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EU LABOUR MARKETS AND IMMIGRATION

CONNECTED TO ENLARGEMENT*

ABSTRACT: The EU economies and their labour markets will face new challenges in the near future as the Union enlarges to cover the CEE countries and the mobility of labour becomes free within the region. This paper first discusses estimates made on the likely magnitude of the coming immigration and then turns to derive some basic outcomes with respect to its impacts on real wages in the EU in the long run. We then discuss in a standard way the short-run net benefit from immigration, extend the analysis to the long-run steady state and carry out a numerical simulation of the effects of likely immigration, which raises the EU labour force by one per cent. We obtain the result that the net present value of the accumulated gain to the EU 15, measured by the rise of consumption in ratio to GDP, is very small. This result is in line with neutrality proposition predicted by theoretical reasoning, which prevails in the long run with respect to the effects of immigration. The last part of the paper deals with linkages between the social security system and immigration. Over time the short-run costs of adjustment, which are generally found to be quite small, are neutralised by the gains accrued from Enlargement.

Key words. Labour mobility, Immigration, EU Enlargement

JEL Code: F 22, F 43

TIIVISTELMÄ: EU-maiden työmarkkinat joutuvat uuteen tilanteeseen, kun unioni laajenee Keski- ja Itä-Euroopan maihin ja työvoiman liikkuvuus vapautuu alueella. Tämä tutkimus esittelee ensin maahanmuuton laajuudesta tehtyjä arvioita ja johtaa sitten tuloksia sen pitkän ajan vaikutuksista reaalipalkkoihin EU:ssa. Tämän jälkeen keskustellaan tavanomaiseen tapaan lyhyen ajan nettohyödystä, joka liittyy maahanmuuttoon, ja laajennetaan analyysi pitkän ajan tasapainotilanteeseen. Tutkimuksessa laaditaan numeerinen simulointi maahanmuuton vaikutuksista, jonka tuloksena on, että kulutuksella mitatun hyödyn kumuloitu nykyarvo on pitkällä ajalla hyvin pieni EU 15:n nykyiselle väestölle ennustetun suuruisesta maahanmuutosta, joka lisää EU:n työvoimaa prosentilla. Tämä on sopusoinnussa yleisen tuloksen kanssa, jonka mukaan maahanmuuton vaikutukset ovat neutraalit pitkällä ajalla alkuperäiselle väestölle. Viimeinen osa tutkimusta käsittelee yhteyksiä sosiaaliturvajärjestelmän ja maahanmuuton välillä. Ajan mittaan lyhyen ajan kustannukset sopeutumisesta, jotka ovat yleensä melko pienet, neutraloituvat laajenemiseen liittyvillä hyödyillä.

Asiasanat. Työvoiman liikkuvuus, maahanmuutto, EU:n laajeneminen

1. Introduction

One of the four basic freedoms of the Internal Market of the EU is free mobility of labour, which has, however, been felt to be one of the most problematic issues in the enlargement of the Union to include the CEE countries from the point of view of the incumbent member countries.

On the other hand, the EU countries will probably face, due to the ageing of the population and the likely growing demand for labour, a shortage of labour during the next decades. Therefore, they have to take recourse to greater immigration of labour. It has been estimated by the UN (2000) that the EU should receive 1.5 million immigrants each year in order to maintain its working-age population at its current level. This would represent 0.4 per cent of the present population and would be clearly bigger than the present flow of immigrants to the EU. A natural, but only one, source for meeting this demand for labour would be the CEE countries, the population of which is in part well educated and which has a clearly lower living standard than in the Union at present.

Immigration may have large-scale economic and social impacts both on the EU 15 and the applicant CEE countries. A polarisation can already be discerned in the attitudes toward immigration prevailing in the EU. EU firms and employers see mobility of labour as quite positive, because:

- Immigration of labour is a channel to meet the demand for labour so that European firms are able to carry out that production for which there is ample demand, if and when domestic labour is not available in a sufficient amount.

- The use of foreign labour may to some extent be more profitable in comparison to domestic labour – taking into account the differential in productivity – and be conducive to reaching a situation of competitive costs of production.

On the other hand, the EU labour feels a considerable concern towards immigration and its possible negative consequences in the labour market. This fear has spread among politicians and the general public in many EU countries, especially in those which would be the foremost destination for immigration. The background of this fear is the fact that the CEE 10 countries are populous (28 per cent in relation to EU 15), and their income level is much lower (on average 40 per cent of the average in EU 15) and that their convergence to the EU 15 average income level will take decades, even up to the middle of this century in a successful scenario, so that the flow of immigration may be sizeable. Also, only a few of the EU countries are a natural destination for this immigration, implying that these countries will likely face disproportionate immigration pressure compared to the rest of the EU. The EU trade unions have three basic concerns associated with allowing free mobility of labour:

- Immigrants are a threat to the employment of EU workers.
- Immigration will press down wages in the EU.
- Immigration is a threat to the welfare states of the EU, as typically immigrants are net beneficiaries of these systems, i.e., pay less to them than get as benefits from them.

Based on these economic reasons, in addition to the possible negative political and social consequences, there are reservations, even strong ones, towards free mobility of labour in some, but not all of, the EU countries in connection with the Eastern Enlargement of the Union. At least a long period of transition is demanded which entitles a member country to use the option to limit temporarily the free movement of labour, if some disturbances will occur in the EU labour markets. In 2001 the EU has adopted the so-called 2+3+2 model formulated by the Commission, according to which the movement of labour would be limited for 2, 5 or at most 7 years from accession, but a Member State could liberalise it already immediately at the outset.[1]

When the effects of the movement of CEE labour are considered from the point of view of the EU countries, the following questions should be addressed:

- How extensive can the mobility of labour be as to the "pull" of the EU countries and the "push" from the CEE countries?

- What is the impact of immigration on the workers in the incumbent EU countries and what is the effect on the EU firms?

- How does immigration influence the social security system and the public sector?

- What is the economic and social overall balance of increased immigration and is it possible to compensate the losers by the winners?

- What are the effects of mobility on the CEE countries?

- What kind of immigration policy should the EU countries pursue? Could it even be imagined that mobility of labour should be endorsed, rather than limited, by policies in the EU countries?

In the following we analyse and make observations on these questions in the light of some recent studies and present some basic calculations of our own related to the gains from immigration. The general approach is to shed light on the benefits from immigration that may compensate for the usual fears and negative effects outlined above. It should be noted that the CEE countries are only one source of labour immigration and there may possible be a need to recruit labour mainly from other countries, if the labour shortage mentioned above emerges. Immigrants from the CEE countries will, however, be in a special position compared to those from elsewhere in the respect that, after a possible transition period, labour mobility will be free and no work nor residency permit in the EU is required.

