Immigration Can Alleviate the Ageing Problem

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This article explains how immigration can alleviate the burden that ageing poses for the welfare states of most western economies. It uses the results of a macroeconomic model to outline the impact of ageing and immigration on economic growth. It concludes that immigration can indeed make a positive contribution as long as the immigrants are able to find work. Moreover, as immigrants become better educated, they make a higher contribution to economic growth.

1. Introduction

The European Union has recently adopted a new immigration policy, which includes the introduction of the "blue card", a European work permit similar to the American "green card". Apart from the treatment of highly skilled migrants, also the admission and procedures for seasonal workers, paid trainees and intra-corporate transferees will be regulated during the next few years (see EP, 2007). The new policy aims at solving skill shortages resulting from an ageing population. Eurostat predicts that the over-65 population will rise from 15.4% in 1995 to 22.4% by 2025, and the working-age population will shrink by over 50 million by 2050 (EU, 2005a).

In this article we consider whether the new emphasis on skills is justified or not. Our analysis leads us to the conclusion that economic growth in the fast-aging EU will be sustained by immigration that enables EU countries to keep a balanced mix of skills in their labour markets.

According to Freeman (2006) immigration has been very important to tackle skill shortages in the US, even though the greying of the labour force is less severe than in Europe. His analysis shows that skill shortages caused by a rising demand for highly-skilled workers are ameliorated by both an increase in the proportion of well-educated workers in US multinational firms outside the US, and a large inflow of foreign scientists and engineers. These developments have been made possible by the spread of mass education in many low-wage countries.

In two other papers (Muysken et al. (2008a), (2008b)) we investigate the conditions under which immigration contributes to solving the lack of labour supply that results from an ageing population. Immigration alone cannot keep economic output at a high level. It is also necessary to

use other measures such as increasing the rate of labour force participation, particularly in the older age classes. Therefore we use the ratio of the working age population to the total population as an important variable in their analysis. We take the case of the Netherlands to illustrate their theoretical reasoning of how immigration can alleviate the ageing problem. In that context it is interesting to note that in the Netherlands there are many concerns among citizens, politicians and the Netherlands Bureau of Economic Policy Analysis – an official independent research institute advising the Dutch government – on more liberal immigration policies (see e.g. Muysken et al. 2007).

Although the blue card seems to be a good instrument to attract more higher educated individuals, we show that it may be beneficial for the European Union to attract also immigrants who have not graduated from universities as long as the skill distribution of the immigrants is on average not below that of the EU countries. It is, however, very important that immigrants are in paid employment, so that the goods and services they produce can be consumed by the growing share of the population that has retired.

Also the skill level of immigrants should be of second importance as long as they work, since low-skilled working immigrants can pay for the pensions of the retired people as well as the benefits of the unemployed native workers. Jobs for these immigrants can be available in for example construction, cleaning, security, personal care and domestic activities.[1] Therefore the immigration policy of the European Union regarding the blue card, even when it is extended to regulate the admission of, for example, seasonal workers, may be too restrictive to maximise the benefits from immigration in the light of an ageing population. We show that the benefits from immigration could proliferate further if policy makers focus on an increase of the ratio of the working to the inactive population in general. The aim of our theoretical and empirical analysis is to illustrate the relevance of this ratio, in particular in relation to immigration.

Most of the literature on the impact of immigration on ageing focuses on the impact of immigration on the labour market and the welfare state with an emphasis on the short-run (see Nannestad (2007) for an overview). A drawback of this focus on short-run issues is that the impact of ageing and immigration on capital formation and economic growth usually are ignored. Razin and Sadka (2000) were the first who analysed the impact of immigration on ageing in a general equilibrium long-run context, taking this impact into account. We combine both types of analysis by including a model of the labour market, with special attention to wage formation and unemployment, in a concise macroeconomic model. Both are elaborated below in section 2 where we also use this model to analyse the impact of immigration on the problems for the welfare state resulting from ageing. We argue that an important element of that impact is the extent to which immigrants find work, almost irrespective of their skills. In our concluding remarks in section 3, we report that the empirical implications of our model can be corroborated in the case of the Netherlands. Since we find a positive effect of immigration on economic activity over the last decades, we conclude that indeed for the Netherlands immigration can be used to alleviate the ageing problem. We also elaborate on the policy conclusions in our concluding remarks.

2. The model

We first analyse the role of the labour market and then turn to the macroeconomic model. Finally we discuss the role of immigration on the economy and the welfare state.

The role of the labour market

There are three reasons why we pay specific attention to the labour market in our analysis. First, we have to distinguish between various skill types, since it may be important to what extent immigration is relatively skilled or unskilled. We follow much of the literature in distinguishing between skilled and unskilled labour and assume capital-skill complementarity and substitutability between skilled and unskilled labour.[2] Second, we want to be able to include unemployment in our model, since the incidence of unemployment is relatively high amongst immigrants. Third, the analysis should allow us to explain the impact of immigration on the development of wages, both skilled and unskilled. The last two elements follow from the introduction of wage bargaining in the model.

