this paper, these clusters will be renamed to developed, emerging and developing countries respectively and are defined as:

**Developed countries:** all regions of Europe plus North America, Australia, New Zealand and Japan

**Developing countries:** Afghanistan, Angola, Bangladesh, Benin, Bhutan, Burkina Faso, Burundi, Cambodia, Central African Republic, Chad, Comoros, Democratic Republic of the Congo, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gambia, Guinea, Guinea-Bissau, Haiti, Kiribati, Lao People's Democratic Republic, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Myanmar, Nepal, Niger, Rwanda, Samoa, São Tomé and Príncipe, Senegal, Sierra Leone, Solomon Islands, Somalia, South Sudan, Sudan, Timor-Leste, Togo, Tuvalu, Uganda, United Republic of Tanzania, Vanuatu, Yemen and Zambia (34 in Africa, 9 in Asia, 5 in Oceania and one in Latin America and the Caribbean)

**Emerging countries:** All countries in all regions of Africa, Asia (excluding Japan), and Latin America and the Caribbean as well as Melanesia, Micronesia and Polynesia with the exception of the ones listed above as developing. Furthermore the developed countries as defined above are excluded.



*Figure 4 Illustration of economic clusters*

## 2.2. Demographic characteristics of the economic clusters

All the figures which are cited in this section are based on the data retrieved from the World Databank Health Nutrition and Population Statistics: Population estimates and projections.

Based on this data a significant increase in world population can be observed. Whereas in 1960 the world population was a mere 3.2 billion people, in 2012 the world population reached almost 7 billion people. By 2030 this number is projected to increase to almost 8.3 billion.

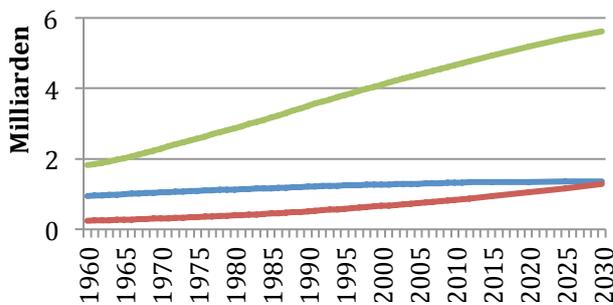


Figure 5 Population growth per economic cluster

Breaking down the growth to the economic clusters reveals large differences in the projected growth. Whereas the population of developed countries tends to stagnate, the size of the other two clusters increases significantly. In terms of growth rates, developing countries are taking the lead (+47% between 2012 and 2030 compared to +18% for emerging and +2% for developed countries). In absolute

terms however emerging countries supersede the other clusters by far with an expected increase in population by over 0.8 billion people (compared to 0.4 billion in developing and 0.02 billion in developed countries). This underlines the importance of emerging countries as an important influence on world economics and justifies the focus of this paper moving forward.

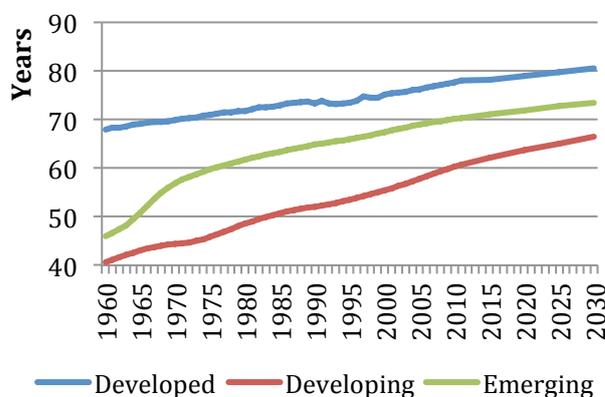


Figure 6 Life expectancy in economic clusters

Two major factors are considered as main drivers of the population growth in the emerging countries. First of all, life expectancy is increasing quickly in emerging countries. From 46 years in 1960, it exceeded 70 in 2010 and is expected to reach 74 in 2030. This improvement is attributed to several reasons: a decrease in child mortality has a strong statistical effect as outliers are removed. But also an increasing urbanization and technological advancement improved the availability for medical services

and medication. As a result, people live longer on average.

Secondly, the birth and death rates further boost the population growth. The dynamics drawn in Figure 4 follow a typical demographic transition model as proposed by Thompson (2003). Investment in public health and medical care in the 1950s reduced the mortality rate. Birth rates at the same time remained high which created an influx of new-born people, which further boosts population. As family planning became available in the 1970s, birth rates also started to decrease, albeit remaining higher than the death rates.

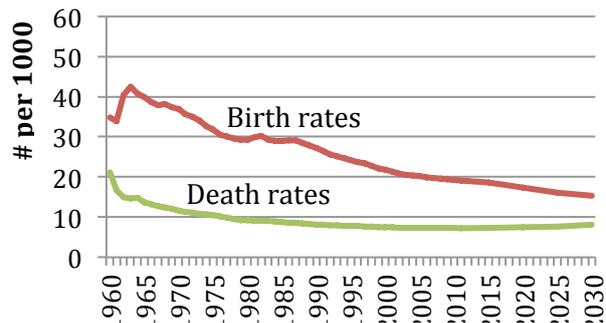


Figure 7 Birth rates in comparison with death rates in the emerging countries from 1960 to 2030

The growing proportion of young people provides an important opportunity for emerging countries in terms of economic growth. A large young generation provides

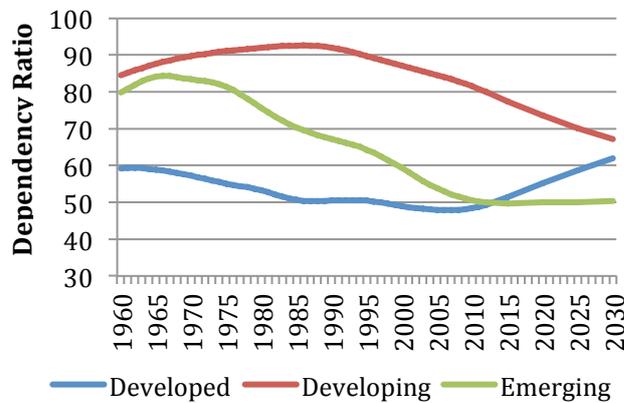


Figure 8 Dependency ratios for economic clusters

the basis for the demographic dividend which is characterized by an increased proportion of workers compared to the total population. In fact, one can observe the effect of the demographic dividend in Figure 5. From 1970 till 2010 the dependency ratio decreased steadily from over 80 to around 50 dependents per 100 workers. This is due to the fact that more young people

came of age and entered the active workforce. This means that less spending is required to maintain dependents and the freed money may

be used to spur economic growth.

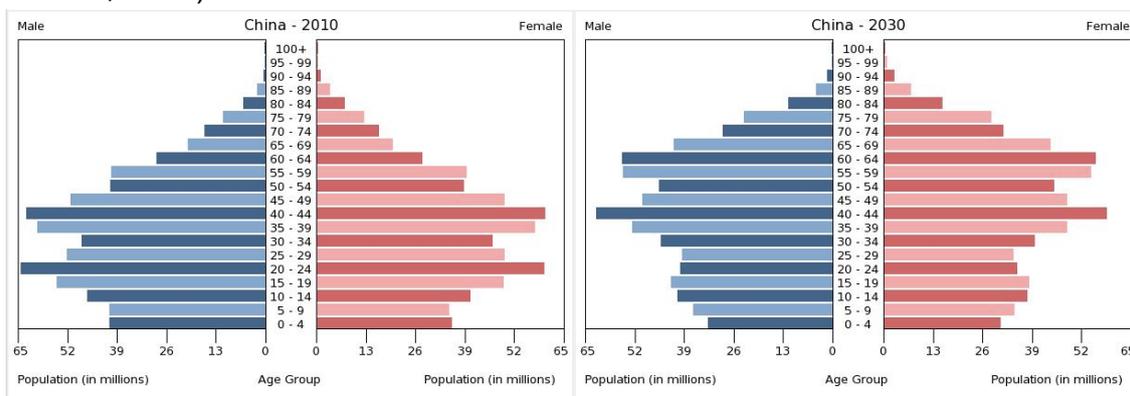
However, it is difficult to make general claims about the economic effect of the demographic dividend. Therefore the next section examines the opportunities and threats of population dynamics on a more micro-level.

### 3. Emerging Markets: Unique demographic footprints until 2030

In this chapter, the unique demographic characteristics and projected development of China, India and Brazil will be showcased. These countries account for almost 40% of the world's population. Therefore the demographic trends characterizing these countries have major implications for worldwide population change.

#### 3.1. China

In China the demographic transition<sup>58</sup> has happened with breathtaking speed. Recently the country has experienced a spectacular rise in living standards, low dependency ratios and a large share of the population in working years. However, these demographics are expected to be reversed in the upcoming years: due to the “one-child policy”, fertility has been decreasing steeply and is now estimated at 1.5 which is below the 2.1 replacement rate (Jackson et al. 2011, 17) and, as a consequence, the Chinese population is expected to peak in 2026 (US Census Bureau, 2009).



Population Pyramids for China in 2010 and 2030 (US Census Bureau, 2012).

When comparing the population pyramids for 2010 and 2030, the predicted decrease of citizens under 50 and increase of elderly, which will produce a major shift in China's population profile, can be observed. According to Eberstadt (2011b) and Jackson et al. (2011), China will be facing the following demographic challenges until 2030:

#### **Shrinking and ageing labor force:**

China's demographic dividend is almost over; working age population is projected to peak in 2016 and will be declining thereafter (US Census Bureau, 2009). By 2030 the

<sup>58</sup> Demographic transition as defined by Bloom (2011): “The change (...) countries undergo from a regime of high fertility and high mortality to one of low fertility and low mortality. As this phenomenon tends to occur in an asynchronous fashion, with death rates declining first and birth rates following later, countries often experience a transitional period of rapid population growth.” (p. 3)

work force will be shrinking by almost 1% annually (-2.7% compared to today) and also rapidly ageing: the age group of 20-30 year-old people will shrink by 35% (75 million), while the 55-64 age group will increase by 60% (80 Million). This is critical because the younger labor force pool usually has the most up-to-date know-how and highest educational attainment, which is crucial to improve workforce productivity. The older workers, in fact, are far less educated (Eberstadt, 2011b, 4). This reduction in work force will be leading to slower GDP growth, unless productivity or labor-force participation changes significantly. China may only be able to capitalize on internal migration of labor force in the short run; in the future it will be losing its competitive advantage as the growing sectors of the future economy may demand skills which cannot be supplied by surplus rural workers (Jackson et al. 2011, 19).

#### **Population explosion of senior citizens:**

Until 2030, the age group of citizens aged 65 and over is projected to double (8.6% to 17.2% or 22% in rural areas) and China's median age will be higher than the one in the USA (39 years) (Eberstadt, 2011b, 5). The rapid ageing trend is challenging for China as it will arrive decades before living standards and per capita income levels comparable to the ones characterizing developed countries are reached. In other words, China is growing old before it is becoming rich (Jackson et al. 2011, 19). Until now, China does not possess a national public pension system and has only a rudimentary public healthcare. Therefore the need to support the rapidly growing senior population will produce unprecedented economic and social pressure (Eberstadt, 2011b, p. 7).