The paper is organised as follows. We outline in Section 2 the potential magnitude of the flow of immigration from the CEECs to the EU. In Section 3 we evaluate the potential impact on the real wages in the EU in the long run, after the capital stock adjusts. In Section 4 we consider in a standard way the costs and benefits in the short run when the fixed capital stock is fixed. Section 5 enlarges this analysis to produce an estimate of the long-run gain of migration to the incumbent EU countries and carries out a medium-run numerical simulation as to the effects on the EU countries from a flow of migration that raises the EU labour force by one per cent. Section 6 presents a brief evaluation of the linkages between social security systems and immigration, and Section 7 concludes.

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[1] For Finland, the government has accepted the position by the Commission, and the two-year period of transition. Sweden, Denmark, The Netherlands and Ireland, on the contrary, have announced that they will immediately go over to free movement of labour after accession.

2. The likely size of immigration from the CEECs to the EU

The EU countries differ markedly with respect to the number of foreign residents, as shown by Table 1. It is noteworthy that countries like Austria and Germany already have a large foreign population, and these are also the countries seen as the main destination for CEE migrants. Some countries like Finland have a much smaller foreign population, but in this country this share has risen very rapidly and quadrupled from 1988 to 1998 (Coppel et al. 2000, 10).

The OECD (1998) pays attention to the fact that the immigration flow from the CEECs to the EU is currently not very big, even though the majority of the OECD countries do not require an immigration visa from a CEE national staying less than three months in the country. OECD statistics show that citizens of the CEECs (although excluding the Baltic countries which were without a distinction included in the group of the former Soviet Union) in nine EU countries[2] numbered 735 000 in 1996, of which 505 000 resided in Germany (OECD 1998, 48). In total, the number of foreigners in these countries amounted to 15 million, which reveals that the immigration from the CEE countries has at least so far been a minor part in the total immigration to the EU. This is in addition confirmed by the fact that immigration from the CEECs to the EU markedly diminished during the 1990s. In the first year of transition, 1990, 300 000 persons moved from the CEECs to the EU, from which level this figure has steadily declined almost to zero from 1993 onwards. Total migration to the EU has also markedly fallen during the 1990s: it diminished from 800 - 900 000 persons in 1990-92 to a level of 200 000 in 1997 (European Integration Consortium 2000, 51).

Table 1. **Share of foreigners in population and of the labour force, 1996, per cent**

EU country	Share of foreigners in population	… of which coming from the EU countries	Share of foreigners and born abroad in the labour force
Luxembourg	34.1	..	53.8
Austria	9.0	..	10.0
Belgium	9.0	61.4	6.5[*]
Germany	8.9	25.2	9.1
France	6.3[†]	36.5	6.3
Sweden	6.0	..	5.1
Denmark	4.7	20.6	3.0[‡]
Netherlands	4.4	27.7	3.1
UK	3.4	39.2	3.4
Ireland	3.2	..	3.5
Portugal	1.7	25.3	1.8
Italy	2.0	13.9	1.7[‡]
Finland	1.4	19.1	..
Spain	1.3	46.7	1.0

Source: Trends in International Migration 1998, OECD.
[*] 1989; [†] 1990; [‡] 1995

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[2] The survey by the OECD covered from the EU countries Germany, France, Belgium, Denmark, Finland, Italy, Austria, Holland and Sweden.

The OECD (1998) estimates that the inflow of migrants from the east to the west as a result of the EU membership will be rather limited. One factor behind this is the possible period of transition like that imposed earlier in connection with the southern enlargement of the Union in the 1980s. At that time immigration from e.g. Spain and Portugal to the EU in fact declined (see Kraus and Schwager, 1999).

Bauer and Zimmermann (1999) carried out an analysis of migration and enlargement of the EU, where they estimated the potential magnitude of the immigration flows using four methods. The first method was interview surveys, which gave the result of a very large propensity to migrate.[3] The authors made references to some opinion surveys carried out in the CEE countries, which showed that even 5-27 million people would migrate from the east to the west (the present CEE 10 population is 105 million). It is noteworthy that the propensity to migrate is concentrated on short periods of stay so that a clear majority would be willing to work in the EU only for a few weeks' or months' time.[4] It is clear, however, that answering polls and real migration behaviour are two different things. Austria and Germany would be the primary migration destination, the same countries have made claims on a transition period of sizeable duration.

The second method to evaluate the potential migration was to compare earlier migration. Bauer and Zimmermann (2000) refer to Layard at al. (1992), who, by comparing migration flows from the Southern Europe to the Middle Europe and from Mexico to the USA, concluded that at least 3 million CEE citizens would migrate to the west during the next 15 years. Bauer and Zimmermann (1999) were of the opinion that this kind of annual flow of migration, representing only 0.05 per cent of the EU population, would have only a marginal impact on the present situation, as the overall migration to Germany is 1 per cent in relation to her population annually.

The third method was to estimate the political and economic situation in the CEE countries by the relative levels of real wages and the balance in the labour market and by the demographic situation. In general, economic growth in the CEE has accelerated to an annual average of 3.3 per cent in 1994-99 compared to the 2.3 per cent growth recorded in the EU 15 per annum. The OECD (1998) estimates on the basis of convergence that the "push" from the CEECs will be rather limited (see on this also Bauer and Zimmermann, 1999).

One factor leading to a rise in migration is the ageing of the EU population and the less favourable dependency ratio in the future. But the CEE countries are in the same situation, as has been noted, i.a., by Kaitila and Widgrén (1998) and Partanen and Widgrén (1999). These studies therefore estimate a relatively small flow of migration from the Baltic countries and Poland to Finland.

The fourth method was to use econometric models to estimate the flow of migration. In this field there is already a large international literature. Bauer and Zimmermann (1999) made this kind of an analysis of their own where they studied migration flows during and after the southern enlargement of the EU in the 1980s (i.e. Greece, Spain and Portugal) to estimate the likely migration flows from the CEECs.[5] The results, as the

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[3] A similar kind of result was obtained from an interview carried out in 2000 in Estonia by the Central Organisation of Finnish Trade Unions (SAK). According to it, even as much as 400 000 of the total population of 1.4 million would like to migrate to Finland.

[4] According to European Integration Consortium (2000, 59) there have been some 250 000 temporary workers in Germany, the total annual labour input by them being relatively little at some 50 000 man years. Of these seasonal workers as much as 90 per cent were employed in agriculture and 4 per cent in hotels and restaurants, so that these effects are almost concentrated on one sector.

