EU ENLARGEMENT: THE IMPACT OF EAST -WEST MIGRATION ON GROWTH AND EMPLOYMENT" (FLOWENLA)

FINAL REPORT

ABSTRACT

Most of the research on migration that will be induced by the EU enlargement is concerned with forecasts f aggregate migration flows. The project ËU Enlargement: The impact of East -West Migration on Growth and Employment" (FLOWENLA) went beyond the aggregate research and assessed the interaction between adjustments of international trade and foreign direct investment flows with migration flows of different skill groups of workers within the enlarged European Union.

FLOWENLA combined tow major blocks of theoretical and empirical work. The theoretical work is subdivided into the theoretical analysis of the short-run transition to a new growth path and the theoretical analysis of the characteristics of the long/run growth path.

The short-run analysis emphasized relative technological developments in the Central and Eastern European countries. It supports the expectation that, even before the liberalization of the movement of workers, there will be strong technological catching-up processes in the new member countries of the union. Lags in price- and wage-adjustments will lead to transitory rents that drive capital accumulation and foreign direct investment. These catching-up processes will lead to a significant reduction of incentives to migrate, for all skill groups of workers.

The long-run growth effects will depend on the expansion of the research and development sector. The more the R&D sector is localised, the more policies to foster growth of the Union as a whole require a free movement of labour, in particular of skilled labour. The long-run analysis explores in detail the consequences for the distribution of the dynamic income gains between member countries and between owners of different resources. The analysis is extended by the study of the growth and distribution effects of remittances.

The theoretical research was complemented by five sections of empirical research: on the motivation of migrant worker, on the effects of trade adjustments on relative wages, on the effects of foreign direct investment flows on the level and the structure of wages as well as technological spillovers of FDI, on the direct labour market effects of immigration, and finally on endogenous changes of national policies that might result from changing fundamentals due to induced migration flows.

Overall the empirical results suggest that the labour market and growth effects of the migration flows which will eventually be associated with the enlargement process will be smaller than what is expected in public debates. The research of FLOWENLA highlights where they require government policy responses.

A first group of policy measures to compensate distributional effects might help to increase the political acceptability of the liberalisation of the movement of workers. A second class of policy measures should address market failures that reduce the immigration surplus due to integration problems. A third group of policy measures aims at institutional reform to allow for the full realization of the benefits of labour mobility, for example a greater flexibility of regional labour markets.

Executive summary

As a background to the activities of the FLOWENLA network, major differences existed by the time of its initiation with respect to forecasts of *aggregate* migration flows. The polar cases of these studies are Boeri and Bruecker (2000) and Flaig (2001) (see also the comments on Straubhaar 2001). Boeri and Bruecker forecasted an overall inflow of 2.9 million people or 1.4 million workers from the CC 10 after 10 years, while the Ifo study forecasted an overall immigration of 4.2 million persons from the CEECS 10 after 15 years.

The inflows to the Western European countries are expected to steadily decline over decades before an equilibrium number of accession country immigrant workers is reached. The strongest inflows are expected for the first years. The Boeri and Bruecker study estimates the early inflows at 70,000 workers per year from the CEEC 8, declining to 30,000 after 10 years. A major part of this inflow is expected to be temporary workers. Migration from the Western European countries to the Eastern European countries has not been studied systematically. Accession of Bulgaria and Romania would add an estimated 50,000 workers in initial years, declining to additional 20,000 after ten years.

On the basis of the aggregate studies, the overall impact of the migration flows due to enlargement is expected to be weak. Enlargement would not significantly affect wages and employment in the EU.

However, based on the present distribution of candidate country nationals in the EU15, around two-thirds would be expected to be absorbed by Germany, i.e. around 45,000 workers per year from the CEEC 8 in the first few years. The second highest recipient would be Austria with over 10 per cent of the flow from the CEEC 8, i.e. about 8,000 workers per year.

In the long run, the number of *people* from the CEEC10 in the EU 15 would rise from its 1998 level of 830,000 people to reach a peak of 3.9 million after approximately 30 years after accession. This implies that their share in the population of the present EU member states would rise from 0.2 per cent in 1998 to 1.1 per cent in 2030. The number of CEEC 10 residents in Germany is estimated to increase from 535,000 in 1998 to 2.5 million after 27 years from now, corresponding to an increase of the share of migrants from 0.6 per cent of the German population in 1998 to a final 3.5 per cent. For Austria, the number of residents is estimated to increase from around 100,000 to about 470,000 after 30 years, corresponding to an increase of the share of migrants from the CEEC 10 in the projected Austrian population from 1.3 percent to 5.5 per cent in 2030.