We assume that the skilled labour market is competitive, which implies that the skilled wage rate is determined by full employment for the skilled workforce. For unskilled workers the wage is determined by union bargaining, where the union takes both employment of skilled workers, which follows from labour supply, and the capital stock as given. We assume that unions have a limited bargaining power and aim to maximise the expected wages, while recognising that higher wages imply less demand for labour and unemployed persons receive a certain amount of benefits.[3] Once the negotiated wage is determined, firms choose the level of unskilled employment in such a way that profits are maximised, given their capital stock and employment of skilled workers.

The outcome of the wage bargaining process is that the rate of unskilled unemployment is independent of the size of the unskilled workforce. That reason is that when more unskilled workers enter the labour market, this will be compensated by a decrease in the unskilled negotiated wage such that most new entrants will be able to find employment.[4] Hence if, for example, the unemployment rate of unskilled workers is 10% prior to the increase in the workforce (for instance, because of immigration), it remains 10% thereafter. However, the aggregate rate of unemployment increases because there are relatively more unskilled workers.

The decrease of the unskilled wage will be accompanied with an increase in the skilled wage, since skilled labour becomes relatively more scarce. However, these wage movements may be less pronounced than one might expect at first sight or assumed in public debate. The reason is that we should also take into account the question of what happens to capital accumulation. Additional employment may lead to more capital accumulation, as we argue below. In that case this reduces the scarcity of skilled workers relative to unskilled workers, due to the capital-skill complementarity; hence that has a mitigating effect on the decrease of the unskilled wage and the increase of the skilled wage. This brings us to the role of capital accumulation and the macroeconomic environment.

The macroeconomic environment

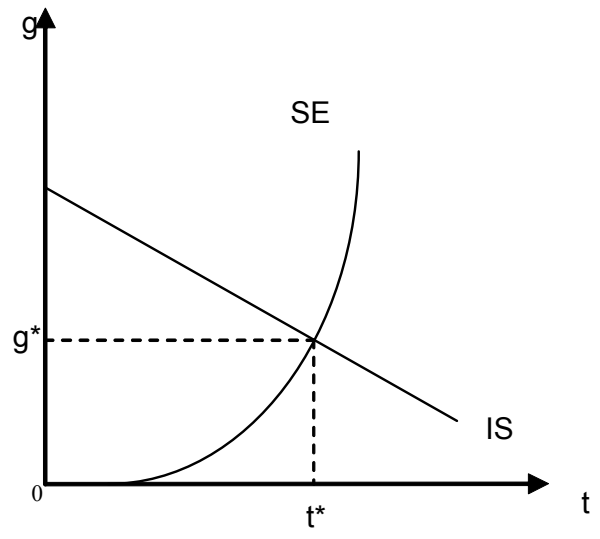
In our concise macroeconomic model we distinguish between two generations. The majority of the younger generation ("young" for short) is working, saving and paying pension contributions; a small part is either unemployed or not in the labour force. The older generation ("old" for short) lives from pension benefits, capital income and dissavings. The pension benefits are financed by the young in a pay-as-you-go system, at a fixed rate of their income. The old also have accumulated capital to add to their pensions.

The young both earn wages and have income from capital. They consume a share of their disposable income and save the remaining part. The savings are used for capital accumulation by the young to add to their pension benefits later. Disposable income of the old consists of their income from capital and the pension benefits financed by the young. The old do not only consume their disposable income, but also part of their capital stock which leads to dissavings by the old. Domestic savings then equal savings of the young minus dissavings of the old.

We explicitly pay attention to social equilibrium in our model. Next to unemployment compensation, social equilibrium also requires that consumption per capita of the old is at least equal to a constant fraction of consumption per capita of the young. This is a matter of social responsibility, since the old have contributed in their young days to the development of the economy as it is now for the young. Moreover, political reality requires that the old have sufficient benefits, since they represent a growing part of the electorate in an ageing economy. The income transfer from young to old leads to a positive relationship between the rate of growth in the economy and the premium paid by the young. A higher rate of growth implies higher consumption growth of the young relative to the old. It follows that the young must pay a higher premium to increase consumption of the old too.

The social equilibrium then can be presented as the increasing SE-curve in Figure 1, which shows combinations of rate of growth of the economy ***g*** and the premium ***t***. One should realise that the curve will shift downwards when the number of old increases relative to young. In that case a higher contribution is needed at the same rate of growth to obtain social equilibrium.