[5] In connection with the southern enlargement labour mobility was limited in the case of Greece from 1981 to 1987, for Spain and Portugal from 1986 to 1991.

authors emphasise, are uncertain and widely deviate between the CEE countries, and show that migration from the low-income countries would be considerable to the EU. On the other hand, these countries, i.e., Bulgaria and Romania, are likely to join the EU only later on. In any case migration from Poland could be so large that even 6 per cent of the population would migrate to the EU in the case of free mobility of labour.

As a summary, Bauer and Zimmermann concluded that within 10 years 3 million immigrants would move into the present EU countries, which would be less than one per cent in relation to the population of the EU 15.[6] In mechanical terms, this would mean that in Finland the foreign population would rise by one half, approximately by 40 - 50 000 persons within this time span. The European Integration Network (2000) estimated, with the aid of an econometric model on migration that the cumulative amount of migrants from the CEE 10 would rise to 2.9 million in 2010 and to 3.9 million within 30 years. The EU Commission (2001) in its study on the effects of Enlargement estimated that the net migration flow from the CEECs will gradually rise after accession and peak at around a flow of 180 000 immigrants annually, after which it will slowly decline, a similar result to those reported above.

All these estimates are uncertain and there may even be big surprises to be seen in this respect in the future. The imbalance in the labour markets is one key factor behind migration, and it can even be argued that producing definite numbers on the magnitude of migration is to some extent unnecessary as this imbalance will dictate the actual amount of immigration. If there is a strong demand for labour, as seems to be the likely outcome according to current projections, there will also be a need for the EU to attract labour from the east. This channel is, on the other hand, a natural way to smooth the adjustment to the excess demand situation. The reverse holds, if the projected labour shortage does not materialise. It should be noted that these immigrants will not be eligible for unemployment insurance benefits paid by the EU 15 countries, if they do not first have a work history in the EU 15, see Section 6. This fact limits the "underbidding" effect by CEE workers in the EU labour markets.

As to Finland, the European Integration Consortium (2000) concluded that the number of people from the CEECs would rise from 12 000 in 1998 to 41 000 in 2010 and further to 54 000 in 2025-30. These estimates do not, however, include a separate evaluation of the balance in the labour market in Finland.

Kiander and Vartiainen (2001) (see also Kiander and Mäkelä, 1999) estimated that the annual flow of migrants from the CEECs to Finland would be 0.1-0.2 per cent of the Finnish population, i.e. some 5 000 persons, with free movement of labour. This would be a rather limited amount, with no marked effect on the balance in the labour market. Rantala (2001) has specified a careful econometric model of net migration of the gravity type, where income differentials and the distance of the home countries of migration from Finland are used as explanatory variables. He then provides a projection assuming convergence of the CEE income levels towards that in the EU 15 and concludes that the migration flow may be bigger, on the order of 18 000 persons annually at its highest around 2015.

The balance in the Finnish labour market has also been studied by the Ministry of Labour in its report "Labour Market in 2017" (see Ministry of Labour, 1999) and an updating of it by Tiainen (2001). Migration to Finland was in the 1980s and 1990s on average 12 500 persons and emigration 10 500 persons, yielding a net immigration of 2 000 persons per year. According to the basic alternative by the Ministry, net immigration would in the future Enlargement be around 4 000 persons per year. The

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[6] See on this also Kraus and Schwager (2000).

foreign population would grow to 130 000 persons in 2010 and to more than 200 000 persons in 2017. It should be noted that this estimate covers all migration, of which immigration from the CEECs is only one part. Hietala (2001) came to an estimate that the number of immigrants from the applicant countries to Finland would be at highest only 2 500 persons, while the total net immigration flow would rise to 10 000 persons in 2010-14.

The Finnish debate on EU enlargement has also referred as a basis for comparison, to the large migration from Finland to Sweden in the late 1960s when altogether some 150 000 persons, i.e., around 3.5 per cent of the Finnish population moved there in a short period. It should, however, be noted that the free Nordic labour markets between Finland, Sweden, Norway, Denmark and Iceland were formed already as early as 1954 and that the migration flows did not react at all to this liberalisation in the 1950s and early 1960s (see Koivukangas, 1988). It was only when the "push" emerged in Finland through a recession in the late 1960s and the devaluation of the Finnish markka, combined with the "pull", the vigorous demand for labour in Sweden, that the Finnish "excess" rural labour employed at small farms started to utilise the free labour market and migrate to Sweden.

3. The long-run effects of migration on the EU labour market

According to the popular view referred to above, migration will lead to an increase in unemployment and depress wages. Many developed countries, like the US, Canada and Australia, have, however, experienced and promoted sizeable immigration. At the same time, their structural unemployment has not risen, quite the contrary. It should be noted that in the models of structural unemployment there is usually no role given to the demographic features. In connection with the fears related to migration, emphasis is usually placed on the effects in the short run only and no weight is given to the fact that the market economy adjusts in the medium and the long run as a result of migration. Let us so first make an evaluation of the effects of migration on the labour market in the long run.[7]

In many recent analyses of the labour market it has become a custom to separate the high-skilled, or skilled, and non-skilled labour from each other. The basis of this separation is that recent technological progress is seen to be skill intensive, implying that the productivity of skilled labour has risen more than that of non-skilled labour. It is here vital to recognise that the effects of migration also depend on what kind of labour will move to the EU, which in turn depends on the structure of labour demand and the possible selective policies towards immigration.

Output (GDP), denoted by Q, is produced in the present EU countries by three factors of production: capital K, skilled labour H and unskilled labour L. The two labour inputs are combined in production to form a common labour input, which then is combined with capital,

$$Q = F(K,(H,L)) . \tag{1}$$

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[7] There is a large empirical body of literature on the links between trade and wages, see the recent papers in a special issue of the Journal of International Economics, June 2001.

The production function F is assumed to have the usual properties (constant returns to scale, all marginal products are positive and decreasing and the production factors are cooperative, i.e., a rise in the amount of other factors of production will raise the marginal product of the remaining factor). The rewards to the factors of production are equal to their marginal products in the case of perfect competition in the labour and capital markets.

Let us first start with the case where labour is homogeneous and the distinction between skilled and non-skilled labour in (1) is for a while omitted. Let us further assume that the CEE labour migrating to the EU is similar in its characteristics, like productivity to the indigenous labour. We have the first result,

Outcome 1. If labour is homogeneous and the rate of return required on capital (the real interest rate) is unchanged, the real wage rate in the EU does not change in the long run as a result of immigration of labour to the EU.