#### **Increasing gender imbalance and unmarriageable males:**

China's one-child policy has produced a significant gender imbalance in newborns: in 2010, more than 118 boys were born for every 100 girls. By 2030 therefore almost 25% of the male population will never marry (The Economist, 2011) and this same number is projected to be over 30% for rural populations (Eberstadt, 2011b, 8). As a result, a large number of men will not only be unmarriageable, underprivileged and potentially dissatisfied but also potentially not supported by their children in the old age, in contrast with the Confucian tradition.

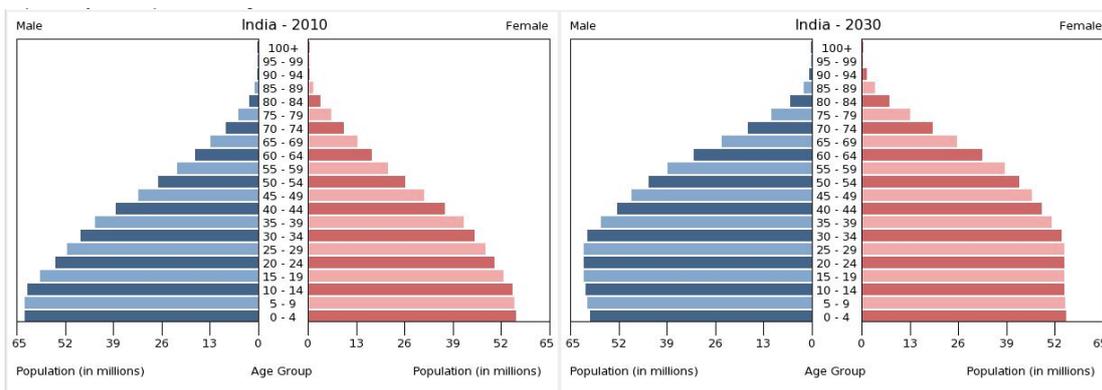
In summary, in the next two decades China will experience an accelerated ageing of its population. This will result in the shrinking and ageing of the overall work force potentially reducing its productivity and in a surplus of senior citizens before high per-capita income that could supply old-age support is reached. The one-child policy has further produced the future threat of a large number of never-married males. These demographic developments are predicted to slow the economic development of China; and in the long-term there might be even far greater risks to its growth and stability than is generally assumed.

### 3.2. India

In India, the demographic transition has happened more gradually than in China. Birth rates have fallen substantially to 2.6 today (from 5.0 in 1970), but remain above the replacement rate of 2.1. By 2030, the population of India is expected to rise to 1.5 billion people, with an annual growth rate of 1.1% per year. The median age is projected to be 31 years, with only 8% senior citizens of 65 years or older (China: 17,2%). It will therefore still be a relatively youthful country, but is also expected to reach a life expectancy of 70 years. (Eberstadt, 2011a) In 2028, India is projected to overtake China as the world's most populous nation and continue to grow until 2050, while China's population will be declining. (United Nations, 2013, 15) By 2030, India's working-age population will overtake the Chinese's, and by 2050 it will be nearly 40% larger (Jackson et al., 2011, 24).

#### **Labor force and demographic dividend:**

While China's period of demographic dividend is now ending, India's working-age population will continue to expand at a steady pace for the coming decades, until at least 2030 (Jackson et al., 2011, 21). The favorable demographics will last longer in India and the ultimate ageing challenge will not be as severe: in 2030, the working age population will account for 68% of the overall population and projected to be growing by 1.3% annually, which means that the working-age manpower will grow more rapidly than the overall Indian population until 2021. The labor force is expected to peak in 2035 and the demographic dividend is expected to last until 2050 (Altbach & Jayaram, 2010).



Population Pyramids for India in 2010 and 2030 (US Census Bureau, 2012).

#### **Increasing gender imbalance:**

In 2010, more than 112 boys were born for every 100 girls – one of the highest ratios in the world (United States Central Intelligence Agency, 2010). The main reason for this high ratio is thought to be (illegal) sex-selective abortions (Bloom, 2011, 8). In this respect, India faces similar challenges compared to China.

**Literacy and education disparity:**

In order to take advantage of the demographic dividend, education and training of the workforce is paramount. However according to the UN Population Fund (2009) 35% of all Indian adults are illiterate (23% Male, 45% Female), compared with just 6 percent in China (81). Educational attainment is especially low for girls, as well as school enrolment in areas of high birth rates. This “educational deficit” may have serious implications for health, well-being, social stability, economic growth, and even international security in the future. Therefore there is a strong need for Indian government to expand educational coverage for all, in order to avoid slowing its economic growth through the shortage of educational opportunities (Eberstadt, 2011a). On a more promising note, India still has a very educated, English-speaking middle class and may therefore have a competitive advantage over China in the global information-age economy (Jackson et al., 2011, 24).

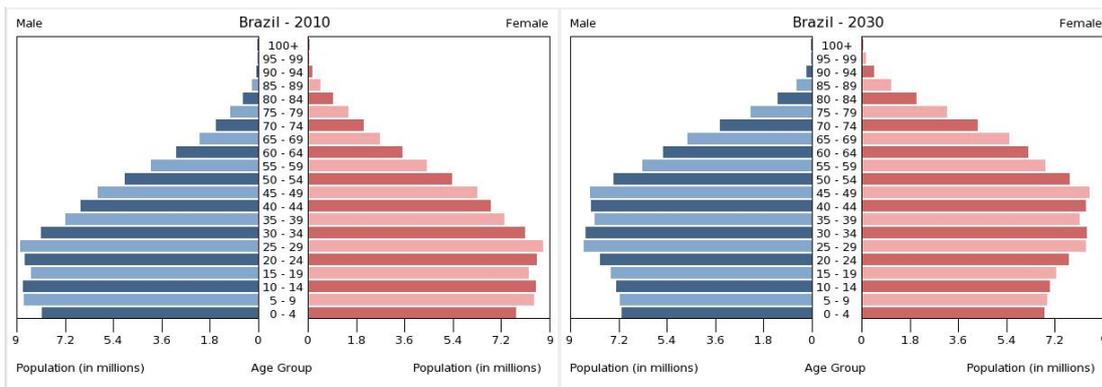
In summary, while China’s population will be declining, India will continue to grow for the upcoming decades and remain a relatively young country. It will even experience a larger growth in its working-age work force than in the overall population. This demographic dividend therefore represents a window of opportunity for economic growth if India manages to overcome the imminent threats stemming from a gender imbalance and low educational coverage.

### 3.3. Brazil

Already today, the population of Brazil comprises about a third of the total population of Latin America and is expected to grow to 224 million until 2030 with an annual growth rate of 0.5%. Brazil fell below the 2.1 replacement rate in 2005 and fertility has been decreasing continuously ever since. By 2030 the rate is estimated to drop to 1.7 (US Census Bureau, 2012) and, according to Rodriguez Wong & De Carvalho (2006), Brazil is expected to have the lowest fertility rate in Latin America (p. 165) and by 2020, the rate might be among the lowest in the world. As a consequence, the Brazilian population is expected to peak in 2042 (Winterstein, 2013).

#### Shorter demographic dividend and rapidly changing age groups:

Queiroz & Turra (2010) expect the demographic dividend in Brazil to be shorter than in most Asian countries (p. 15). In general, Brazilians can expect improving life conditions by more than 0.5% per year until 2020 (p. 17), but the demographic dividend may end by 2023. The population younger than 14 years is expected to drop from the current 24% to 17% by 2025 and in the same time, the population aged 60 years and older will overtake the young population (Arbache, 2013). Additionally, the working-age population is projected to peak in 2022 and will subsequently slowdown rapidly (Winterstein, 2013).



Population Pyramids for Brazil in 2010 and 2030 (US Census Bureau, 2012).

### **Challenges of population ageing for social security systems:**

Until 2030, the age group of citizens aged 65 and over is projected to increase from 6.7% in 2010 to 12.9% in 2030 (UN Statistics Division, 2013), with a projected median age of 37 years (USA: 39 years). The old-age dependency ratio in Brazil will subsequently increase to 20%, and is expected to reach economically unsustainable levels by 2030 (Queiroz & Turra, 2010, p. 18). A major concern for the ageing of the Brazilian population therefore lies in the increase of retirement and health spending, which will put pressure on public finances and social security. Already today, without the effect of an ageing population, the social security system is operating with high and increasing deficits. Queiroz & Turra (2010) also argue that Brazilian policy makers have reduced the benefits of the demographic transition and aggravated financial issues from population aging by granting new forms of benefits without requiring contribution and by not approving reforms to encourage tax payments (p. 18). Further difficulties lie in growing life expectancy combined with a relative low retirement age (54.4 years for men and 51.3 years for women). According to Jackson et al. (2011), Brazil will carry the largest burden of any emerging market in terms of cost of old-age benefits, which are expected to grow to 20% of GDP by 2040 (p. 28).

In summary, the fertility rates in Brazil are already on level with most developed countries, however it is lagging behind in terms of per capita income to support its ageing population. In order to combat the challenges stemming from the demographic developments such as a shorter demographic dividend than in Asia and a growing old-age dependency ratio, Brazil will need to substantially increase labor productivity through investing in technology, vocational training, infrastructure, and better education, as well as adjusting social security legislation to the demographic and economic reality (Arbache, 2013).

### **3.4. Summary**

Although all three considered countries belong to the emerging markets cluster, they face very different challenges when coping with the effect of demographic dynamics. In the next section the authors will shed further light onto this and dissect to what extent demographic change can explain economic power.

#### 4. Explanation of forecasted economic power by current and future population dynamics

The topic of the relation between economic power and population dynamics has long been debated among economists and demographers. Over the past years, three contrasting explanations for the impact of demography on the future economic performance have emerged (Easterlin 1967), with the proponents finding evidence to justify their theories:

1. Population growth restricts economic growth
2. Population growth promotes economic growth
3. Population growth is independent of economic growth

According to Bloom, Canning and Sevilla (2001), all these conceptualizations simply focus on population size and growth, while they do not take into consideration the age structure of the population, which is constantly changing too. When most of the population is working, a “demographic dividend” of economic growth can be produced in order to create a virtuous cycle of wealth creation (p. 2). The population growth has a large negative effect on per-capita income growth which is counteracted by a positive effect due to the growth in the share of the working population. Thus, when the age structure remains constant, the net result is neutral but with a changing proportion of workers, opportunities or problems arise (p. 19).

On the other hand, according to the Demographic Transition Model proposed by Thompson (2003), the economic development is highly correlated with demographic change, especially mortality and birth rates.