While the aggregate figures could hardly lead to hopes or concerns about the effects of immigration on EU growth and employment, what seems to have led to rather restrictive policies regarding the freedom of the movement of workers is the sectora1 concentration of employment of migrants and the labour market performance of migrant workers in the nineties.

Non-EU nationals tended to be concentrated in particular sectors and occupations, though over time this is expected to diminish. For example, they account for more than 10 per cent of the employment in the private household sector and for almost 8 per cent of the hotel and

restaurant sector. A major part of these occupations offers little scope for acquiring additional qualifications and consequently little scope for mobility within the labour market.

The aggregate effect on the domestic wages in the EU 15 is estimated to be in a range between +0.3 per cent and -0.3 per cent.

What is the basis of policy concerns is the fact that present employment rates of immigrants show a weaker labour market performance. The employment rate of non-EU nationals in the EU 15 of 52.7 per cent is significantly lower than the 64.4 per cent of EU nationals. The difference is much stronger for female labour. At the same time, immigrants are over-represented in risky sectors of employment, in undeclared work of low quality, and in labour population segments particularly exposed to health risks and social exclusion. In addition, the well-educated and skilled immigrants are often unable to find work which matches their qualifications and have to accept lower qualified and lower paid work.

The results of FLOWENLA provide a rich picture of the labour market and growth effects of the expected migration flows associated with the liberalization of the movements of workers

The theoretical part of the network's output is subdivided into a short-run and a long-run analysis of the adjustment processes induced by the enlargement process, that both inform on the potential policy problems that might arise from the migration flows that will be associated with the changes of trade patterns and foreign direct investment flows.

Theoretical analysis of short-run effects

The short-run analysis does not give rise to the expectation of massive migration streams. At the heart of the short-run analysis lies the dynamics of the process of technological catching up. the catching up is driven by the perceived relative ease with which movements to the technology frontier can be achieved compared to movements of the frontier. The catching up processes are proceeding with constant speeds (called the "weak Gerschenkron effect" reminiscent of the work of the economic historian Gerschenkron on convergence processes) or with accelerating speed ("strong Gerschenkron effect"). the catching up is measured by increasing labour productivities in the laggard countries for all of the skill groups of workers as a function of the distance to the labour productivities of the technologically leading countries.

The fact that during the catching up process the dynamics of (downward) price dynamics and (upward) wage dynamics lags behind the productivity developments leads to transitory rents on the technological advancement which drive capital accumulation and foreign direct investment flows, providing the foundation for the convergence process, or, in the case of a strong Gerschenkron effect, of a switchover in technological leadership.

This picture is complemented by the empirical research showing the convergence of the trade structures of Eastern and Western European countries. Such a move from inter-industry trade to (more intensive) intra-industry trade should reflect a convergence of relative costs and relative factor prices in both country groups.

Given the restrictions on migration up to the year 2010, catching up processes may reduce average income differentials, and differences in relative factor prices. As a consequence, incentives to migrate may be weaker by the time of the liberalisation of the movements of workers.

The theoretical analysis of the short-run adjustment processes in production, labour markets and trade suggest that the short-run dynamics of economic development in the CEECs will reduce the migration potential that might be expected given current differences in technologies used and relative factor prices. Expected technological catching up processes will reduce differences in absolute income levels and in relative wage levels. By the time the restrictions on the free movement of workers will be lifted wage differentials for the individual skill groups may be sufficiently reduced to lead to relatively small migration flows and to a much smaller skill bias than is expected on the basis of a mere extrapolation of the current situation.

Theoretical analysis of long-run effects

The theoretical analysis of the long-run effects of the enlargement and migration shows that the long-run effects of the migration flows might differ substantially from the short-run forecasts.

The long-run is distinguished from the short-run by its focus on the impact the development of the research and development sector has on the development of regions, nations, or groups of countries. Central to this impact is the fact that the output of the R&D sector is an input to the performance of other economic sectors, that is not used up when employed in the production process. The knowledge stock produced by this sector is rather the basis of future extensions of technical and organisational knowledge. The higher the share of the research sector the higher will be the long run growth rate due to the positive effect of the knowledge stock on the capacity to produce innovations.