Technically, the result depends simply on that fact that, with constant returns to scale, the capital-labour ratio is directly determined by the constant real rate of interest. Therefore, the flow of immigration will lead to the same relative rise in the capital stock as in the labour force. On the other hand, the real wage is directly determined by the capital-labour ratio, and will therefore also remain unchanged in the long run.

The intuition behind the result is that the profitability of the firms increases in the short run as the inflow of workers from abroad pushes real wages down. This will lead to an expansion in the capital stock until the marginal product of capital returns to its initial level. The rise in the capital-labour ratio will also lead to a rise in the marginal productivity of labour, which will lead to an increase in the real wage until it also returns to the initial level.

Let us then return to the more general case outlined above where we have two kinds of labour. The EU labour force will increase by amounts dH and dL > 0, but the immigrants do not bring with them any capital, thus initially dK = 0. Now Outcome 1 can be generalised to hold for the real wages on average. We can now prove,

Outcome 2. If the required rate of return on capital (real interest rate) remains unchanged and immigration consists basically of unskilled labour, the real wage of the unskilled workers will be pressed down in the long run in the EU countries. The same holds, mutatis mutandis, if the immigrants are predominantly skilled.

But on the other hand, the real wage of that type of labour will rise in the EU, the amount of which remains unchanged or will rise only little.

The limit a, with higher share of which of the amount of non-skilled migrants (i.e, dL/(dL+dH)), the real wage of the skilled labour will rise, is

$$a = (F_{HH}F_{KK} - F^2_{HK})/(F_{KK}(F_{HH} - F_{HL})), \qquad (2)$$

where F_{ij} is the derivative of the marginal product of factor i with respect to factor j.

This limit in (2) is positive and lies between zero and unity, as can easily be checked ($F_{ii} < 0$ and $F_{ij} > 0$).

The intuition of the result is the following. Firms may again expand their production, as their profitability will rise if the rate of interest does not change as a result of immigration, as we suppose here throughout. Again, as in connection with Outcome 1, investment and the capital stock will rise in the EU countries. When the average real wage does not change in the long run, the real wage of that component of labour, the amount of which rises less than the capital stock has to rise and the wage rate of the other type of labour has to go down. The reward to that type of labour, which will become more scarce in production will gain and the other type of labour will lose.

EU GDP will, of course, increase directly in response to the higher quantity of input, but also indirectly since the amount of capital will also be induced to rise. Let us now turn to the short run.

4. The short run gain from immigration

The above results can be criticised from the point of view that they do not pay attention to, and omit, the short-run pressure in the labour market. In the short run the capital stock is fixed so that $K = \overline{K}$.

Figure 1   The net gain from immigration in the short run
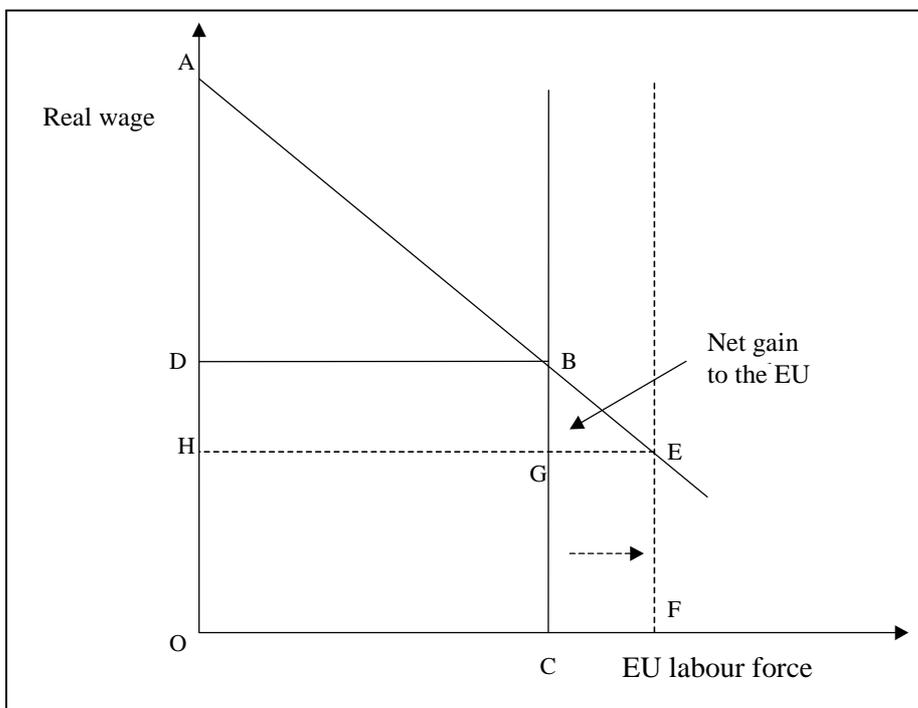
Let us have a look at Figure 1, where we have depicted the downward sloping demand for labour curve with a fixed capital stock, as in Borjas (1995), see also EU Commission

(2001, 43-44). The initial situation is where the EU labour force, being of size N, is employed fully, or there is a structural unemployment so that the number of employed is OC. The real wage is OD (= W_0). As the demand for labour curve also depicts the marginal productivity of labour, the total production (GDP) of the EU equals the area OABC. It is divided into wage income NW_0, which is the area ODBC, and capital income, which is the rest of national income, i.e., the area DAB.

Now immigrants (which are again assumed to be identical to the EU labour force) enter the EU by the amount CF (= M). This will press down the real wage rate to the level OH (=W_1). The total labour income is the area OHEF. This is divided between the income of the indigenous EU workers (area OHGC) and the labour income of the immigrants (CGEF). The income of the EU 15 workers is now smaller than before the accession. Capital income will rise, depicted by the area HAE.

The EU15 countries' total labour income and capital income will rise in net terms by the triangle GBE, which is called the immigration surplus. The destination country of migration reaps a benefit from the fact that it can use labour at price below its average marginal product. Specifically, as a result of immigration the real wage will be pressed down to the level of the marginal product of the "last" immigrant, while the immigrants give a contribution to the host country's GDP by the marginal productivity of each immigrant, which is higher than the new level of real wage. Thus, the EU 15 countries benefit. This holds in well behaving competitive markets and will be qualified below.

We can easily see from the figure that the triangle GBE is bigger, the steeper is the demand for labour curve. So we get the following paradoxical result, see also Borjas (1995),

Outcome 3. The higher is the short-run pressure to lower the real wage in the EU countries as a result of immigration, the bigger is the net benefit from immigration to the incumbent EU countries.