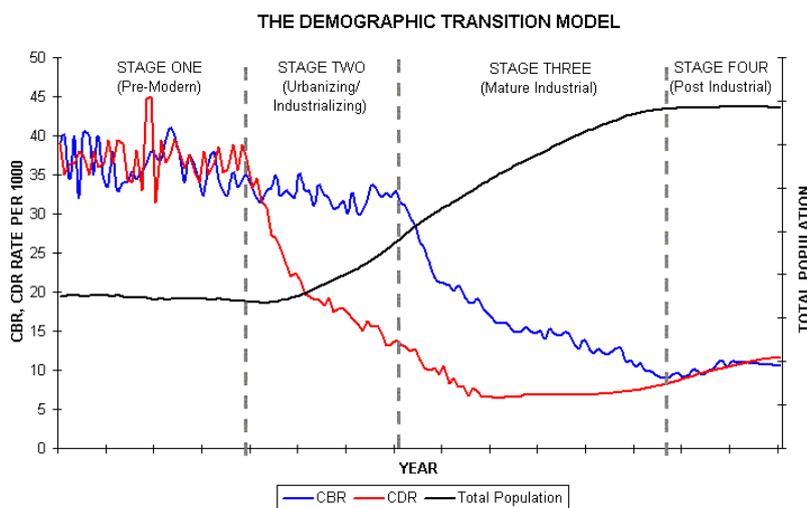


Figure 9 The Demographic Transition Model

However, it is important to note that the causality is unclear in this point (Helliwell 1994). On the one hand it is possible that demographic change drives the economic

power through the demographic dividend. On the other hand it can be equally be argued that economic development drives demographic change. For example better economic conditions would lead to increased investment in health care and education which as a consequence brings down death and birth rates.

Hence, population growth could be considered as an endogenous variable which is itself influenced by other variables like the income per-capita and the level of education. Both economy and demography could be seen as a self-enforcing cycle where one variable is influence by the other and vice versa.

Moreover, interestingly enough one can observe that both the recent demographic transitions and the economic ones were faster than in the past (Hausmann 2005). An argument which could justify faster economic transitions is the fact that countries “which follow” can benefit from the knowledge, experience and technology which have already been developed by others in the past but on the other hand the proposed explanation does not tell us why some countries are able to follow and others are not: a more favorable demographic condition could be then at the basis of the contrasting results.

Besides the unclear causality between economic growth and demographic change, the actual effect these variable have on each other are also highly debated. Looking at relevant examples from the past helps to understand this issue. In particular the difference between Latin America and Southeast Asia, which was already partially covered in the last section, can provide valuable insights.

According to Bloom, Canning and Sevilla (2001), East Asian nations have experienced so far an “economic miracle” which can be considered as evidence of the “demographic dividend” (p. 25). Conversely, although Latin American demographic changes have been so far favorable for growth and similar to the ones happening in East Asia in the same period, economic growth has not followed the East Asian pattern yet: the per-capita annual growth rate in the period 1975-1995 in East Asia stood at 6.8%, far higher than the 0.7% characterizing Latin America (p. 36-37).

Based on this, it is possible to observe how the presence of the “economic dividend” is not enough to create economic power: countries facing similar demographic conditions can then obtain very different economic results, meaning that the “economic dividend” simply creates opportunities which are only sometimes exploited.

Similar findings are described by Jackson et al. (2011). They find that several countries both in Southern Asia and the Muslim world experienced decreasing

dependency ratios since the mid-1970s. Furthermore the already low dependency ratios in Eastern Europe and Russia have fallen even further. Nevertheless, Jackson points out that for none of the regions the demographic dividends manifested in sustained economic growth rates that rival East Asia's. The main conclusion is that demographic dividends can only be reaped if society is able to mobilize economic resources and channel them efficiently into value-creating activities. East Asia has developed on sound macroeconomic policies, pro-business tax and regulatory regimes, efficient law enforcement and considerable government investments in infrastructure, R&D and human capital.

Based on Bloom, Canning and Sevilla (2001), the key policy variables influencing the ability of a country to reap the economic dividend can be grouped as follows:

- health policies to improve public health and access to care
- family planning and related reproductive health: policies to help families achieve their desired size
- education policies to increase access to schooling and create human capital
- economic policies that promote labor-market flexibility, openness to trade, adequate credit (financial markets) and savings (p. 55).

A policy failure could rapidly turn opportunities into risks which could even give rise to political instability - as it has recently happened in North African countries.

Moreover, demography could offer only a one-time advantage on which it is necessary to capitalize: the countries enjoying the demographic dividend have to start betting in advance on the future, continuing investing in their development process and already planning for an older population.

According to what is stated in the first part of this paper, it is possible to notice how clusters, which are meant to be built based on economic/development criteria also present common demographic patterns even if some important exceptions exist.

The countries which are classified as emerging, are generally situated at a later stage in the demographic transition compared to the developing ones and still different demographically from the developed countries. As a consequence, countries pertaining to the same cluster face similar challenges which will not necessarily result in similar or equally successful solutions.

In conclusion, demography provides a clear framework through which it is easier to identify specific opportunities, future challenges and priorities. But ultimately, the ability to put effective policies in place in order to take advantage of the present and

future conditions is paramount. Population composition should be used as an important tool for the creation of sound and meaningful country policies. Demography can only explain the economic potential of a country or region: the realization of such a potential depends from a vast array of factors which, in turn, could have an impact on the demographic variables as well.

## 5. Conclusion

This paper sought to investigate the position of emerging countries compared to the developed and developing ones in the light of demographic issues. Increasing life expectancy results in an ageing population. Coupled with a decreasing fertility rate this creates major opportunities and challenges in terms of economic growth and policies meant to facilitate it.

In particular, the three major emerging economies – China, India and Brazil – have been thoroughly analyzed with reference to the opportunities and challenges of demographic change. It has become obvious that, although major opportunities are present, each country experiences the population dynamics differently and faces a unique set of challenges which have to be solved.

China will experience a particularly accelerated ageing of its population which, together with effects of the one-child policy, will slow its economic development already within the next two decades. The most important aspects of the future demographic development are a shrinking and ageing work force, a surplus of senior citizens before high per-capita income levels are reached and a large number of future unmarried males.

On the other hand, India will continue to grow for the upcoming decades and experience a larger growth in its working-age population. However, India also has to overcome a threatening gender imbalance and low educational coverage in order to capitalize on the economic opportunity produced by its favorable demographic conditions.

Lastly, next to a shorter demographic dividend than the one enjoyed in Asia, Brazil is facing similar challenges as many developed countries in terms of low fertility rate and greying population. However, the lower per capita income and the weaker social security system compared to developed countries will struggle to support the country ageing population. It is therefore required to substantially improve labor productivity and social legislation.

It is evident that similar demographic conditions can result in very different economic results according to the specific policies which are implemented at the individual country level. This point is particularly evident in the analysis of population dynamics as an explanation of economic power. From the example of Latin America, where despite promising demographic dividends no “economic miracle” like in East Asia happened, it became clear that demographic change is not a guarantee for economic prosperity but rather a window of opportunity. Suitable policies have to be put in place to reap the potential.

Furthermore, the Demographic Transition Model suggests that there could be a reversed causality in which economic performance drives demographic change. With increasing urbanization, the death rate drops dramatically while fertility rate remains on a high level and only decreases once an economy transitions into the mature industry stage. As a result, the economy benefits from a larger group of mature and experienced workers, while maintaining a high supply of young workforce. This creates the aforementioned demographic dividend.

In conclusion, demography provides a clear framework through which it is easier to identify specific opportunities, future challenges and priorities. But ultimately, the ability to put effective policies in place in order to take advantage of the present and future conditions is paramount. Population composition should be used as an important tool for the creation of sound and meaningful country policies. Demography can only explain the economic potential of a country or region: the realization of such a potential depends from a vast array of factors which, in turn, could have an impact on the demographic variables as well.

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Universität St.Gallen

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**Megatrend 'Global Demographic Change' –  
Tackling Business and Society Challenges in 2030 and beyond**

**Demographic Ageing  
What is the impact on capital markets?**

Lecturer: Dr. med. Hans Groth, MBA

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## **Abstract**

This paper discusses the influence of demographic ageing on capital markets and banks. Its main goal is to assess how banks have to change their strategies in order to master this challenge and at the same time preserve their competitive edge. In order to come up with a fitting strategy, the paper looks at the impact of demographic ageing on people's saving, investment and credit behavior and on certain economic and financial factors. The paper comes to the conclusion that the process of ageing is going to put pressure on future GDP growth per capita and the long-term real interest rate in developed countries. Furthermore, a steadily decreasing support ratio increases incentives to shift from the traditional PAYG pension system towards a private pension system. Also, there is going to be a shift in demand for the different asset classes and equity P/E ratios are expected to fall.

Using these findings, this paper will gauge the influences of demographic ageing on the banking sector and in particular on Credit Suisse. We come up with proposals how banks can deal with the changing environment. They have to adjust their product portfolio to fit the demand of an ageing society, have to change their approach to customers and expand into emerging markets with dynamic populations. The increasing competition within the banking sector will intensify the need for a strong brand and flawless reputation in order to bind customers to the bank for a longer term. As a consequence, risk management will move into even greater focus in banks.

Swiss banks and, particularly, Credit Suisse are already in a favorable position with respect to an ageing society. However, they still have to make adjustments if they do not want to get overwhelmed by this approaching megatrend.

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## List of Abbreviations

Bn	Billion
Ch.	Chapter
CS	Credit Suisse
ECB	European Central Bank
EU	European Union
FEDSF	Federal Bank of San Francisco
G10	Group of Ten
GDP	Gross Domestic Product
IBD	Investment Banking division
OECD	Organization for Economic Co-operation and Development
PAYG	Pay-as-you-go
P/E	Price/Earnings
RoE	Return on Equity
UN	United Nations
UNFPA	United Nations Population Fund
USD	US-Dollar

## 1. Introduction

The term “Demographic Challenge” can be read nowadays in numerous articles and papers. In order to get a better grasp of this term it is helpful to start first with the underlying principle of the demographic change. After the Second World War, a sharp increase in fertility rates in the US and Europe led to the so-called Baby Boomer generation (Doepke et al., 2007). This generation has driven economic growth in the last decades and is going to retire soon. Since fertility rates dropped again after the 1960’s, we are now confronted with a disproportionately large share of elderly people who are starting to retire. Now, the second part of the term “Demographic Challenge” implies a negative impact of the demographic development that needs to be overcome. It is quite intuitive that a broad work force is more helpful to a thriving economy than a huge amount of retirees who need to be supported and can no longer provide much labor contribution to the economy. The impact of this development on the financial markets is going to be crucial for the future of the whole economy. The Economist (2009) wrote that “the demographic bill is likely to be ten times bigger than the fiscal cost of the financial crisis” and various scholars have warned that a so-called Asset Meltdown might occur when the Baby Boomer generation retires and starts to dissolve its savings. Of course, these are the worst-case scenarios and most economists project a smoother transition. But it is certain that there are going to be changes that will affect both the economy and the financial markets.

There is still a 10-year window of opportunity before the baby boomers retire and the number of workers begins to decline. If financial institutions and, in particular, banks will start to incorporate this inevitable trend into their strategic consideration, they will not be caught off-guard by these changes. An early adjustment will ensure a competitive edge over banks that miss out on this trend.