As is shown by the research of FLOWENLA, the realisation of a positive immigration surplus, which includes the surplus obtained from fostering the growth effects for the group of countries, depends on removal of the migration barriers. There is however, a possible trade off between the growth objectives and objectives related to the distribution of incomes in two respects:

An unequal distribution of research activities across countries or regions has first the potential to lead to an unequal distribution of development performance in a geographic sense. Second, as the R&D sector is the most skill intensive one, a geographic concentration of research would lead to strong immigration of skilled workers, leading to potentially negative consequences for the source regions. As this will lead to a reduction of relative wages of the skilled workers in the host region the immigration of skilled labour might lead to a more equal income distribution among workers. As it also leads to an increase of the interest rate it can imply a more unequal income distribution between workers and capital owners.

Depending on income distribution objectives of EU member countries, fiscal redistribution schemes to achieve a secondary income distribution that differs from the primary income

distribution could be conducive to realising the full potential of growth for the union of countries.

To a large extent the above facts will also depend on the portability of the skills of the potential migrants. At least in a situation where substantial differences in the general technologies used in the individual economies exist, the transferability of formal skills and work experiences seems to be less than perfect. The theoretical work has shown highlighted the importance of capital market imperfections and the importance of labour market institutions for the adaptation of skilled migrants to the work environment of the host country. Depending on the wealth, or the credit demand of migrants, the supply of finance for training and education provided by capital markets and the distribution of the surplus of labour relations between employers and workers, government support may be required to facilitate the integration of skilled workers to realise their productivity potential in the R&D sector. As the absence of such measures would effectively reduce incentives to migrate, they would also avoid inefficiently low rates of migration of skilled workers.

Results of the empirical research

The empirical part of FLOWENLA research has investigated a large number of aspects of the link between the enlargement and the labour market and growth effects of the induced migration flows. All of the analysis implicitly or explicitly assumed differences in the speed of trade adjustments, reactions in foreign direct investment flows and responses by relocations of the working population. All of these processes lead to second round adjustments on national labour markets and the growth processes of nations or country groups.

Following the timing of these adjustment processes we present the results of the empirical work of FLOWENLA in the following order: First, the work on the trade adjustments and their effects on the labour market situation will be reported. This part of the empirical work was mainly carried out at Bocconi University and the University of Parma. In particular, it addressed the following questions:

- Would the changes in the trade pattern that is induced by the enlargement of the Union lead to a widening or a reduction of the differences in the trade structures of the countries involved? The answer to these questions would give an indication of whether the changes in the trade patterns and the associated changes in relative factor prices would lead to a reduction of the incentives to migrate between the accession countries and the Western European countries.

- To what extent would trade between countries or regions at different levels of development like Western Europe and the accession countries imply a transfer of technical and organizational knowledge, thereby contributing to a reduction of the Ricardian arguments for international trade and factor mobility.

- To what extent does the recent, general phenomenon of international integration, the vertical disintegration of manufacturing production processes in the advanced countries and the relocation of the production of intermediate goods to foreign countries have specific labour market effects that would influence the prospective migration flows?

A second block of empirical studies looked at the flows of foreign direct investment induced by the enlargement process. This stream of contributions to the empirical work of FLOWENLA started with the analysis of the location behaviour of multinational firms facing liberalization of international economic relations. The multinational firms' location decisions, and more generally the impact of foreign direct investment on wages in Central and Eastern European countries were studied in general and, in –depth and based on Hungarian firm level data, by project partners at Bocconi University, the Hungarian Academy of Science, and the Hamburg Institute of International Economics.

The largest block of empirical research of FLOWENLA focused on the direct effects of migration on the labour market conditions and growth. Two studies focus on the migration behaviour in East and West. Both studies derive conclusions on the likely migration streams from examining the effects of migration on regional convergence. A further important section of the empirical research of the consequences of migration looked into the detail of the social situation of migrant workers in Western European Countries. Both were based on social security household data. They studied the competition between migrants and native workers on the Italian and the German labour markets. The data of the latter study allowed to confirm the results obtained in other contexts, i.e. that migration of skilled workers seems to be associated with the devaluation of educational attainments and of individual labour market experience. It shed light on the efforts of immigrants to adapt to the new working environment.