The capital owners in the EU will benefit from immigration and the workers will lose, but the net gain to the economy is positive. It is possible to compensate the losers by transfers through the public sector so that all natives of the EU will benefit from migration. In this alternative, however, it has to be prevented that such a transfer would distort (even more than at present) the allocation of resources in the EU countries, i.e., the demand for and supply of labour, and investment and saving. Therefore, the transfers have to be neutral in these respects. Otherwise they only result in a rise in inefficiency and could easily lead to the situation where all of the net benefit is lost in this transfer process.

Borjas (1995) estimated the net gain from immigration if the labour force increases by 10 per cent as a result of immigration and concludes that the net gain (i.e., the triangle GBE in Figure 1) would be around only 0.1 per cent of GDP in the US case. This involves quite a marked change in the functional distribution of income so that the capital income rises and the labour income declines by around two percentage points in relation to GDP. Based on this, and combining to it the above estimates of the size of immigration in connection with the eastern enlargement of the EU, we come to the conclusion that the size of the gain to the EU 15 is very small, as we shall also see in Section 5. However, this is not a surprise as in general the overall gain to the EU is quite small from Enlargement, see e.g. EU Commission (2001), Lejour et al. (2001), Alho et al. (2001), and Kiander and Vaittinen (2001).

The EU Commission (2001) gives an estimate of the effects of free mobility of labour based on the above triangle of immigration surplus, taking recourse to the analysis by Bauer and Zimmermann (1995). They calibrated the above framework with the distinction made above that the labour force is composed of skilled and non-skilled labour. Their calculations show that in the short run both types of labour may lose if the skilled-non-skilled composition of immigrants is near equality, while at both ends of distribution, i.e. dH/(dH+dL) near zero or unity, the other type of labour gains. Above we derived the unique value for this share, at which one type of labour gains and the other loses in the long run. The net gain to the incumbent EU countries varies between 0.04 and 0.20 per cent in relation to national income from immigration (assumed at 5 per cent of the labour force), i.e. it would be quite big in comparison to the estimates reported above in Section 2. The immigrants gain a lot from migration, see e.g. EU Commission (2001, 44).

Above we have operated with constant returns to scale. Borjas (1995) also studied the situation with increasing returns to scale which arises, e.g., through external effects from the level of the economy to the level of the individual firms. This means that the marginal product of a factor rises in a single firm, if the total output of the country grows. If this were to hold, the net gain from immigration would rise manifold as compared to that presented above. Borjas, however, concluded that the existence and the size of the external effects is so uncertain, especially in the case of immigration, that we cannot present definitive estimates of the gains from immigration in this case.

Above we have also specified a standard neoclassical production function, where the inputs are substitutes for each other. If, on the contrary, there is a complementary relation between the inputs so that production Q rises pari passu with the most scarce input of production, and if the amount of this factor depends on immigration of foreign labour, this would imply that the net gain from immigration would again be of much bigger magnitude to the countries than that suggested above.

The trade unions in Finland and elsewhere in the EU demand that the immigrants be employed at the going terms and rates of pay. In this case, migration would not have an immediate effect on nominal wages nor real wages. This would not be desirable from the point of view as the economy would not start to adjust through capital accumulation and unemployment would rise. There would be no net benefit to the society, only an additional in the form of an increase in social costs.[8]

Firms' positive attitude towards immigration, referred to in the Introduction, is basically based on a simpler reasoning than above. They think that they will have ample demand for their products, but the likely shortage of labour (as the EU indigenous labour force may shrink in the future) may prevent their sales from being fulfilled. For each unit of output produced and sold, they get a positive profit through the mark up of prices over wages, and so a reduced labour force will lead to reduced profits as well.

Above we have considered the EU as a single unit (country). Let us therefore differentiate the EU countries on the basis of, whether they open their labour markets immediately or not. As was discussed above, some of the EU countries will do this immediately after the Enlargement (here Country 1), while some are likely to impose a transition period, up to seven years (Country 2). We assume that the EU countries are, as

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[8] These would be costs in the form of subsistence income support. There would not be a rise in the unemployment insurance costs as the immigrants would not have a working history in the EU and as the UI benefits are not in general portable from one country to another. After the enlargement as EU citizens, CEE migrants would receive benefits from their own UI system for 3 months while searching for a job in another EU country. Angrist and Kugler (2002) present evidence that the negative effect of immigration on employment are bigger in countries with stricter labour and goods market regulation.

they basically are today, isolated from each other as to their labour markets and compete with each other through trade flows in the mutual and in the third-country markets. This differentiation with respect to the initial inflow of immigrants may lead to some asymmetric changes in the relative competitive positions. First, it may be that the liberal country reaps the "best" of the CEE workers in the sense that their productivity (in relation to their wage rate) is the highest and that their wage is lower than what it otherwise would be, had all the EU countries liberalised their labour markets.

Immigration by CEE labour, will, as was discussed above, increase the resource base of Country 1, while that of Country 2 will remain unchanged in this sense. In Country 1 there is pressure to lower the real wage. This will, on the other hand, mean that the international competitiveness of Country 1 will improve together with its resource base, causing a shift in global market preferences for the products of Country 1 in the short run. This will mean that there is an indirect upward pressure towards unemployment and a downward pressure on real wages in Country 2, too. Country 1 can now attract more immigrants from the CEE, based on the stronger demand for its products in the world markets. It will again be able to improve its competitive position, which again leads to a rise in its exports, while Country 2 would again lose. There could be a temporary virtuous circle for Country 1 and a vicious one for Country 2.

5.   Shift from the short to the long run

Let us now try to create a bridge from the short to the long run, analysed earlier in Section 3. The difference between them is that the capital stock remains unchanged in the short run, while in the long run it adjusts so that the profitability of the firms (marginal product of capital) will be restored to its initial level. As mentioned in Section 3, this means that, as a result of immigration, profitability first goes up and then returns to the initial level, as we assume throughout that the required rate of return on capital does not react to immigration. The growth of the capital stock has to be saved, however, so that the rise of GDP included in results 1 and 2 is not available for extra consumption as such.