The paper is divided into four parts, which try to capture the important aspects regarding demographic changes and their impact on capital markets. Chapter 2 of this paper will provide a general framework and explain the dynamics of the whole process. The next chapter is going to discuss the implications of demographic ageing on the economy and the financial markets. Chapter 4 provides an overview of how banks are affected by this changing environment and how they might adapt to these changes. Finally, Chapter 5 concludes this paper with a case study on what Credit Suisse can do in order to prepare itself for the challenges which demographic ageing has in store for the banking industry.

## **2. Demographic Change**

Demographic changes have a huge impact on the business strategy of a company. Therefore, it is important for all organizations to think about these changes and what the world will look like in future. To answer the question of how demographic ageing will affect the capital markets, it is important to think about the global demographic changes themselves first.

### **2.1 Global Demographic Change**

According to the Trend Compendium 2030 from Roland Berger (2011) there exist seven megatrends, which have to be taken into account when thinking about a future business strategy, for example innovation and natural developments. All of these megatrends deal with different aspects of the world and its economy. One of the most important megatrends identified concerns changes in demographics. This will also be the megatrend this paper will focus on, because it is the most relevant one for the topic we want to discuss. However, the examination of this particular trend is not concluding. Hence, all the other megatrends should be equally considered when thinking about the world in 2030 and beyond.

#### **2.1.1 Growing world population**

The megatrend “changes in demographics” actually consists of three trends (Roland Berger, 2011, p. 5), which will be explained in this paper in full detail. Foremost, there will be a growing world population according to the United Nations (2006). This means that by the year 2030 around 8.2 billion (bn) people will live on earth. That is a plus of 15% compared to the current world population of around 7.2 bn people (worldometers, 2013). The reason for this increase is a steadily increasing life expectancy for most of the people on the planet, as seen in Figure 1. Life conditions are nowadays better than they used to be a couple of decades ago since they are dependent on higher living standards, improved health systems and a higher development and availability of medication around the world. These developments are nowadays improving the fastest in less developed countries. Thus, the increase in population is resulting mainly from these poorer countries. (Lecture of Dr. med. H. Groth from 19<sup>th</sup> September 2013). The fertility rate is an additional factor which leads to an increase in the population, especially in poorer countries. As shown in Figure 2 the fertility rate is declining, but the effect is the highest in developed countries, mainly because of higher educational level and the different set up of the population. According to the Goldman Sachs paper (2001, p. 4) “a fertility rate of 2.1 is necessary to maintain a stable population”. As seen in Figure 1 below, this threshold

will be approached by 2050. Another reason for the population growth is the immigration. But since immigration cannot be predicted reliably, this aspect will be faded out for the moment (Lecture of Dr. med. H. Groth from 19<sup>th</sup> September 2013).

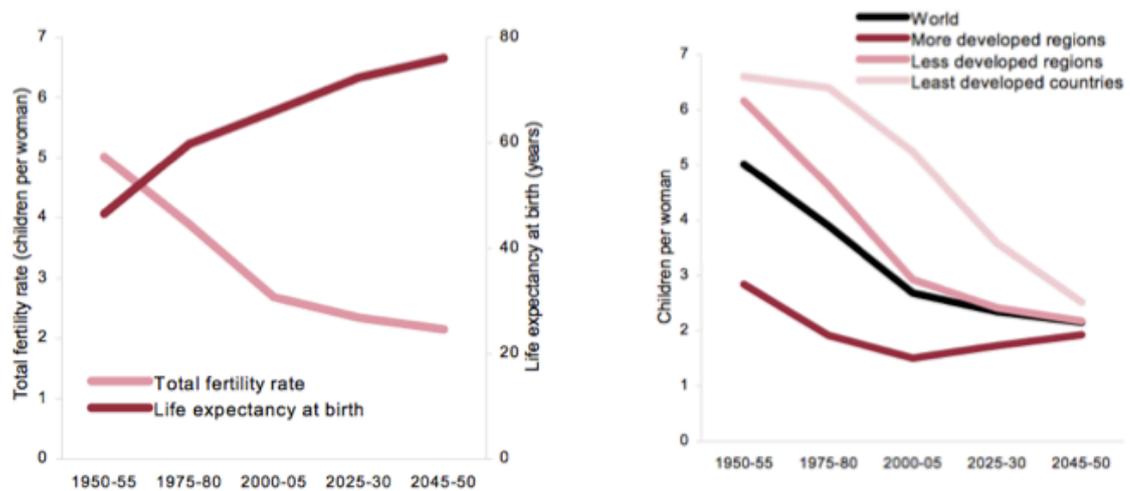
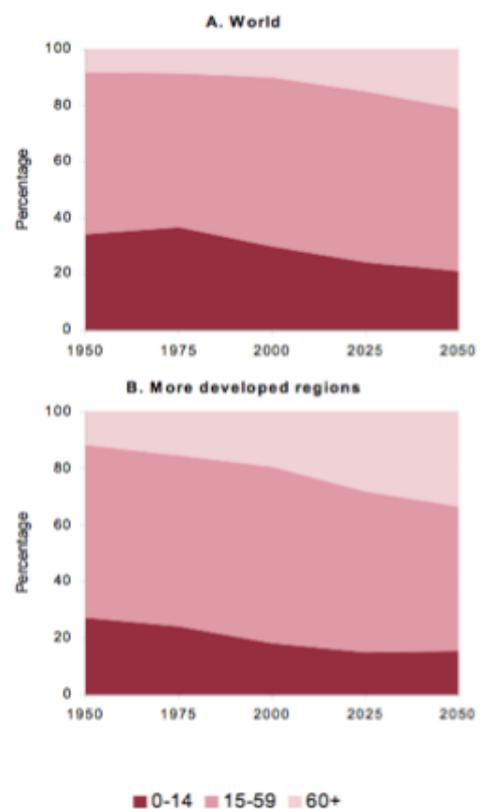


Figure 1: Life expectancy at birth and Total fertility rate, 1950-2050 (United Nations, 2008, p. 5/8)

### 2.1.2 Ageing Society

Secondly, the world will be confronted with an ageing society (Roland Berger, 2011, p. 5). Since this paper covers the issue of demographic ageing and its impact on capital markets, it is essential to cover the changes in demographic ageing in more detail. The reasons for demographic ageing are a lower fertility rate, better health care and the decrease in child mortality rates. Even though the phenomenon of an ageing society will affect all countries (United Nations Population Fund [UNFPA], 2013) progress in developed countries will be much faster than in emerging and developing ones (United Nations [UN], 2007). Another important aspect is the structure of the population by age groups. As stated in the paper “Demographic Change, Bank Strategy and Financial Stability” (Schmitz, p.100) the disposition of



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Figure 2: World Population by age structure (United Nations, 2008, p. 8)

the different age groups will change, so that the elderly population will be growing accompanied by a decrease of the young population. According to the United Nations (2002), the proportion of the elderly people (persons aged 60 and older) will match the proportion of the young people (aged 0-15) in the world for the first time by 2050. Even though in the year 2000 around 30% of the world population was younger than 15 years old, the percentage of this age group will shrink to around 20% of the world population by the year 2050. This corresponds to a decline of 33%. In comparison, the population aged 65 years and older will increase by around 250% in the same time span. If concentrating only on the developed countries, this effect has already occurred and the number of people aged 60 and older will be double the number of younger people by 2050. This effect can be described with the support ratio, which is a key figure and is calculated by dividing the number of people aged between 15 and 64 by the number of people aged 65 and older. As shown in the Figure, the support ratio is declining, which means that nowadays in Europe only approximately 4 working people are taking care of 1 elderly person.

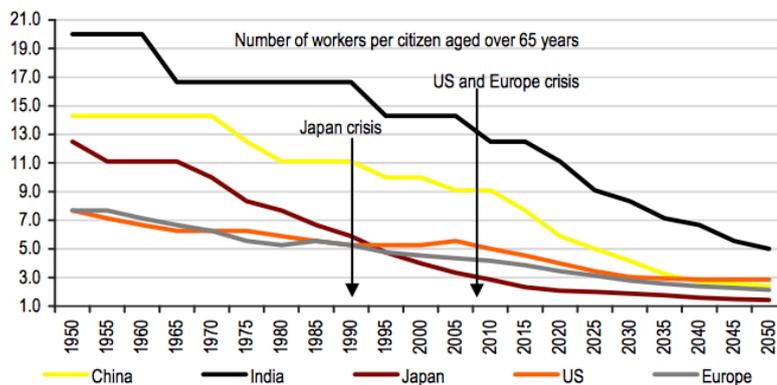


Figure 3: Support Ratio (UBS, 2013, p. 6)

According to a paper from Goldman Sachs (2001, p. 2) this will lead to the effect, that in the future the working population has to support twice as many people aged 65 and older than they used to. And since the working-age population will decline, the total employment will also decline, while the employment-rate will be higher in the future (see Figure 4). This will have an enormous impact on the employment market as well as pension funds and therefore on the whole economic system.

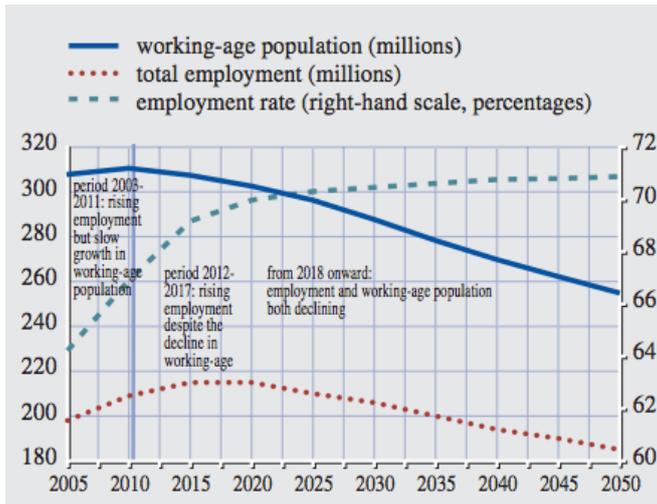


Figure 4: Projected working-age population and total employment (European Central Bank, 2006, p. 23)

The whole aspect of the ageing society can be illustrated with the Figures below, which show the age structure in 2004 on the left hand side compared to the age structure of the population in 2050 (European Central Bank [ECB], 2006, p 22). The age pyramids show, that there will be a lack of middle-aged people and an oversupply of elderly people in the future.