A special aspect of the labour market effects of the migration flows associated with the enlargement process which was studied as part of FLOWENLA's empirical work was the effect on agricultural labour markets, contributed by the Centre for European Policy Studies, Brussels.

A paper of the University of Surrey addressed the important question of the development effects of migrant workers' remittances. The substantial shares that remittances have in total investment in some transition countries show that the project's empirical work has contributed significantly covering an important and mostly neglected aspect of the distribution of the migration gains across source and host countries to the migration research.

Endogenising policy making, two papers analysed the pressures that might be exerted on policies that influence the incentives to migrate. A first one, studies the incentives that result from international or interregional difference in welfare state policies to migrate and the pressures of the welfare systems to adjust. It provides an estimate to the benefits and costs of induced changes of redistributive policies in those countries that invite immigration by the characteristics of the welfare systems. Finally, a paper of the Hungarian Academy of Sciences discusses the effects of bilateral agreements between Western European countries and the CEEC's to allow selective immigration.

The empirical research provides new insights into the empirical patterns of interaction between international trade in goods, foreign direct investment flows and migration patterns as well as the direct implications of immigration and emigration on the labour markets and the growth paths of the source and the host countries.

More than leading to direct policy conclusions the results inform the predictions of the likely volume of worker mobility and its impact on the labour markets in different geographic regions and of different qualifications. In several respects the result support the expectation that the EU enlargement and the associated migration streams will not lead to disruptions of labour markets and dramatic changes to the growth paths seen so far. This overall result may be read as an indication that negative perceptions and expectations that play a prominent role in public debates are rather exaggerated.

The propensity to migrate. A number of contributions to FLOWENLA have tried to empirically analyse the willingness to migrate. Drinkwater (2002) is the most general paper as it uses cross national survey data to assess the willingness to move of individuals from several CEECs. The approach adopted in this paper emphasises the reasons why individuals may not want to move, for example because of high psychic cists of migration within a human capital framework. It is hypothesised that the costs of migration may outweigh the possible high rewards in the west for many individuals. The results suggest that the willingness to move varies considerably between the CEECs , with some countries displaying a relatively high willingness to move (e.g. Bulgaria) but others exhibiting a relatively low willingness to move (Latvians and Hungarians). These differences remain even after controlling for personal characteristics. Of these personal characteristic, it is interesting to note the important influence of education because it is found that the most highly qualified individuals have the highest willingness to move. Many studies on the macro economic influences on the willingness to move proceed from the hypothesis that per capita income differentials and differences in unemployment rates will dominate the migration decisions. While it was impossible to falsify these hypotheses, the effects turned out to be statistically insignificant. A positive effect on the willingness to migrate had the previous migration of compatriots. That is, the results suggest that network effects are important.

The study of Cseres-Gergely (2003) on residential relocation in Hungary found that the most educated workers were also the most likely to move. using individual level data, it was found that residential amenities were a principal reason for relocation. Analysing the influence of wage differentials on migration decisions it was shown that they had a significant but very weak influence on the internal migration behaviour.

A general conclusion from the studies on migration attitudes is that the general propensity to migrate was low, that in particular differences in household income had surprisingly weak effects. Among the different skill groups of workers skilled workers are clearly more willing to migrate than unskilled workers. If anything the results seem to suggest that general perceptions on the attitudes towards migration in the CEECs are overestimating the likely movements. Given the labour market effects of the demographic developments of the Western European countries bilateral agreements may try to respond to specific skill shortages in the countries of the EU 15.

The effects of international trade on labour markets and migration. The results of the research group of Bocconi University suggest that the adjustments in the trade patterns between Western Europe and the CEECs have started early on and were largely finalised before the accession. According to the results of the study the adjustments in international trade flows should not cause serious disruptions of the labour markets. However, some

sectors, like clothing, leather, wood, furniture and motor vehicles appear to have received rather negative impacts on their potential labour demand, although they do not seem to have incurred into actual job losses directly due to the bilateral trade flows.

In a situation characterised by widespread unemployment, this may imply a slower return to full employment by workers with industry specific skills in those negatively hit sectors. In these sectors, the blue collar workers and among them the relatively skilled appear to have fared worse than the lower skilled groups.