We have the following basic equations describing the long-run change, using again the case of homogeneous labour for brevity, where S denotes saving,

$$dQ = F_K dK + F_L dL \qquad\qquad (3a)$$

$$dQ = dS + dC \qquad\qquad (3b)$$

$$dS = rdK . \qquad\qquad (3c)$$

As we saw above in connection with Outcome 1, in the long run $F_L = W_0$ and $F_K = r_0$, where 0 denotes the initial situation. Expression (3c) is derived from the fact that in each period the country concerned has to save more than earlier by the amount of the capital cost of the loans borrowed against the build-up of the capital stock (see on this also Alho and Kaseva 1999, chapter 3). The higher level of capital income is tied to the higher rewards for savers of the capital stock. Solving for the rise in aggregate consumption, dC, yields

$$dC = F_L dL = W_0 dL \ . \tag{4}$$

The total consumption of the EU economies will rise by the amount of the wage income of the immigrants. As aggregate consumption and aggregate saving consists of the respective components by the EU citizens and the immigrants, we have for the income of the immigrants,

$$Y_M = W_0 M + rK_M \ , \text{ and}$$
$$C_M = Y_M - S_M \ ,$$

where K_M is the (part) of the capital stock to be owned by the immigrants in the long run. Capital is accumulated from savings, as initially the immigrants do not own any of the capital stock. This means that in a steady state $K_M = S_M/r$, and accordingly, we see that the immigrants consume their labour income and save their capital income. This is a standard result of intertemporal consumption-saving decisions, see, e.g., Blanchard and Fischer (1989). On the other hand, inserting this result into (4) we find that there is no net gain in the form of extra consumption to the EU 15 nationals in the long run. So, again, we reach a neutrality property,

Outcome 4. As a result of immigration the EU GDP grows in the long run by the relative amount of the rise in the EU labour force due to immigration, which is more than the growth impulse in the short run, but the welfare measured by consumption of the indigenous EU citizens will not rise at all in the long run. Neither is there any harm caused to the indigenous labour nor to capital in the EU countries. Only the immigrants gain by the amount of the income gap.

We see that the above sharp distinction between the capital income and wage income emerging in the short run is not the whole picture and will vanish in the long run, as the capital stock reacts to the shock produced to the economy in the form of immigration. The intuition behind Outcome 4 is that in the end immigrants will help to "create" a similar, but larger economy than the original, and everything is just scaled upward from what it was originally. Again, this all crucially depends on the assumption of constant returns to scale. Under increasing returns, created by external effects, there could be a sizeable net gain in the long run, too. The EU countries and their labour may borrow against the fact that their wage incomes will return after the immigration shock to the previous level, and that their capital income rises, and thereby eliminate through the capital markets the temporary fall in their real wages from being reflected in their consumption level.

However, the long run may really be far away, and consumers are not so forward-looking to realise Outcome 4 immediately when immigration starts. Let us therefore study this more carefully. We made a simple numerical simulation as to the effects of immigration in the case where, in 10 years, immigration causes a rise in the EU labour force by 1 per cent, in line with what was reported above in Section 2. We also imposed the constraint of a current-account balance each year. The capital stock slowly adjusts so that each year 20 per cent of the gap between the desired capital stock and existing stock is filled by a flow of investment, and the saving rate of the immigrants is fixed exogenously to 7 per cent. The details of the model are presented in the Appendix. The basic results of the simulation are summarised in Figure 2.

Figure 2. Simulation of the effects of a flow of immigrants to the EU, percentage change from the baseline (for Ymig, income of migrants, is presented its share of GDP)
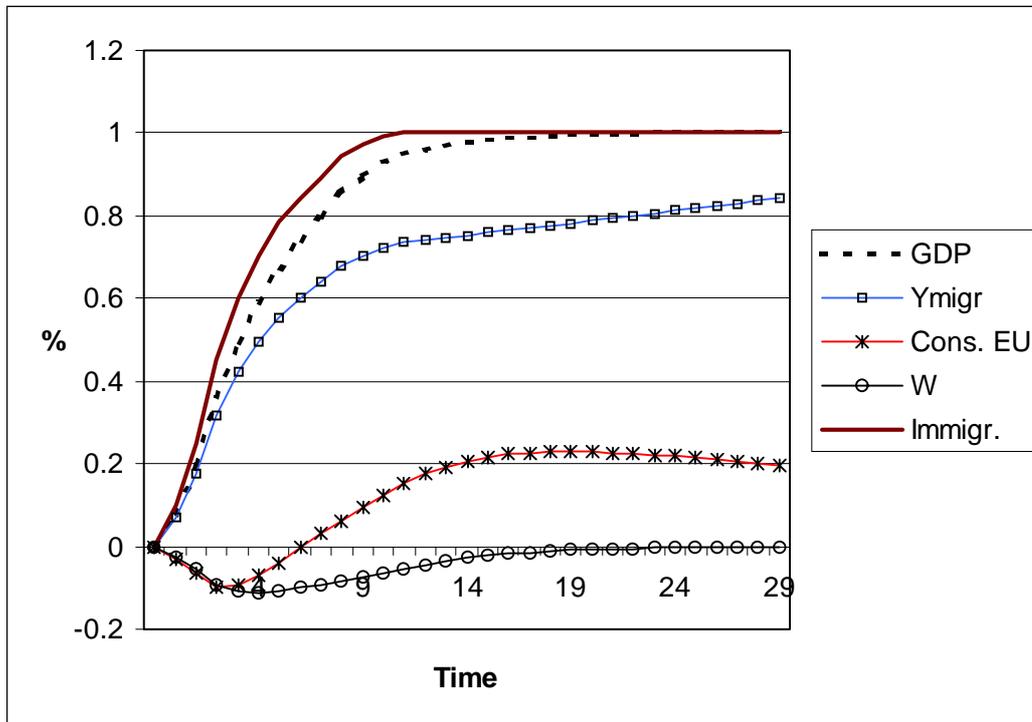
Explanations: Ymigr is income of immigrants, share in total GDP of the EU 15, Cons. EU is consumption by the indigenous EU 15, W the real wage rate in the EU 15, Immigr. is the rise of the labour force of the EU15 after enlargement.

There are several interesting features to be seen in Figure 2. As stated in connection with Outcome 4, GDP grows in the long run by the same amount as the labour force, i.e., 1 per cent. The pressure towards lower real wages using a Cobb-Douglas specification for the production function (no distinction is made here between skilled and non-skilled labour), is very small, at most less than 0.1 per cent and it vanishes in the long run as stated in Outcome 1. In practice, this has to mean that as productivity rises over time, and the economy grows, there are basically changes in the rates of increase in the real wage rates. The rise in the rate of profit is also very small (not shown in the Figure), the highest level of the rate of return is only 0.04 percentage points higher than the initial level. The consumption level of the incumbent EU countries shows an oscillating behaviour, as is to be expected in light of Outcome 4. It first declines as the increase in the capital stock is saved by the EU 15 natives, and then increases as saving by the immigrants and the rise in GDP give more room also for consumption by the EU indigenous population. Over time consumption again enters a declining phase, in line with Outcome 4. Over the 30-year time span, the accumulated present value of the net gain in consumption to the EU 15 indigenous consumers is very small, 0.1 per cent in relation to GDP.[9] [10] This confirms the theoretical reasoning behind Outcome 4.

