

## II. LITERATURE REVIEW

Population ageing is an inevitable outcome of the demographic transition. Due primarily to declines of fertility, and secondarily to mortality declines, the age structure of a population becomes older, with a growing number and proportion of elderly persons. While many countries, especially those in the more developed regions, have experienced such a demographic process for some time, there is great variation among them in terms of the level and pace of population ageing. In recent years, the issue of population ageing has received renewed attention in developed countries, because of the continuance of fertility below the replacement level and on-going trends towards lower mortality. Thus, the trends of population ageing are expected to increase further in these countries and their populations are projected to level off and decline in the foreseeable future. These changes have profound consequences and far-reaching implications, especially for pension schemes, health-care systems and the economic vitality and growth of a country.

The future population size and age-sex structure of any country depends basically on the three demographic components: fertility, mortality and international migration. As no policies to increase the mortality of a population are socially acceptable, there are, in theory, two possible ways of retarding or reversing demographic ageing. First, a reversal of declines of fertility would lead the age structure of the population back towards a younger one, thus slowing down the ageing process. However, the recent experience of low-fertility countries suggests that there is no reason to assume that their fertility will return anytime soon to the above-replacement level (United Nations, 1997).

Hence, as a second option, the potential role that international migration could play in offsetting population decline and population ageing has been considered. Given the possibility of attracting larger number of immigrants into economically affluent developed countries, virtually all of which are experiencing low fertility, it appears appropriate to consider the impact that international migration may have on the demographic challenges of ageing. The Organisation for Economic Cooperation and Development (OECD) commissioned research on these issues and published in 1991 a special report on the demographic impact of migration (OECD, 1991).

A number of studies have examined the demographic impact of a constant influx of migrants on the growth of a population with below replacement fertility. For example, taking the twelve countries in Europe or members of then the European Community (EC) together, Lesthaeghe and others (1988) carried out population projections. With the present below-replacement fertility and with no further immigration, the total population of these European countries would be reduced by approximately 20 to 25 per cent by the year 2050. The calculations showed that an overall population decline during the first half of the twenty-first century can be avoided, if about one million immigrants move into the area every year. More recently, Ulrich (1998), in his study on Germany applied different fertility assumptions for natives and foreigners and different immigration levels by group of immigrants, and estimated the population size of Germany and its structure in 2030. His projections showed that, even with a relatively high level of immigration, the population of the country would start falling in the near future. Therefore, he concluded that immigration can only slow an inevitable decline of the population of Germany. Wanner (2000), in his study of Switzerland, showed that the total population of the country, which was projected to be slightly below 7 million in 2050, would be 5.6 million in the absence of future migration.

The importance of immigration for the growth of population in traditional countries of immigration is relatively well recognized (Appleyard, 1991; Foot, 1991; United Nations, 1998a).

However, the current level of immigration may not be sufficient for these countries to prevent their population size from declining in the future. Espenshade (1986) projected the changes of the population of the United States, assuming both the fertility and mortality rates remain constant at their 1980 level and the number of immigrants remains at the level in 1983 with the same age and sex structure. According to these assumptions, the population in the United States would grow until 2025, but decline thereafter. In a similar exercise for Canada it was found that in order to avoid population decline, a volume of immigration exceeding the current annual quota would be necessary after 2050, under the assumption that the current fertility level will be maintained (Wattelar and Roumans, 1991).

Many of these studies demonstrate that long-lasting below-replacement fertility and immigration streams offsetting the negative natural growth of the national population would eventually lead to a significant increase in the foreign population and therefore a marked change in the composition of a host country (Espenshade 1986; Ulrich, 1998).

As the age structure of immigrants is often younger than that of the host population, there is a popular belief that a large influx of immigrants makes the population of the host country significantly younger. Accordingly, it is commonly believed that a more generous immigration policy can immediately increase the number in the working-age population and help reduce markedly the dependency costs of the elderly. However, the analyses of migration flows of recent decades in developed countries provided scant evidence to support these conclusions. For instance, the study of the migration to and from the United Kingdom by Coleman (1995) revealed that after World War II immigration neutralized the previously dominant pattern of emigration. Thus, without New Commonwealth immigration and the contribution of births from immigrants, the population of the country would have been smaller by 3 million than it was in the early 1990s. He asserts, however, that the cumulative effects of migration alone on the age structure of the country have been limited, because the age structures of immigrant and emigrant flows are similar and the level of migration is relatively small in relation to natural change. Similarly, Le Bras (1991) explored the demographic consequences of the migration flows since the end of the Second World War in seven developed countries, namely Australia, Belgium, Canada, France, Germany, Italy and Sweden. He also concluded that the “rejuvenating” effect of migration on the host populations had been fairly modest. Immigration had lowered the average age of the population in these seven countries by 0.4 to 1.4 years.