Although the overall effect on employment is likely to be small compensatory policies in the sense of the winners, i.e. consumers and owners of factors specific to the export industries, should in some way compensate the losers. More importantly, as the negative effects in the affected sectors have more the form of job increases foregone than job losses, adjustment programs should offer, in a forward-looking manner, retraining programs, job search assistance and contributions to relocation expenses. The measures to help labour market adjustment would be measures of active labour market policy, which do not necessarily have to respond specifically to the effects of the enlargement process and its impact on the labour market.

Against the backdrop of the research on the motivations of migrants it is plausible to assume that the skill group that was negatively affected by the trade adjustment is among the skill groups that would be affected strongly by the prospective migration schemes. In this sense the research on the trade effects indicates another aspect of reduced incentives to migrate, due to the trade induced labour market effects. The reduction of the incentives to migrate would be a consequence of the pressure on the wages of the skilled blue collar workers before migration sets in.

The effects of foreign direct investments on labour markets, migration and growth. FLOWENLA's empirical research of the labour market and growth effects of foreign direct investments give new insights into what are dominant views on the effects of foreign direct investments. Access point to the impact of foreign direct investments were the study of the link between FDI and the wage level in Poland, Bulgaria and Romania by the study of the CESPRI at Bocconi University and of the study of the Hungarian labour market effects that were jointly conducted by the HWWA and the Economic Institute at the Hungarian Academy of Science.

The hypothesis of foreign owned firms paying higher wages was confirmed in all cases. Would foreign direct investment contribute to wage increases of local domestic firms as well, it could significantly substitute for migration. The potential channels of such a spill-over could be the increase in overall labour demand resulting from the presence of foreign firms for the labour markets of the CEECs, the use of superior technologies by the foreign firms that is, after some learning process, adopted by local firms as well and the mobility of workers who have been trained by foreign firms transferring a higher labour productivity to the domestic firms.

However, the existence of such spillovers has not been confirmed by the empirical studies of FLOWENLA. Only in the case of Poland has there been an increase of the wage level of the local firms with the arrival of multinational firms, and has the differential between the

local wage level and the wages paid by the foreign owned firms decreased. Whether economic policy could do something to support and increase the spillovers is a question that goes beyond the studies of the network. It is however, to be expected that an increased spread of technical knowledge and/or the increase of the numbers of workers trained by foreign firms moving on to local ones might negatively impact on the level of foreign direct investment. The higher wages paid by the foreign owned firms may reflect a mechanism to avoid the loss of internally trained work force to the local labour market.

Moreover, the detailed labour market data set of Hungary allowed showing that the firms which attracted foreign direct investment paid higher than average wages even before the increase of foreign equity. This result is interpreted as the foreign firms "picking winners" when deciding on investments. In other words, the firms that attract foreign direct investment employ already superior technologies and employ workers with above-average productivity before the changes in the ownership structure.

Without spillover-effects to the local labour market the extent to which foreign direct investment substitute for migration will be limited. If foreign direct investment would increase the general wage level, and be the vehicle of a broad technology transfer it would narrow the wage gap between the Western European countries and the CEECs. In the absence of technological spillovers the growth effects of foreign direct investments will also be limited.

Direct labour market and growth effects of migration. What the direct labour market and growth effects of migration is concerned two aspects were studied. A first study addressed the question whether immigrant workers have competed with domestic workers, reducing the probability of finding a new job and whether immigration has increased the displacement risk of the Italian workforce.

The analysis of the relationship between probability of finding a job and the presence of immigrants detected different effects for people looking for the first job and people looking for a new job. In the former case, for individuals without any job experience the negative effect is restricted to the first year and to medium educated natives, while the effect is positive in the most recent periods. For older and more experienced workers, who are looking for a new job, the presence of immigrants has either no effect or a complementary effect, especially for those who have a lower level of education

The share of immigrants employed seemed, in general, to have no effect on domestic workers' displacement risk up to 1995, with the exception of a complementary effect found in 1994 in the services in the North and in 1995 in the South. A competitive effect is discernible for individual sectors, in the Italian case in particular for the construction sector in the North.

The relatively weak impact of immigration on the labour market in Italy, a result that confirms a broad literature on the US, does not suggest that no particular measures are necessary to protect the domestic workforce against the consequences are required in general. Particular problems for certain sector and regions may arise that should be accommodated by the general active labour market measures as discussed for the labour market effects of the adjustments in international trade.