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[9] We used as the interest rate the initial level of rate of return, which is calibrated to 15 per cent p.a.

[10] Ortega (2000) has analysed migration in a different kind of two-country model where the workers are homogeneous with respect to productivity within each country and between the countries. The model

6. On effects through the social security system

Above we have also referred to the fear that immigration can place on pressure towards the EU social security systems. The immigrants are typically persons whose income level after migration is relatively low, which implies that they receive, due to the progression in the social security system, more from it than they pay as contributions to the system. Professor Hans-Werner Sinn has accordingly forcefully argued that free mobility of labour can even deliver a devastating blow to the welfare states of the EU, see e.g. Sinn (1998).

It should be noted that factor mobility is closely linked to the mobility of goods, i.e., foreign trade, and that these two types of mobility are substitutes for each other. Even in the case of labour immobility, workers can compete with each other through foreign trade. In theory, free trade and free mobility of labour lead to the same situation and to the equalisation of wage rates. Wellisch and Walz (1998) have, however, shown that free mobility of labour leads, from the point of view of the rich countries, to a worse outcome than free trade, because the costs accruing through the redistribution of incomes by the welfare states will be larger than under free trade and labour immobility, in which case the low-wage labour force residing in the country does not grow.

On the other hand, OECD studies which follow immigrants and their offspring over time, see Coppel et al. (2000), have reached the conclusion that migrants pay more taxes to the public sector than they receive benefits through public expenditure.

Recently, Razin and Sadka (2000) have made an important analysis on the linkages between social security and immigration from an intertemporal perspective. The immigrants are again assumed to be similar as to their demographic properties as the present EU citizens, especially they are assumed to have similar fertility. Using an OLG model, Razin and Sadka show that the inflow of immigrants makes it easier to run a PAYG social security system. According to their model, the present old age citizens of the EU 15 countries will benefit, because there are now more contributors to their pensions. It is assumed in their paper that the immigrants are young so that the level of pensions can be raised with a fixed social security contribution. An alternative would be to lower the burden of the pensions of the old EU citizens on the present EU young generation. In both cases there is a net benefit to the EU. This gain can, in principle, be distributed over time to all generations in the EU so that all of them benefit from migration.

What may be even more important than this basic result is the outcome that this gain to the host (EU) countries does not in any way depend on whether the immigrants are net beneficiaries of, or contributors to, the social security system. Even assuming they are

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is based on search theory, which implies that the workers search for jobs where the living standard is higher when migration costs are taken into account. The model is nevertheless similar to that analysed above, because in the former firms increase the supply of jobs in a similar fashion as they increase investment above as a result of the inflow of immigrants. Ortega shows that the alternative including migration is always better than the situation without migration for workers in both countries. It is an essential feature of the recent analysis of immigration that the number of jobs is not fixed in the host countries. The economy will adjust to the change, as immigration will increase the resource base of the economy. Based on this kind of idea, Ortega puts forward the argument that allowing migration will benefit labour in the host (now the EU) country. It is possible also for the EU workers to compete for these extra jobs, which will raise their negotiation position in a long-run equilibrium in comparison to the situation of no migration. The wage level of the immigrants is also lower than that of the native workers because the negotiation position of the former is weaker due to their migration costs and other factors such as deficiency in language skills.

net beneficiaries, this burden can in an infinitely living society be indefinitely shifted forward so that it will never have to be paid. No generation has to give up of what it receives as benefits from the social security system. Only if the "world ends", does the cost burden caused by immigrants fall on the then young generation.

However, in the short run, when the capital stock does not grow at the same speed as the labour force as a result of immigration, the real wage goes down and there will be a welfare loss to the incumbent EU young generation, as was discussed above in Section 4. This loss can in principle be compensated to the losers via internal lump sum transfers, which was also discussed above.

The analysis by Razin and Sadka (2000) is of importance and gives food for thought with respect to the criticism that migration from the CEE is a major threat to the welfare systems of the EU countries. However, their model is not so articulated that on the basis of it we could come to a "final" conclusion on the links between migration and the social security systems. Namely, we can imagine that employing CEE immigrants requires a basic fixed cost, such as housing, which has to be invested prior to the migration by the private or public sector in the EU country. On the other hand, if the immigrants pay a market rent on their housing, this rent will exactly cover the capital cost accruing to the firm or the public body investing in the housing, and is therefore neutral.

Above in Section 4 we paid attention to the fact that migration may be harmful to the non-skilled labour in the EU. This may lead to requirements of compensation to these workers from those who benefit from immigration. Wildasin (2000) notes that, as immigrants cannot in general be excluded from these kinds of social security operations, these mechanisms of compensation are likely to attract more immigration, which will reduce or even turn into a loss the total net benefits of increased immigration to the present EU citizens.

7. Concluding remarks

Internationalisation of the EU labour markets and their integration with the CEE countries due to the consequent free mobility of labour from the east to the west is an important economic and social issue in connection with EU Enlargement. This has also been of interest to the research community. Above we have tried to demonstrate that many of these effects are not self-evident and may vitally differ between the short and the long run. So, i.a., there is a kind of a paradox here in the sense that the more adjustment problems are created by immigration in the form of real wage pressure, the bigger is the total net gain to the EU in the short run. In practice, it seems that the real wage reaction as a result of immigration, reported in the many studies on this topic, is quite small indeed, as we demonstrated.

Because many studies show that immigration from the CEE to the EU 15 is likely to be rather limited, we should perhaps formulate the question to address whether the CEE immigration is sufficient enough to meet the demand for labour by the incumbent EU countries or whether more far-reaching active immigration policies are needed. On the basis of the discussion above, it is likely that we have to answer positively to this question if the EU economies return to and remain on a stable growth path.

References

Alho, K. and Kaseva, H. (1999): EMU, Public Sector Finances and the Financing of Social Security (in Finnish, with English summary), KELA (The Social Insurance Institution, Finland), Studies in social security and health, No. 50 and ETLA series B, No. 159.

Alho, K., Kaitila, V. and Widgrén, M. (2001): The Effects of EU Eastern Enlargement on Finnish Firms (in Finnish, with English summary), ETLA series B, No. 178.

Angrist, J. and Kugler, A. (2002): "Protective or Counter-protective? European Labour Market Institutions and the Effect of Immigrants on EU Natives"; CEPR Discussion Paper, No. 3196.