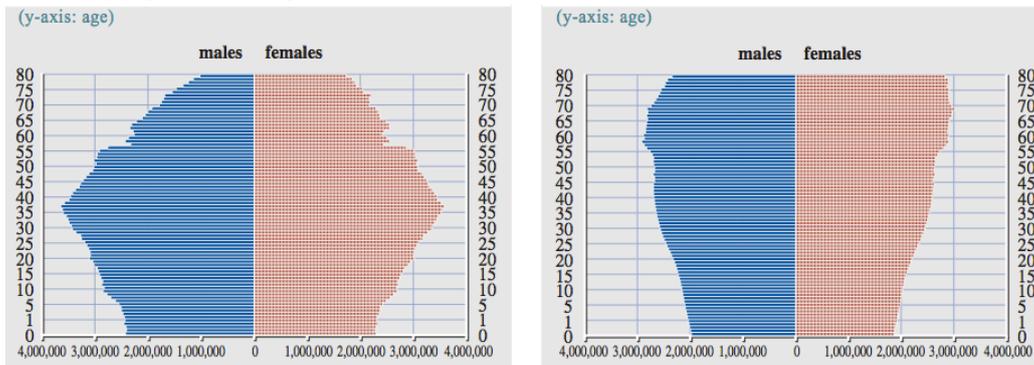


Figure 5: Age pyramids for EU-25 in 2004 and 2050 (European Central Bank, 2006, p. 22)

### 2.1.3 Urbanization

The third trend regarding the changes in demographics covers the increase in urbanization (Roland Berger, 2013). As written in the text “Demographic Change, Bank Strategy and Financial Stability” (Schmitz, 2007, p. 103) urbanization comes along with geographical distribution. According to the OECD (2012, p.206), around 60% of the older people in less developed countries live in rural neighborhoods, whereas in developed countries only around 30% of elderly people live in those areas. This shows that also for people aged 60 and older urban regions are attractive

places to live in, although the states have to elaborate a system, in which the older people can be supported properly. In addition to that, a better transportation system as well as a variety of lifestyles lead to the assumption, that urban areas will become more attractive to live in than rural areas. Because of this presumption and a higher diversity of cultures, which arises from higher immigration across countries, Schmitz (2007, p. 103) says in his article that the housing market will be confronted with a high price volatility. And in turn, this could have again an impact on the geographical distribution and therefore on the whole economy.

## **2.2 Demographic Change in Switzerland**

The topic of this paper covers demographic ageing and its impact on capital markets. Since our Case Study in Chapter 5 deals with Credit Suisse, it is important to take a deeper look into Switzerland and its demographic specifications. The described trends for developed countries in the previous section are more or less valid for Switzerland as well.

However, it should be mentioned that the population of Switzerland has grown at a rate of 1% per year in the past years (Groth, 2009, p. 2). In addition to that, Switzerland is suffering from an ageing population. This means that by the end of 2030 there will be twice as many people older than 60 years as today. According to Groth (2009), immigration has two different ways of influencing this trend. On the one hand, immigration is the main reason for the increase of the Swiss population, on the other hand, immigration can slow down the process of the ageing society, because most of the immigrated people are young and the fertility rate of their women is higher than the fertility rate of Swiss women. That is why certain immigration is quite important for the country. Switzerland has also been classified as one of the best countries in terms of life expectancy (Groth, 2009). One reason for this development could be the high level of wealth and an excellent health system in the country. Moreover, Switzerland has a high ranking with regard to the labor participation of women and people aged between 55 and 65. The biggest challenge for Switzerland is to create a society, in which every age group is fairly represented (Bundesamt für Statistik, 2013, p. 22).

### **3. Impact on Economic Aspects and Capital Markets**

As described in Chapter 2, the demographic change will significantly change the age structure in various economies in the future. Since people develop different needs and habits according to their stage in the life cycle, companies have to adjust their product portfolios correspondingly. Especially banks should be aware of this trend, since they serve clients across almost all ages and often accompany their clients throughout long time spans. As expected, many banks are already trying to develop a better understanding of the process of ageing and are starting to prepare for these future challenges.

#### **3.1 GDP Growth Rate per Capita**

In order to better understand the influences of ageing economies on the Gross Domestic Product (GDP) per capita, Robert D. Arnott and Denis B. Chaves (2012, p. 24) decompose the term into its constituent parts. The GDP per capita can be understood as the sum of the productivity of workers in an age group  $j$  times the number of workers in age group  $j$  divided by the population. This simple equation allows a more detailed analysis of the different channels through which ageing affects the GDP per capita.

The first term in the equation is the productivity of age group  $j$ . Kanazawa (2003, p. 258) concludes that scientific productivity peaks at around 30 years. The so-called age-genius curve reaches its maximum between 30 and 40 years. The only exception being authors whose curve peaks at their fifties. Countries where the economic dividend has already passed this range thus have a lower expected productivity. Other countries, mainly the less developed ones, are still prior to their demographic dividend, thereby making these markets potentially interesting for the future.

The number of workers in age group  $j$  is now directly linked to the demographic change. Ageing economies have a larger fraction of their population in the age groups 60+ with a decreasing working age cadre. Therefore, developed countries show a shift of the population towards age groups with lower productivity. This effect could of course be counterfeited by higher labor productivity, which, however, is not expected (Schmitz, 2007, p. 101).

Consequently, the GDP growth per capita in developed countries is likely to decrease in the next 30 years. The ECB (2006, p. 24) forecasts that ageing will have a modestly negative impact on GDP growth per capita in the EU-25 countries. The average annual GDP growth per capita is projected to be +1.7% until 2050. More specifically, it is expected to decline from 2.4% (2004-2010) to 1.9% (2011-2030) to 1.2% (2031-2050). Goldman Sachs (2001, p. 5) points out that slower economic

growth coupled with high government debt levels presents a potential source of instability since it would reduce monetary and fiscal flexibility.

### 3.2 Residential Real Estate Markets

Mortgages normally constitute a large part of a bank's assets. In Switzerland, 29% of

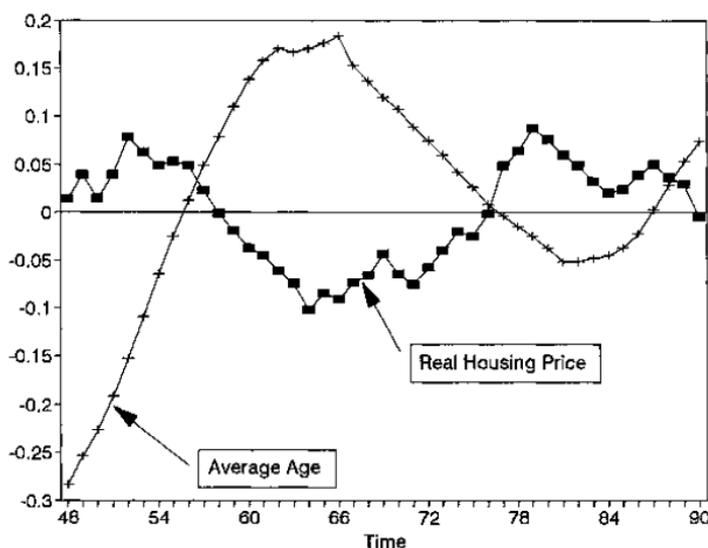


Figure 6: Relationship between housing price and ageing (Bakshi and Chen, 1994, p. 173)

all bank's assets were mortgages in 2011 (Swiss Bankers Association, 2012, p. 18). Influences of the demographic change on the real estate market could affect future asset structures of banks. Bakshi and Chen (1994, p. 168) show a negative correlation between housing prices and the population's age structure. Figure 6 depicts this co-

movement until 1990. However, the demand for housing is not directly linked to the size and age structure of

the population but rather to the number, size and age structure of households. In Germany, for example, a country which is especially affected by the effect of ageing, the number of households will grow slightly due to the growing proportion of one- and two-person households and of small elderly households (Schmitz, 2007, p 102).

In the long run, however, one might assume that a decreasing proportion of young people will lead to a decrease in demand for mortgage loans. Banks have to anticipate this trend and focus on new products like the reverse mortgages, which will be discussed in Chapter 4. Due to increasing mobility, higher diversity of lifestyles and cultural backgrounds, the housing market is also supposed to become more dynamic, leading to local over-/undersupply and increasing volatility (Schmitz, 2007, p 103). Banks that operate mainly regionally and have a locally concentrated mortgage portfolio will face higher mortgage credit risk (ECB, 2006, p. 30).

### 3.3 Pension Schemes

At the end of 2012 pension funds in the 13 most important pension markets totaled to about USD 29.754 bn (Towers Watson, 2013, p.7). This size corresponds to more than ten times the total hedge fund market size (Citigroup, 2012, p. 3). The two

dominant pension systems are the so called pay-as-you-go (PAYG) system where working people pay taxes to support the retired and the private pension plans where workers buy assets which they sell when they retire. Low fertility combined with reduced mortality leads to a rising dependency burden that cannot be sustained by PAYG systems in the future. Consequently, pension systems have to be reformed. Due to the size of the pension fund market, these reforms will have a huge impact on the financial system.

The OECD has addressed this concern and developed three possible scenarios of how pension fund systems have to deal with the problem of ageing: a rising contribution rate, a gradually increasing age of retirement and a pension saving scenario (Organisation for Economic Co-operation and Development [OECD], 2005, p. 11). In Germany, subsidized private pensions (German Riester-Rente) are already gaining influence and a working group of the G10 stressed the fact to further incentivize private pension savings in a report written already in 2005 (Group of Ten

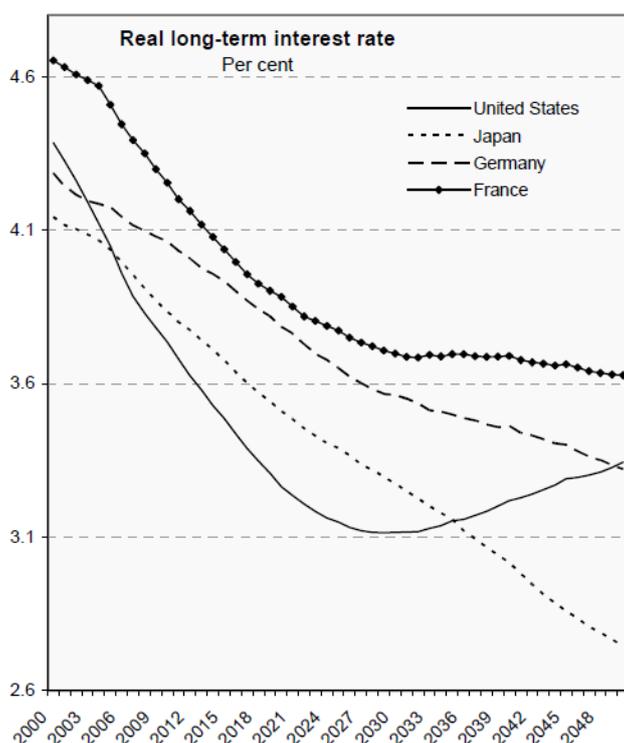


Figure 7: Real long-term interest rates (OECD, 2005, p. 63)

[G10], 2005, p. 39). The future developments caused by the first two scenarios are relatively modest but the third scenario will lead to a reduction of replacement rates (the percentage of a worker's pre-retirement income that is paid out upon retirement) to 25% - 35% by 2050, incentivizing prime-age households to increase their savings. Assuming that private savers demand different assets than pension funds and that a pensions fund's asset allocation changes with the participants' age distribution, banks may need to adjust their product portfolio in the future in order to stay competitive. Consistent with the life-cycle risk aversion hypothesis described in the next section, pension funds decrease their share in equities as the average age of their

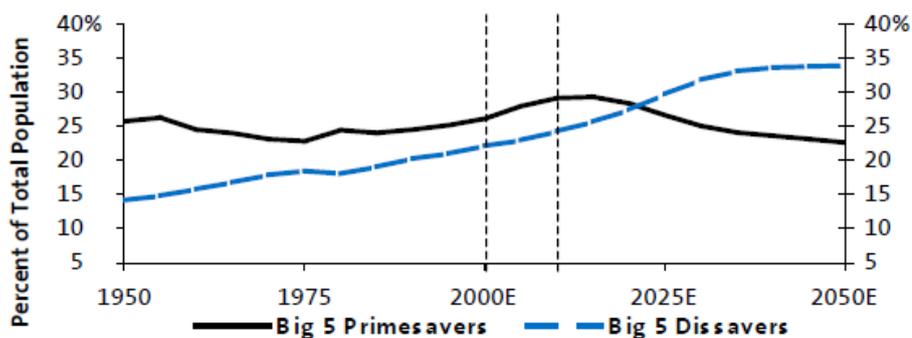
participants rises. This finding is most consistent with large pension funds (Bikker et al., 2009, p. 17).