That immigration might reduce the probability of finding a job for first time searchers is a surprising result. It might be interpreted as the high valuation of work experience by employers, regardless of the environment where this experience has been earned. To confirm such a hypothesis would require additional research. If it were confirmed, labour market policies should address the particular problems of youth unemployment which is a pressing labour market problem in Italy and elsewhere independent of immigration.

Where immigration impacts on unemployment, it indicates often more fundamental problems calling for labour market reform that go beyond the effects of immigration. One of the research papers of FLOWENLA shows evidence that the more flexible the labour markets the greater is the contribution of migration to regional coherence. Labour mobility can then serve the function to absorb regional production shocks.

A study conducted at the HWWA, based on a panel of data of individual migrants confirms the hypothesis that migration is associated with a devaluation of work experience and formal qualifications of the migrant workers. The results of the study show that there is an unsolved integration problem that concerns the financing of the adaptation to the new work environment. Whether the correction of capital market imperfections to finance training and education suffices depends on the supply of general, i.e. not firm specific, training. In the absence of an emerging supply of training and education courses that help the migrants to improve their labour market performance without being overly tied to their current employer support for training institutions might be required.

Important innovative results were obtained by FLOWENLA on the economic effects of remittances. It was shown that remittances have two opposing effects on unemployment in the labour exporting country. Firstly, unemployment could increase if remittances are seen by their recipients as providing some sort of welfare payment. Secondly, remittances could reduce credit constraints in developing economies and hence encourage firms to increase their investment levels. The overall effect on unemployment will depend on which of these effects dominates. The relationship between remittances and unemployment was tested using data from a panel of developing economies. It was found that remittances have a small negative effect on unemployment but this is not significant, thus suggesting that the investment and search income effects of remittances more or less cancel each other out. The effect of remittances on investment was also tested econometrically and the results indicate the investment effect receives strong empirical support.

Migration and endogenous policy choices. FLOWENLA studied two aspects of policies being induced by the prospective migration flows. The first one is a study of the hypothesis that migration streams are considerably influenced by the social assistance provided by potential host countries. It also studied the deeper question of how the members of the Union could coordinate if this is a serious distortion of the migration flows with the consequence of rendering the social security systems of member countries unsustainable.

While according to our results it is not to be expected that there will be a strong orientation of migrants towards the welfare benefits offered by potential destination countries, there remains the problem that generous social assistance has the potential to distort migration flows in the sense that migrants might accept high probabilities of unemployment in anticipating high levels of support. With downward rigidity of wages generous social

welfare systems might not be sustainable when confronted with induced migrations flows. Without coordination this fact could lead to a "race to the bottom" of dismantling welfare support to avoid an excessive inflow of migrants.

A way out of such a dilemma is the harmonization of welfare systems across the European Countries, developed as part of the FLOWENLA activities, based on an agreed minimum income in purchasing power parity terms. The FLOWENLA research looked into the benefits and costs of such a system, considering a number of financing options. These options are lump-sum taxes or proportional taxes, either as a country specific tax or as a harmonized European tax.

It also shows that quite independent of the option considered some countries will always belong to the group of the implementation of such a scheme, indicating the prospective political difficulties to implement such a system.

The second aspect dealt with systems of managed migration, concretely with bilateral migration agreements Hungary has signed, the most important ones being with Germany and Austria. The labour market effects of the current programmes are so far very weak, because to a major extent immigrant labour is attracted in sub-sectors where employers find it difficult to find domestic labour supply at all as in the case of seasonal labour, or they will be weak due to the small number of participants that is allowed to immigrate. Stronger effects could result in the border regions, due to the liberalisation of the trade in services.

Bilateral agreements could, however, become more important in the future. The host countries will try to allow immigration to respond to specific labour shortages, which might be transitory, or to avoid an upward wage drift for certain professions. Past attempts to achieve the latter objective, like with the German Green Card programme, have proven to be ineffective.

In a more general sense the bilateral agreements on temporary migration or more subtle measures like taxes or subsidies for certain professions and sectors to influence their labour market performance, imply the tendency of a (wasteful) competition between the potential host countries. Like other examples of cream skimming, such a competition can lead to distortionary fiscal measures which can only be avoided by multilateral cooperation.