Figure 1: Economic growth, the IS-curve and the SE-curve



An interesting question is to what extent domestic savings are related to domestic investment.[5] One extreme assumption is that all savings are invested domestically. In that case a higher premium paid by the young will lead to less savings and therefore to less investment. Since less investment also implied less capital accumulation, a lower rate of growth will result. Thus one might observe a negative relationship between premiums paid by the young and the rate of growth of the economy. This is depicted by the IS-curve in Figure 1. Another extreme assumption is that there is free capital mobility and the interest rate is determined by the world interest rate. As a consequence growth is determined by capital accumulation at a given world interest rate, irrespective of domestic savings and hence irrespective of the premium paid by the young. In terms of Figure 1, if this would occur a rate of growth g^*, the social equilibrium, represented by the SE-curve then determines the rate of contributions at t^*. The IS-curve then is not a relevant concept. It seems reasonable to assume that reality is between the two extremes. It is reasonable to assume that domestic savings influence domestic investment at least to some extent.[6] In that case a downward sloping IS-curve is relevant, as is depicted in Figure 1.

In our simple model growth is determined by the relation between savings and investment on the one hand and social equilibrium on the other. In terms of Figure 1 this occurs on the intersection of the IS-curve and the SE-curve, at a rate of growth g^*. The rate of contributions then is t^*.

The impact of ageing and immigration

It follows from the analysis above that the ageing of the economy induces a downward shift of the SE-curve, following an increase in the ratio of old to young. This leads both to a lower rate of growth and a higher rate of contributions.

From that perspective it is not surprising that economic policy is focusing on reducing the ratio of old relative to young – or more precisely, to increase the ratio of the working population to the inactive population. One way to enhance this process is to increase the retirement age – in the model some "old" then become "young" and the SE-curve shifts upwards in Figure 1. Another way is to encourage immigration which usually consists of young persons. This would lead to both an upward shift in the SE-curve and increased economic growth through growth in labour supply. In both cases a higher rate of growth can be realised without increasing the rate of contributions. In our view this is also intuitively understood by the European Union in its advice to allow for more immigration (EU, 2005).

3. Conclusion

The main conclusion from our analysis is that income per capita will increase due to immigration, under the condition that the rate of unemployment does not increase. The highly-skilled workers will profit anyway from the usual low-skilled immigration, and there may be important distributional effects for the low-skilled and the retired. The increase in capital accumulation following immigration turns out to be an important determinant of economic growth when analysing the benefits of immigration.

Our empirical analysis for the Netherlands reveals that there are least two conditions that must be satisfied in order to get a positive impact of immigration on the economy.

First, immigrants should get employed to stimulate economic growth. Second, the proportion of low-skilled immigrants in the total number of immigrants should not be higher than the proportion among natives to prevent unemployment from rising. Thus to stimulate investments and economic growth it is of utmost importance that immigration policy as a means to mitigate the aging problem should not only focus on the number of immigrants, but also on their employability by keeping the skill structure in line with the skill distribution of domestic labour market entrants. This requires two steps: (1) skill-neutral screening of immigrants and (2) an education policy that has the aim and ability to educate the second and third generations of immigrants, at least in line with the average skill distribution in a country.

Our conclusions support the view of the European Commission that immigrants in general have a positive impact on the economy provided that they are employed. As the European Commission puts it: "the current situation and prospects of EU labour markets can be broadly described as a "need" scenario. Some Member States already experience substantial labour and skills shortages in certain sectors of the economy, which cannot be filled within the national labour markets. This phenomenon concerns the full range of qualifications – from unskilled workers to top academic professionals." (EU, 2005a, p. 4). In line with this statement by the European Commission we argue that the immigration policy of the European Union with respect to the blue card and the admission of some other specific groups are too restrictive and do not maximise the benefits from immigration in the light of an ageing population.

Finally, immigration should not be regarded as the sole cure for falling birth rates and ageing population, since it is only one policy instrument within a broader mix of instruments. Immigration policies should go hand in hand with active labour market policies and education policies to get the low-skilled unemployed back to work and to prevent young people, both native and immigrant, from leaving school leaving. Instead they should aim to raise their level of education and opportunities on the labour market.

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NOTES

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1 See Wilson et al. (2007) for the employment opportunities in elementary and low-skill occupations in the European Union.

2 See for instance Ben-Gad (2008). This also allows for more flexibility in the substitution between skilled and unskilled labour compared to the simple production structure which is usually assumed in this type of analysis (Kemnitz, 2003; Boeri and Brückner, 2005).

3 This is more general than assuming that the union unilaterally sets the wage, as for instance in Kemnitz (2003).

4 Unemployment benefits will decrease too, since we assume that government has set a fixed ratio of benefits to unskilled wages. Total unemployment benefits are financed out of premiums on wages.

5 In Muysken et al. (2008a) we assume that domestic savings fully lead to investment, whereas in Muysken et al. (2008b) we assume that there is no relationship whatsoever.

6 Feldstein en Horioka found that in each economy savings and investment correlate strongly over time – see Farmer en Lahiri (2006) for a recent confirmation of this finding.