A widely held concern is the so-called Asset Meltdown Hypothesis. It is based on the belief that, with an increasingly large share of people who receive pension funds compared to people who pay into pension funds, pension funds will become net

sellers and therefore exhibit downward pressure on asset prices. According to the OECD, this meltdown is not very likely to occur in any of the three scenarios. The effect of ageing on the long-term real interest rates is highly dependent on which of the three pension scenarios is going to occur. In order to compensate for a decline of the working age population, the capital intensity of production will have to rise. This leads to a lower marginal productivity of capital, which in turn brings down the long-term real interest rate. The OECD (2005, p. 61) projects the long-term real interest rate to decline modestly in the first two scenarios which are based on PAYG systems but a privatization of pensions would make people save more, therefore lowering the marginal productivity of capital and thus exacerbating the decline in the long-term real interest rates. Schmitz (2007, p.102) mentions that the decrease in savings of older people would raise the long-term interest rate but also comes to the conclusion that the former factors overweigh. Figure 7 illustrates the expected development of the long-term real interest rate for various countries conditional on the third scenario. Schmitz (2007, p. 103) predicts cuts of up to 15% of funded pensions as a consequence and the ECB (2006, p. 30) expects that banks, as a result of shrinking interest margins, will focus on ways to produce non-interest income. The net interest loss as well as the effort to explore new business lines is supposed to destabilize the financial industry until banks have become adjusted to the new environment (ECB, 2006, p. 30).

### 3.4 Savings and Investments

Intuitively, one would think that people increase their savings until they retire and then start to decumulate their wealth. This assumption is proven by Cook (2005, p. 313). According to the ECB (2006, p. 28), the decrease in savings and the low interest environment will lead to an increasing demand for products offered by non-bank financial intermediaries. Figure 8 shows



Note: The "Big 5" includes United Kingdom, France, Germany, Italy, and Spain.

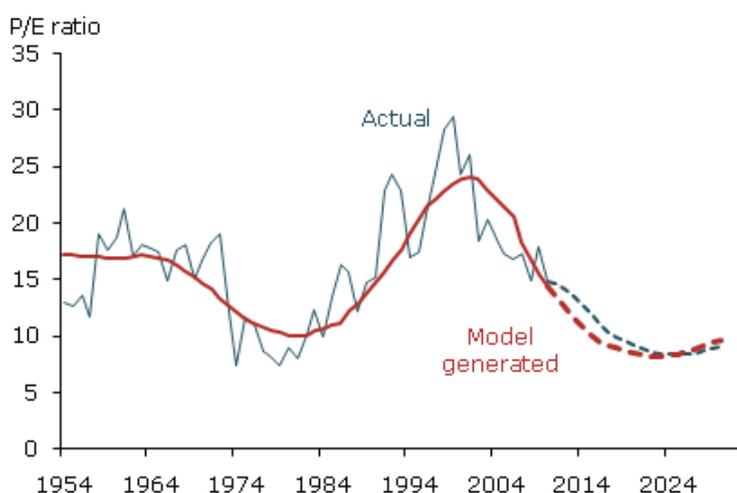
Figure 8: Prime savers vs. dissavers (Goldman Sachs, 2011, p. 35)

that the number of dissavers (60+) will presumably overtake the number of prime savers (40-59) in 2020. In 1994, Bakshi and Chen (1994, p. 167) developed the so called life-cycle risk aversion hypothesis which states, that an investor's relative risk aversion increases with age. The implication of the hypothesis is that investors are going to reduce their fraction in risky assets as they become older. Sitlani et al. (2011, p. 35) show that the least demanded asset class of old people are equities, derivatives and gold. Mutual funds as well as fixed income products will be the main beneficiaries of this shift in demand. However, one has to mention that their results are only significant on a 90% level. Banks will therefore have to adapt to a change in demand for financial products and have to find a solution to the problem that their losses in customer savings might flow into non-bank financial products. Especially regional banks that only operate in countries experiencing such a demographic development will have troubles finding enough demand for their traditional financial products.

### 3.5 Bond and Equity Returns

The rising risk aversion of ageing populations is suspected to increase the market risk premium demanded from financial assets. According to the life cycle investment hypothesis, investors are expected to spend most of their money in housing when they are still young and afterwards start to invest a constantly growing share in financial assets. The Baby Boomer generation provided excellent panel data to prove this theory (Bakshi and Chen, 1994, p. 167). These results debilitate the fear of an upcoming Asset Meltdown even further. However, Bakshi's and Chen's data only stretches until 1990. The population proportion of people exceeding their sixties has increased even further since then. While general hypotheses about risk aversion and demand structure throughout the ageing process should not have changed significantly over time, the following papers are more recent and provide results better fitted for today's population structure.

As already expected, ageing market participants demand higher yields on stocks and



bonds. High yields on equities and bonds signal a high degree of risk aversion, high expected returns and low prices. This relationship holds unto the dominant age groups reaches their early sixties. If this dominant age group, however, exceeds the 65+ and starts to retire, they start

Figure 9: Equity P/E ratio in the US (FEDSF, 2011)

to harm financial performance and economic growth. As they are disinvesting their savings and no longer contribute to the production, returns are falling. For equities, this trend will start as the predominant age group turns 60 and for bonds as they approach age 65. This observation is consistent with the finding that elderly people prefer bonds over stocks (Chaves, 2012, p. 32). Furthermore, Davis and Lee (2003, p. 25) confirm the above stated results but are further able to show that an increased share in the 65+ age cadre has a negative effect on equity prices and puts upward pressure on bond yields. Figure 9 depicts the expected Price/Earnings (P/E) ratio for US equities. The generated P/E ratio is based on the ratio of prima age (40-49) people to old people (60-69). As one can see, the predicted P/E ratio is highly correlated to the actual P/E ratio during the observed time period. The model predicts future equity P/E ratios to fall to roughly 8.1 by 2025 and then recover slightly (Federal Reserve Bank of San Francisco [FEDSF], 2001). The data used in this study only covers the US. The affect of ageing is supposed to be even more pronounced in European countries.

### **3.6 Replacement Migration - The Solution?**

Critics of the severity of the demographic change often state that the trend will be countered by high net immigration. The United Nations (2001, p. 4) have prepared a study in which they clearly dismiss this possibility. The replacement migration needed to offset this development would have to be unrealistically high. In the European Union, for example, in order to keep the current dependency ratio steady a total number of over 600 million immigrants would be needed until 2050. These findings do not erode the importance of replacement migration. On the contrary, without immigration the demographic trend would be even more severe. Nevertheless, market participants cannot rely on the counteractive impact of replacement migration. Instead, they have to prepare themselves for a decreasing GDP growth rate per capita, lower real long-term interest rates, changes in consumer demand, new competitors and a changing pension system.

#### 4. Impact of Demographic Change on the Banking Industry

Apart from the factors described in Chapter 3 which affect the banking environment indirectly, there are also other factors that have an influence specifically on the banking sector due to demographic ageing.

*Changing household demand* is one of the most important of such factors (Schmitz, 2007). Due to lower GDP growth per capita, decreasing population growth (negative population growth in Europe after 2025) and, especially, a shrinking proportion of young customers, there will be a decrease in the demand for mortgages and consumer credit (ECB, 2006, p.29). It is also anticipated that there will be a shift in household portfolio composition from bank deposits towards funded pension provisions, stocks and bonds as well as investment funds (Schmitz, 2007, p. 107). It is therefore advisable that banks adjust their product portfolio. It will be important to include integrated products and services, near-financial services and non-financial services (e.g. healthcare) to help the bank bind customers to itself for a longer time and also provide it with a competitive advantage (Schmitz, 2007, p. 104).

Banks could also start offering *new products* such as *reverse mortgages*. These are financial instruments that allow older people to borrow money from the bank against the equity of their house. They therefore provide a way for homeowners to cash out home equity without having to sell their home (Nakajima, 2012, p. 25). The homeowner will receive regular payments from the bank, while steadily losing home equity, until he moves or dies, no matter how long he lives. The bank is then repaid from the proceeds of selling the home. It therefore bears the risk with respect to the number of years the homeowner will live and whether the value of the house will suffice to cover the granted loan (DEMHOW, 2010, p. 3). The borrower also does not need to make principal or interest payments while he occupies the property and therefore does not have to meet any credit qualifications (ECB, 2006, p.31). Reverse mortgages are therefore especially attractive for elderly individuals who have low pension income but have accumulated high equity in their homes. In the US, reverse mortgages have experienced an increase in popularity since 2001: the percentage of home-owning households age 65 or above who were using reverse mortgage loans has risen from 0.2% in 2001 to 2.1 % in 2011 (Nakajima & Telyukova, 2013, p. 5). In the European Union the reverse mortgage market is still quite small (Reifner, Clerc-Renaud, Pérez-Carrillo, Tiffe & Knobloch, 2009, p. II). This can be explained by the high costs of these loans (ECB, 2006, p. 31) and the lower need of retirees for supplemental income in those EU countries which have a well-developed mortgage market (DEMHOW, 2010, p. 4). There is also the large drawback that the loan will come due, if the homeowner fails to pay the property taxes or insurance on the house or if he moves out of the house, which might scare off potential customers (Nakajima, 2012, p. 20). Nevertheless, the rising share of the elderly in the population is bound to drive up demand for reverse mortgages and banks can

stimulate it further by making their clients more familiar with this product (DEMHOW, 2010, p. 4).

Due to increased longevity of the population and higher share of old wealthy clients, it will be more important to bind customers to the bank with *long-term customer care*. This will require more personal service, high-quality financial advice and tailor-made products. In short, the banks will have to offer more products to the public which were previously reserved for private banking clients in order to increase the switching cost of the customers to other banks (Schmitz, 2007, p. 107). This will, of course, lead to higher personnel costs. And this also means that branch networks, which were regarded only as cost factors in the past decade, will become more important again. In view of these increasing cost factors, efficient control of costs will therefore be essential to stay competitive while providing these services.

Since long-term customer satisfaction and brand loyalty moves into greater focus, it will be essential for banks to uphold high ethical standards, excellent *risk management*, corporate governance and compliance since nothing scares away customers faster than bad press, corporate scandals and/or financial problems due to bad risk management. To increase brand loyalty, special *marketing* will be required. It should target specific population groups, with the 50+ generation being the most wealthy and most important one. The marketing strategy for this age group should also entail specialized employee training and more personnel-intensive distribution (Schmitz, 2007, p. 105).