1 Background and objectives of the project

The central objective of the network partners is to analyse the impact of migration on growth and employment in the context of EU enlargement. In particular it aims at giving answers to the question in which way migration is conditioned by trade and capital flows. Moreover, it differentiates migration flows according to skill contents.

Within this general perspective the project pursues seven sub-objectives:

a. Collection of data on skill-differentiated migration and aggregate and firm-level FDI activities in the Central and Eastern European EU candidate countries
b. Development of a comprehensive theoretical framework to understand the growth and employment consequences of international migration in an East-West setting.
c. Empirical analysis of the effect of EU-CEEC migration on growth and employment in the host and sending countries with a focus on skill-differences among migrants.
d. Empirical analysis of EU-CEEC capital flows, in particular the impact of FDI and the delocalisation of production on growth and employment by distinguishing between vertical and horizontal international production activities.
e. Empirical analysis of EU-CEEC trade, identifying the challenges to EU industry deriving from enlargement to the East.
f. Provision of the empirical regularities required as inputs to policy simulations.
g. Derivation of relevant policy implications in a simulation framework.

Short text stating the rationale for the project, the original objectives, and any reorientation of these during the lifetime of the project with appropriate justification

Data collection has proceeded on different levels of aggregation and with different emphasis on migration, trade and FDI.

Aggregate immigration data on East West Migration are provided by the East-West Migration Database of the United Nations. It contains data on emigration and immigration for all CEEC's and a subset of EU countries (Belgium, Germany, The Netherlands, Sweden, United Kingdom). The data refer to the period 1980 to 1999. The data originate from national statistics prepared by the National Statistical Offices drawing on the administrative registers.

The same sources are used for the annual data collection exercise of the OECD leading to the OECD SOPEMI statistics. These are used by the International Labour Office for the publication of the International Labour Migration Statistics.

Immigration and emigration statistics are contained in Eurostat's New Cronos database. They are part of Theme 3 (Population and Social Conditions). Migrant flow data are differentiated according to sex, age group, citizenship and country of previous residence. The emigration data are from CEEC-5 reporting numbers of permanent and long-term settlers abroad by year and country of destination.

All the aggregate data do not contain information on the skill differentiation of the migrants, information which is central to the labour market and growth effects. To depict the skill structure of migration flows empirical analyses have to rely on surveys: EU wide data were supposed to be provided by the European Community Household Panel (ECHP), the Luxembourg Income Survey/Luxembourg Employment Survey. The ECHP is the only standardised annual longitudinal survey to contain also harmonized data on migrants at the level of the European Union. It also collects a wide range of socio-demographic and economic information. What makes the ECHP difficult to use for labour market and growth analyses is the small number of migrant households. Only 480 of the 60.000 households (comprising 130.000 individuals) are migrant households. This implies that the sample size is too small to conduct meaningful statistical analyses. To what extent the LIS/LES data allow to circumvent the problems of the ECHP survey is currently investigated.

The lack of Europe wide data on skill differentiated migration data requires that empirical studies have to resort to national data. Finished and ongoing empirical work of FLOWENLA has been based on such national data: For empirical investigations on the German labour market and growth effects data have been acquired from the Institut für Arbeitsmarkt und Berufsforschung. These data are based on a systematic sample from the total population of notifications on health insurance, the statutory pension scheme and unemployment insurance. Other data sources that will be used are the German Mikrozensus, and the German Socio-Economic Panel. The latter is a representative longitudinal survey of households, allowing for the analysis of the employment histories of migrants from the accession countries.

In one of the studies carried out within FLOWENLA data similar to those of the IAB data have been used for Italy. They are based on the Social Security Archive on private employment, which represents 56.2 per cent of total employment in Italy and 71.4 per cent of those registered by the Italian Social Security Institute, including also the self-employed.

Data on skill differentiated emigration are available for Bulgaria, the Czech Republic, Hungary, Poland and Romania. Internal migration data are available for Bulgaria, the Czech Republic, Romania and Hungary.

The FLOWENLA partners at the University of Parma have built up a database on reciprocal trade between the EU and the candidate countries at the most disaggregated product level of Comext (8 digit of the Harmonised System). This has involved the calculation of export and import unit values, revealed comparative advantage indicators, trade balances, OPT shares, intra-industry trade coefficients and various other indicators.