Bauer, T. and Zimmermann, K.F. (1995): "Integrating the East: The Labour Market Effects of Immigration", CEPR Discussion Paper, No. 1235.

Bauer, T.K. and Zimmermann, K.F. (1999): Assessment of Possible Migration Pressure and its Labour Market Impact Following EU Enlargement to Central and Eastern Europe, IZA, Research Report No. 3, www.iza.de .

Blanchard O. J. and Fischer, S. (1989): Lectures on Macroeconomics, MIT Press.

Borjas, G.J. (1995): "The Economic Benefits from Immigration", Journal of Economic Perspectives, Vol. 9, No. 2, 3-22, Spring.

European Commission (2001): "The Economic Impact of Enlargement", http://europa.eu.int/comm/economy_finance, Number 4, June, ISSN 1608-9022.

Coppel, J., Dumont, J.-C. and Visco, I. (2000): "Trends in Immigration and Economic Consequences", OECD, Economics Department Working Papers, No. 284.

European Integration Consortium (2000): "The Impact of Eastern Enlargement on Employment and Labour Markets in the EU Member States – Final Report", http://europa.eu.int/comm/employment_social/pub_en.htm.

Hietala, K. (2001): EU Eastern Enlargement and Immigration to Finland (in Finnish), in: The Effects of EU Eastern Enlargement on Labour Mobility, Publication by the Ministry of Labour, No. 291.

Kaitila, V. and Widgrén, M. (1998): The EU Membership of the Baltic Countries and Finland (in Finnish, with English summary), ETLA series B, No. 139.

Kiander, J. and Mäkelä, P. (1999): "Labour Mobility – What Do the Studies Tell to Finland?" (in Finnish) in Mäkelä, P. and Virtanen, S. (eds.) 'The Perspectives of EU Enlargement', Government Institute for Economic Research, Discussion paper, No. 197.

Kiander J. and Vaittinen, R. (2001): "On the Effects of the Eastern Enlargement of the EU – Calculations with a CGE Model" (in Finnish), Government Institute for Economic Research, Discussion paper, No. 259.

Kiander, J. and Vartiainen, J. (2001): "Enlargement of the EU and the Finnish Labour Market" (in Finnish), The Finnish Economic Journal, 2/2001, 296-314.

Koivukangas, O. (1988): Migration after WW II (in Finnish), in: History of Finland, part 8, Weilin&Göös, Espoo, 148-9.

Kraus, M. and Schwager, R. (2000): "EU Enlargement and Immigration", Zentrum für Europäische Wirthshaftsforschung, Discussion Paper, January 2000, www.zew.de .

Layard, R., Blanchard, O., Dornbusch, R. and Krugman, P. (1992): East-West Migration: The Alternatives, MIT Press.

Lejour, A., de Mooij, R. and Nahuis, R. (2001): EU Enlargement: Economic Impacts for Countries and Industries, CPB Document, No. 011.

Ministry of Labour (1999): Employment and Welfare in the Beginning of a New Millenium, The Final Report of Project The Labour Force 2017 (in Finnish), Studies in Employment Policy, No. 200.

OECD (1998): Trends in International Migration, 1998 Edition.

Ortega, J. (2000): "Pareto-Improving Immigration in an Economy with Equilibrium Unemployment", The Economic Journal, Vol. 110, No. 460, January, 92-112.

Partanen, A. and Widgrén, M. (1999): EU Membership of Poland and Finland (in Finnish, with English summary), ETLA Series B, No. 153.

Rantala, O. (2001): "The Effect of EU Enlargement on the Population Dynamics of Finland" (in Finnish), ETLA, Discussion paper, No. 764.

Razin, A. and Sadka, E. (2000): "Unskilled Migration: A Burden or a Boon for the Welfare State?", Scandinavian Journal of Economics, Vol. 102, No. 3, 463-479, October.

Sinn, H.-W. (1998): "European Integration and the Future of the Welfare State", Swedish Economic Policy Review, Vol. 5, No. 1, 113-132, Spring.

Tiainen, P. (2001): "There Will be a Supply of New Jobs as the Baby-boomers Retire" (in Finnish), The Journal of Employment Policy, Ministry of Labour, No. 1/2001.

UN (2000): Replacement Migration: Is it a Solution to Declining and Ageing Populations?, Population Division, Department of Economics and Social Affairs, United Nations.

Wellisch, D. and Walz, U. (1998): "Why do Rich Countries Prefer Free Trade over Migration, The Role of the Modern Welfare State", European Economic Review, Vol. 42, No. 8, September, 1595-1612.

Wildasin, D.E. (2000): "Factor Mobility and Fiscal Policy in the EU: Policy Issues and Analytical Approaches", Economic Policy, No. 31, October, 337-378.

Appendix. The simulation model used in Section 5

The production function is Cobb-Douglas, with income shares 0.3 for capital and 0.7 for labour. We fix the initial labour force in the EU 15 to 100 and the capital stock so that it is initially at the desired level when the rate of return is 15 per cent p.a. This gives a capital-labour ratio k^* of 2.7, which is reasonable. The growth rate of the EU labour force L_t takes place only through immigration, which is exogenous and g_t in year t, so that $L_t = L_{t-1}(1+g_t)$. The cumulated number M of immigrants in the EU is $M_t=L_t-100$. The desired capital stock K^* evolves as $K^*_t = k^*L_t$, and the actual stock through a stock adjustment process, which specifies $K_t = K_{t-1}+ \lambda(K_t^* - K_{t-1})$. In the simulation we fix λ to 0.2. The rental (rate of return on capital) r_t and the wage rate W_t are solved as their marginal products, given the capital-labour ratio K_t/L_t existing in year t.

The GDP Q of EU 15 is now equal to $r_tK_t+W_tL_t$. The income Q_M of the immigrants is similarly $r_tK_{Mt}+W_tM_t$, where K_M is the non-human wealth to be owned by the immigrants, cumulating through the identity, $K_{Mt} = K_{M,t-1}+s_MQ_{M,t-1}$, where s_M is the exogenous saving rate by the immigrants. Through the current account constraint, aggregate consumption C, comprising of that of the indigenous EU 15 population, C_{EU}, and of that of the immigrants, $C_{Mt} = (1-s_M)Q_{Mt}$, is given by $C_t = Q_t-(K_t-K_{t-1})$. Now the consumption of the EU 15 native population can be solved as a residual. If we were also to specify a saving behaviour for the EU 15 consumers, we would have to manipulate the public consumption so that the aggregate consumption in the EU 15 meets the current account constraint. In this situation, we would technically define the public consumption to be of equal utility as the private.

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