Being able to *diversify* into emerging markets to escape the negative effects of demographic ageing and enjoy the higher GDP growth rates in those countries will mostly be affordable only to large banks. This will provide them with an edge against small and mid-size players.

Banks are also under increased *competitive pressure* from non-bank financial intermediaries. According to Schmitz (2007, p. 106) it is advisable for banks to focus only on their core competencies and maybe specialize on niche markets since they need to offer superior service as well as superior risk/return profiles. Only large banks will be able to offer the full range of products to their customers (Schmitz, 2007, p. 107).

*Human resource management* will also move into greater focus due to demographic ageing. Banks could very well face a shortage of experienced staff in the next 20 years when the baby boomers retire. An ageing workforce also increases personnel costs. And older employees are usually less flexible and less willing to learn than their younger colleagues. Banks could address these problems through increased trainings for their employees across all age groups, intensified recruiting and recruiting in new markets (Schmitz, 2007, p. 107).

## 5. Credit Suisse Case

In this chapter we will describe the impact of demographic ageing on banks in Switzerland and on Credit Suisse in particular. Credit Suisse is one of the two big banks in Switzerland. We have chosen a Swiss bank for our case study, because Switzerland is going to be strongly affected by demographic ageing. By 2030, its 60+ age group is expected to increase by 61%, and its working-age population is expected to decrease by 25% until 2050 (Lecture of Dr. med. H. Groth from 19<sup>th</sup> September 2013). We have chosen Credit Suisse in particular, because its size and financial resources allow it to implement a wide variety of measures to mitigate the impact of demographic ageing thereby allowing our analysis and suggested adjustments to be more thorough and practical.

### 5.1 Current Situation among Banks in Switzerland

After we have seen the potential effects of demographic ageing on the banking industry in Chapter 4, let us now take a look at the current situation of banks in Switzerland, whereas we are mainly interested in the two largest Swiss banks – UBS and Credit Suisse. This will allow us to assess whether they need to make adjustments in order to be well-prepared for the coming demographic changes.

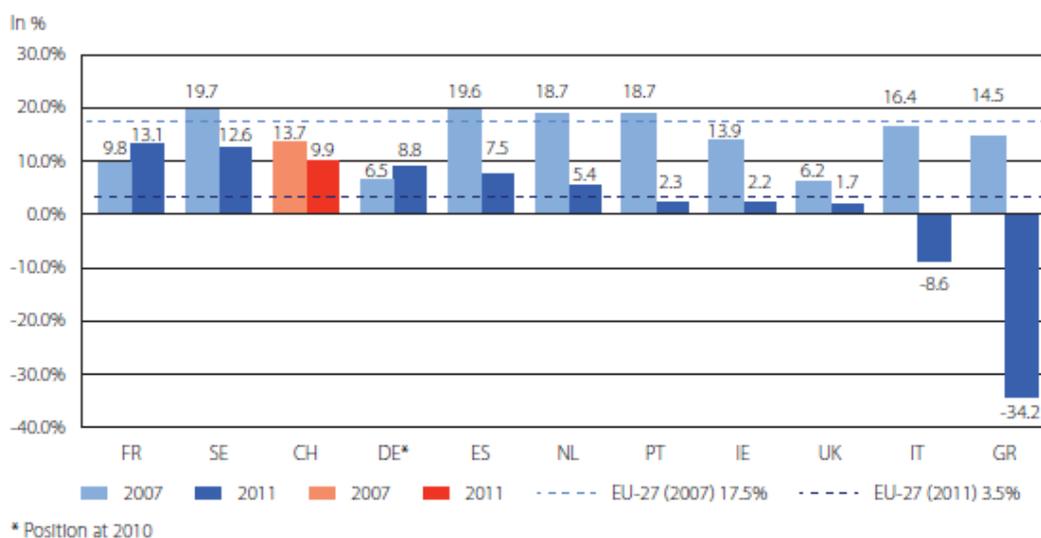


Figure 10: Return on Equity for banks (Swiss Bankers Association [SBC], 2012, p. 11)

As we can see from Figure 10, the financial crisis has barely affected the profitability of Swiss banks. With 9.9%, their return on equity (RoE) is well above the EU-27 average of 2011 and is only surpassed by that of Sweden and France.

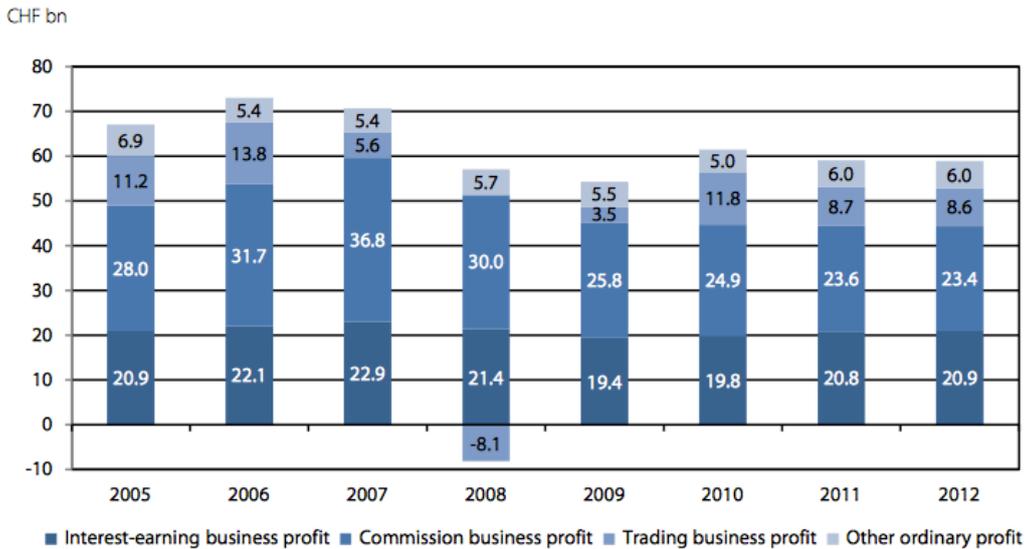


Figure 11: Profit by banking activity (SBC, 2013, p. 10)

The aggregate operating profit of Swiss banks amounted to CHF 58.9 bn in 2012, as shown in Figure 11. It is surprising that banks have managed to maintain an almost constant level of interest income since the financial meltdown in 2008 despite the very low interest rates during this time and the imposed Tier 1 capital regulations, which forced the banks to reduce their risk-weighted assets.

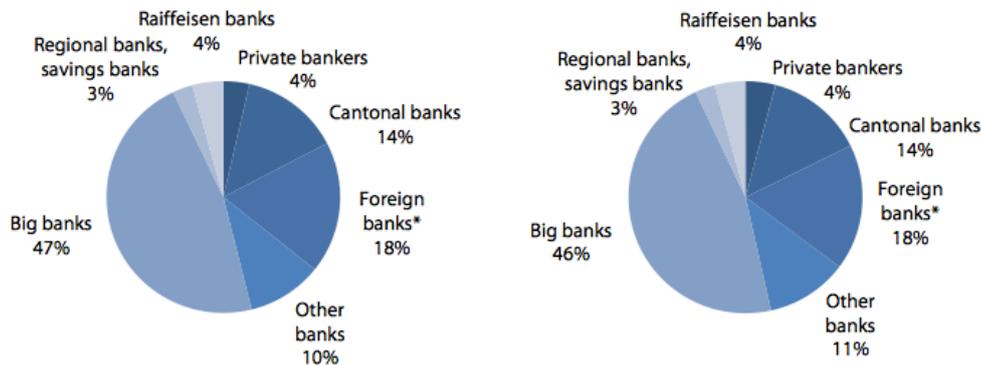


Figure 12: Profit by bank group in 2012 (left) and 2011 (right) including foreign bank subsidiaries (SBC, 2013, p. 11)

From Figure 12 it becomes evident that in 2012 the largest share of profits, with 47%, went to the two big banks, which are UBS and Credit Suisse. Their share has increased by 1 percent point compared to 2011 even though the competition between banks became fiercer due to decreasing revenues and profits. This is put

even into greater perspective when we consider the survey “Bank Image Monitor” according to which the image of the two biggest Swiss banks is very low among Swiss people. Only 9.7% of the participants believed Credit Suisse to be very trustworthy, while the Genossenschaftsbank (first place) had 32% and Postfinance (second place) 24.3% (20min, 4. November 2013). Nevertheless, despite the high market share it is important to think about possible ways to correct the damaged image of Credit Suisse, which we shall do in a later section.

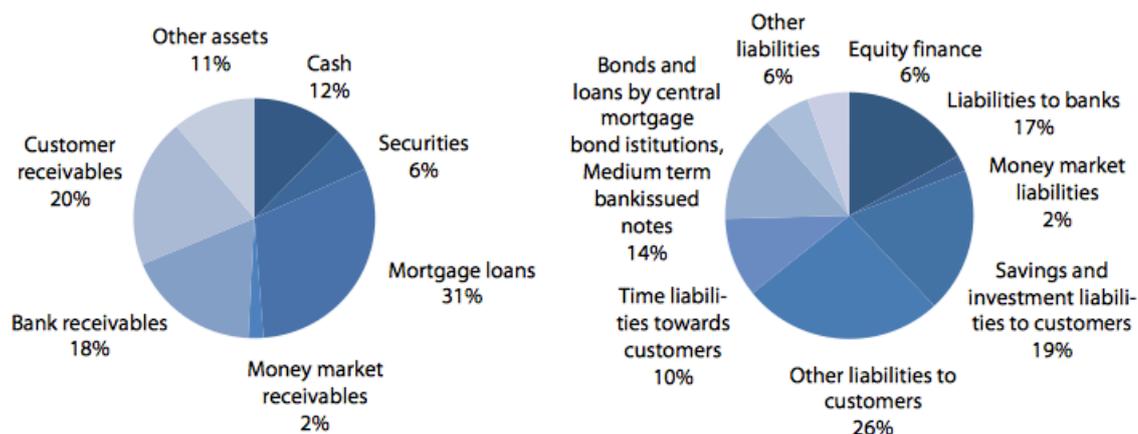


Figure 13: Breakdown of assets (left) and liabilities (right) in 2012 (SBC, 2013, p. 14)

Taking a look at the asset structure of the banks gives us an idea of what will happen if we consider the impact of demographic ageing (see Figure 13). On the liabilities side, i.e. the supply side, the dissaving by the retirees and the shift in household portfolio composition (see Section 4) will lead to a reduction in customer deposits, possibly making financing for banks more costly. On the revenue side the lower long-term interest rates (Section 3.3) will lead to lower interest income. Mortgage demand will decrease since the share of young people in the population will be smaller and put further pressure on banks' interest receivable. And the lower GDP growth (see Section 3.1) along with lower equity returns (see Sections 3.3+3.4) will also dampen the revenues.

To counteract this development banks might try to introduce new products, explore different income possibilities or diversify into emerging markets where the aggregate savings will be increasing rather than decreasing and the long-term interest rates will be higher than in developed countries, allowing higher interest income for banks.