A number of other studies analyzed the effects of the steady influx of migration on the future age structure of a host population. For instance, Lesthaeghe and others (1988) projected the age structure of the total population of the twelve European countries with and without migration up to the year 2060. Their calculations show that the overall ageing trend in Europe can be attenuated through immigration, but it cannot be prevented. Assuming that the total fertility of nationals remains constant at 1.6 and that of non-nationals falls to the replacement level by 2010, the proportion aged 65 years or older among females would rise from 16.3 per cent in 1985 to 25.8 per cent in 2060 in the absence of migration. The proportion was projected to be 21.3 per cent in 2060, if an additional 400,000 female immigrants would arrive every year, other things being equal.

Research for the United States also indicates that immigration is not a realistic solution to demographic ageing (Coale, 1986; Espenshade, 1994; Day, 1996). Assuming that immigrants adopt the low fertility of a host population, Coale (1986) compared the age structure of the United States population in 2100 with and without a net immigration of 700,000 per year. He illustrated that the difference in projected age distributions of the two populations is fairly modest, regardless of four different levels of below-replacement fertility scenarios. Similar results were presented a decade later by Day (1996). According to her projections, should fertility and mortality follow the middle-series assumption and net migration be held at 820,000 per year or near the current level, the proportion aged 65 years or older in the United States would increase from 12.8 per cent in 1990 to 20.0 per cent in 2050. Even if a fairly

larger level of immigration (1.4 million per year) occurs, it would reduce the future percentage of elderly in the population only slightly (to 19.4 per cent). Espenshade (1994) confirmed the finding that immigration has relatively little effect on overall age composition of the population of the United States, because previous years' immigrants also age along with the rest of the population.

Concerns about an ageing society often arise not only from the growing number and proportion of elderly, but also from the rapidly changing ratio of the working-age population to the retired population. In particular, the sharp drop of the ratio may directly affect the viability of pension systems. In the study cited earlier, Lesthaeghe and others (1988) computed the ratio of adult women (20-59 years) to elderly women (60 years or older) for the total population of the twelve European countries under five different scenarios. If the countries keep their current below-replacement fertility, the ratio would decline from 2.4 in 1985 to 1.5 in 2060. Immigration of 400,000 women per year from 1985 onwards would be of some help to alleviate the decline, but still yield a ratio of 1.8 in 2060. In his study cited earlier, Wanner (2000) showed that in Switzerland, the ratio of the population aged 20 to 64 years to the population aged 65 years or older would be 1.5 in 2050 in the absence of migration, as compared to 2.1 which is currently projected.

Instead of assuming a fixed number of immigrants arriving and examining the consequences of this immigration on the age structure of a population, some researchers estimated the level of migration necessary to keep constant the ratio of the adult population to the elderly. Both studies by Blanchet (1988) on France and by Wattelar and Roumans (1991) on Austria, Belgium, Canada and Spain demonstrated, however, that initial structural irregularities of the population would inevitably cause sudden changes in future age pyramids. For this reason, the scenario that aims to keep constant the ratio of adults to elderly may lead to explosive cycles of immigration peaks to make up for the shortfalls of population. Furthermore, such massive inflows of migrants are likely to bring about a phenomenal increase in the population of a country, as immigrant themselves would become older and call for further immigration of younger population (Wattelar and Roumans, 1991).

In sum, although there is a considerable variation in terms of the choice of the base year, the period of projection, the fertility scenarios adopted for nationals and non-nationals, and the migration assumptions, available research studies reach several conclusions. First, inflows of migrants will not be able to prevent population declines in the future, nor rejuvenate a national population, unless the migration streams reach comparatively high levels. Second, international migration can only act as a partial means to offset the effects of population ageing arising from below-replacement fertility. The inadequacy of migration to serve as a counter for population ageing, and in most cases for population decline, has been further consolidated by questions regarding the feasibility of formulating and adopting suitable migration policies (Watteler and Roumans, 1991; Espenshade, 1994; McDonald and Kippen, 1999). In many countries, additional large volumes of immigrants are likely to face serious social and political objections, even as a means of slowing population decline and population ageing. Therefore, regulating the level and composition of replacement migration streams to reach a desired population size or population age structure poses enormous challenges for Governments that may wish to do so.