It is interesting to see, however, that almost all of the effects of demographic ageing just described have also occurred after the financial crisis. The GDP growth had slowed down, the interest rates were at a low level, assets under management had decreased and equity returns were quite low. The asset base has also been reduced

(due to stricter capital requirements imposed by new regulations). And still, the RoE of Swiss banks has remained at a very high level and the interest income has stayed constant. This makes us believe that the Swiss banks have good prerequisites to cope with demographic ageing, especially UBS and Credit Suisse, which are highly diversified internationally. This does not mean, however, that they do not have to make any preparations with regard to the demographic changes, since there are always unfavorable scenarios which can catch any company off-guard.

## 5.2 Key Facts about Credit Suisse

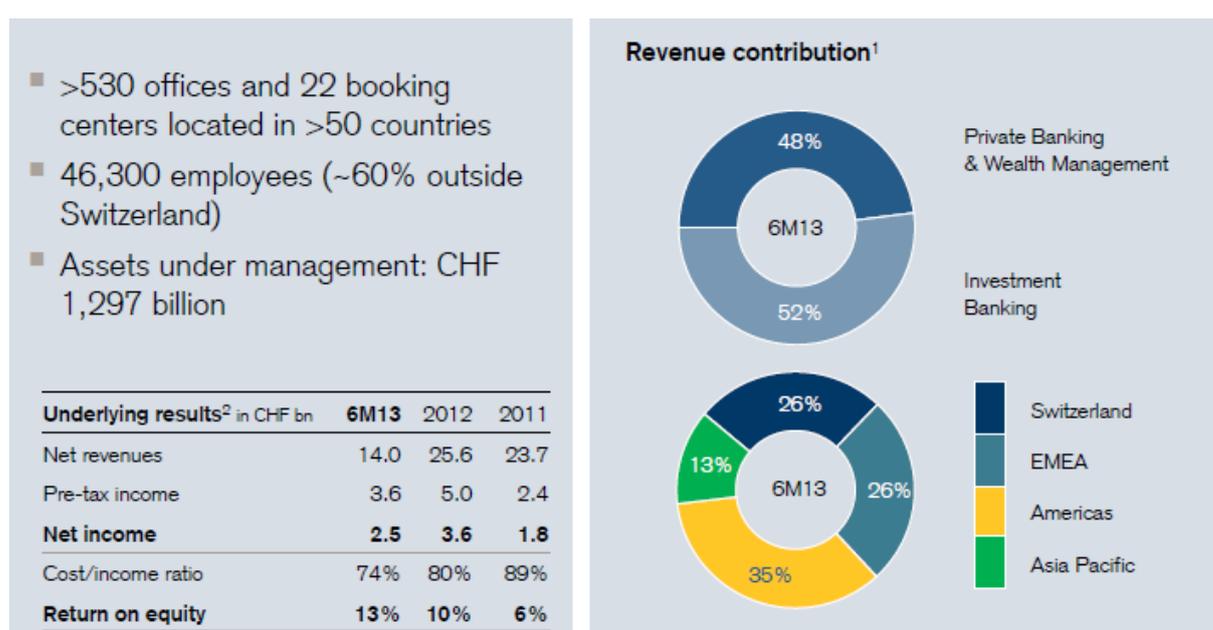


Figure 14: Key facts about Credit Suisse (Source: CS presentation at HSG, 2013)

Figure 14 shows that Credit Suisse has highly diversified revenues across all markets and is present in more than 50 countries. The bank has been increasing its revenues and its RoE and decreasing its cost/income ratio constantly over the past years. In November 2012 Credit Suisse integrated its former Private Banking and Asset Management divisions into a single, new Private Banking & Wealth Management division. In addition, the majority of the securities trading and sales business in Switzerland was transferred from the Investment Banking division into the Private Banking & Wealth Management division (Credit Suisse Annual Report 2012, p. 56). Credit Suisse mainly deals with institutional, corporate and wealthy private clients and has no retail banking division, except one in Switzerland.

### **5.3 Impact of Demographic Change on Credit Suisse**

As stated in Chapter 4, the profitability in the banking industry is expected to decrease. For one, increasing competitive pressures will contribute to the decline in profitability. For example, the economic downturn and the shrinking of the market size (declining population) will lead to more intense competition with other banks. There will also be fiercer competition with non-bank financial intermediaries such as insurance companies, pension funds and hedge funds (see Chapter 4). Moreover, new competition might emerge from sophisticated and highly specialized financial service providers.

Furthermore, the net interest income for banks is expected to decrease for the reasons cited in Section 5.1. And net interest income constitutes a large share of Credit Suisse's net revenues - almost one third in 2012 (CS Annual Report 2012, p.54). We have to add, however, that for an internationally diversified bank such as Credit Suisse, the decrease in interest income will be much lower when compared to less diversified banks. Still, Credit Suisse should make increased efforts to expand non-interest income.

Since 20,000 employees work for Credit Suisse in Switzerland (see Figure 14), the bank will need to consider the measures suggested in Chapter 4 to be able to maintain an efficient ageing employee base. One should not forget that an older employee base also leads to higher personnel costs.

Also, as pointed out in Section 5.1, the good image of Credit Suisse is in danger. This might have a negative impact on brand loyalty which will be essential for retaining customers in the highly competitive environment marked by demographic ageing.

Let us now take a look at the strengths of Credit Suisse.

### **5.4 Strengths of Credit Suisse with regard to Demographic Ageing**

Credit Suisse, servicing mostly high-end clients, already provides the high-quality personal advice and tailor-made products mentioned in Section 4. It also has extensive expertise in dealing with wealthy clients, whose share will increase due to the larger 60+-group in the population. Also, Credit Suisse operates as an integrated bank (CS Annual Report 2012, p.10). This means that the Investment Banking division and the Private Banking & Wealth Management division combine their expertise and collaborate closely together which enables Credit Suisse to offer customized and innovative solutions to its clients (CS Annual Report 2012, p.15). In 2012 Credit Suisse generated CHF 4.4 bn of collaboration revenues from the integrated bank, representing 19% of the Group's net revenues (CS Annual Report

2012, p.7). Therefore, Credit Suisse already has a competitive advantage against other banks with regard to the challenges posed by demographic ageing.

Also, Credit Suisse has already started to implement cost-cutting measures due to the new Basel regulations. This will help them stay competitive since effective cost control will be essential in the future (see Chapter 4). So, for example, Credit Suisse has divested parts of its Asset Management business (CS Annual Report 2012, p.15) and continues to increase cost efficiency and shift capital to high market share and high-return businesses within the Investment Banking division, focusing on high capital efficiency (CS 3Q13 Letter to shareholders, 2013, p.1). This is important, since a focus on the profitable sectors and efficient cost structures will be highly important in the future, increasingly competitive environment.

### **5.5 Recommendations for Credit Suisse**

Credit Suisse can apply a wide variety of countermeasures to mitigate the negative effects of demographic change. Since we expect intense competition in the banking industry in future, it will be crucial to bind customers to the bank for a longer term, particularly because acquiring new customers in such conditions will be quite costly. To ease the task of keeping existing customers for a longer time, the bank needs to ensure long-term customer satisfaction. A good first step in this direction is to try and correct the tarnished image of Credit Suisse mentioned earlier. This could be accomplished through extensive image campaigns, brand loyalty and marketing programs.

Another possibility would be to increase revenues from existing customers through higher fee and commission income. This can be achieved through cross-selling non-bank financial products or by focusing on services with higher profit margins, such as more advice-intensive, complex products (ECB, 2006, p.30).

A marketing campaign targeting only elderly people is also thinkable, since this wealthy group will grow larger in future. One could promote the ease of use of different banking services or an online banking system particularly suitable for people with dementia, since this disease will be wide-spread in future with (Lecture of Dr. med. H. Groth from 19<sup>th</sup> September 2013).

One other important measure to increase profitability (and maybe also increase the customer base) is to start offering new products to customers. Due to higher longevity of the population long-term savings products such as retirement plans and funded pension provisions will become more attractive (ECB,2006, p.33). Credit Suisse should also increase marketing efforts for products which are not very popular at the moment such as the long-term savings product called life annuity. In this product, beneficiaries are paid a periodic return after an initial premium as long as they live. Because the cost of these products is perceived to be too high by

households, they currently avoid it (ECB, 2006, p.34). However, it is expected that the ageing of the baby boomer generation will increase the demand for this instrument and other long-term savings products. Also, due to the larger share of the 60+ age group, reverse mortgages will become increasingly important. Credit Suisse can foster this development by increasing its clients' awareness of the product.

One should, however, keep in mind that new products can increasingly expose banks to operational, reputation and legal risk. And it is crucial to maintain a flawless reputation due to the ever-increasing importance of building long-term relationships with customers as stated previously. This is even more true in an ageing society since elderly people exhibit higher risk aversion and will avoid banks with tarnished reputations.

With regard to the increased competition from non-bank financial intermediaries (such as pension funds, hedge funds and insurance companies) Credit Suisse could launch a marketing campaign stressing the positive aspects of banks with established brand names, industry regulation and supervision to move the advantages of banks against non-financial intermediaries into greater focus. It would also be viable to acquire a non-bank financial intermediary or to start a cooperation with one (ECB, 2006, p.36) so the bank can offer customers a wide range of services as a package, thereby also increasing the share of non-interest income.

Providing more sophisticated advice to customers will also require a higher qualified workforce. More rigorous employee training programs will be required. Offering mentoring to younger employees will increase their loyalty to the bank, their motivation and qualification. Transferring older employees to other positions upon their request will also increase their motivation and productivity.

Expanding even more into emerging markets to mitigate the negative effects of demographic ageing further and profit from higher GDP growth rates in those countries is also an option. Credit Suisse seems to be already making use of it (CS 3Q13 Letter to shareholders, 2013, p.1). But one should not forget the additional legal and operational risks which come with it.

We would like to emphasize once more that Credit Suisse should under no circumstances get tempted to increase risk due to decreasing profit margins, since flawless reputation is essential when trying to maintain long-term relationships with customers.

## 6. Conclusion

The demographic changes will have a huge impact on the capital markets and the banking industry in particular. It is therefore essential for banks to think about these changes and adapt to them properly. To summarize, the relevant factors for banks which need to be considered are the falling interest rates, the decreasing demand for mortgages, the decrease in GDP growth per capita and increased competition with other banks and non-bank financial intermediaries.

As we have seen in Chapter 5, Credit Suisse already enjoys a very strong standing with respect to the future challenges presented by demographic ageing. The bank's structure and product portfolio is well-suited for an ageing, more wealthier society. Nevertheless, the bank should be aware of all possible changes and make sure it is not caught off-guard by them.

This does not hold, however, for the majority of other banks. They will need to make significant adjustments in order to be primed for the problems ahead. Since, as we have seen in Chapters 2 to 4, the impact of demographic ageing on the economic situation and the capital markets is expected to be quite sizeable, this also holds for many other capital market participants. This challenge should not be taken lightly. Especially regional players will be hard-pushed to find a way to compete with the big banks and stay profitable.

In the long run, however, after the capital markets and their participants have made the necessary adjustments and overcome the challenges presented by the problem of demographic ageing, the stability of the financial markets is not expected to be threatened.

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