2 Scientific description of the project results and methodology

2.1 Theoretical research on the labour market and growth effects of economic integration

In this subsection we explain the theoretical methods used to investigate the effects of immigration on labour markets and growth in the context of general processes of economic integration. The next section reviews the state of the migration research by the time of the beginning of the project. The methods developed by the researchers can be subdivided into two broad classes. The first one analyses the process of trade, foreign direct investment, labour market and migration adjustments as a response to the shock of the removal of trade barriers.[1] The theoretical work on the adjustment process will be presented in the following section. Distinct from this adjustment process is the question how the changing patterns of trade, production and labour market conditions will affect the long-term growth rates. These questions have been studied in the framework of the endogenous growth theory and the respective theoretical framework will be presented in the subsequent section.

2.1.1 Background of the theoretical contributions of the project

The state of the methodological discussion concerned with the economic effects of migration by the time of the beginning of the project is summarised in surveys by Friedberg and Hunt (1995), Ghatak, Levine and Wheatley-Price (1996), Schiff (1996), Steineck (1996), Borjas (1999) and Commander et al. (2002).

Friedberg and Hunt (1995) is mainly a survey of the empirical literature that examines the positive benefits of immigration for the host country by looking at possible complementarities between migrants and native factors, and by investigating the effects of immigration on growth. The paper also discusses theoretical considerations on the issue. In the theoretical part, they separate analysis of the closed economy from that of the open economy analysis. In the closed economy case, the usual substitution and complementarity effects take place. In a Heckscher-Ohlin framework (trade with migration), the authors concentrate on the case in which countries have very different endowments of factors and factor price equalization does not occur. An increase in unemployment is not excluded, especially in the European setting. Nevertheless, the empirical evidence for both the US and Germany finds no significant detrimental effects of immigrants on employment and wages. In a cross-section analysis, the authors highlight the need to use instrumental variables to remove the bias due to immigrant choice of location based on labour market conditions. Finally, the authors discuss the effects of migration on the growth rate of the host economy. They use a modified Solow growth model for the theoretical framework (i.e., the human capital-augmented Solow-Swan model). The key question here is whether immigrants bring enough human capital to offset their dilution of physical capital in the receiving economy.

The main limitations of this theoretical framework are: a closed economy is assumed and the absence of congestion effects. From the theoretical point of view, migrants move to

[1] This shock should not be identified with the formal act of the enlargement of a trade area. As will be reported below, the expected *trade* effects of the enlargement of the EU had already materialised before 2004.

countries with higher wages, but the authors point to possible problems once there is simultaneity between migration and growth. These problems are studied and reported in Barro and Sala-i-Martin (1992) which conclude there are insignificant effects of migration on growth. Again, the survey emphasis is placed on the role of human capital of migrants in determining the growth rate of the host economy.

Ghatak, Levine and Wheatley-Price (1996) present a critical survey of theories of migration, their welfare and policy implications and their empirical relevance. The Harris-Todaro model is extended to examine risk averse behaviour within families where the migration of members of families serves to diversify risk. The welfare implications of the individual migration decision and government intervention in the form of employment subsidies is also examined. In the survey of Schiff (1996) the focus is on the issue of whether trade liberalisation is a substitute, or not, for migration. Drawing on a paper which subsequently was published as Lopez and Schiff (1998), he concludes that migration costs and financing constraints on unskilled workers lead to complementarities between trade liberalisation and migration. Complementarity occurs because there are economies of scale and sector specific techno- logical differences. A lowering of tariffs increases the wage in the host country and eases the financial constraints for unskilled workers. This leads to more migration of this group of workers. He concludes that to counteract this, foreign investment or aid is desirable. Steineck (1996) covers the economic impact of migration looking at the influence of the migration phenomenon on welfare (i.e., the aggregated effects and their distribution among natives). The author presents a survey of the comparative-static factor market analysis, namely changes in relative factor prices under the assumption that immigrants are remunerated at their marginal contribution and of the effects due to market distortions, increasing returns etc (i.e., the divergence between remuneration and marginal contribution). Moreover, he provides a more complete picture by including a dynamic analysis. The author starts the survey by introducing a basic model with homogeneous labour (Berry and Soligo, 1969) in which he concludes in favour of the positive effects of migration that are unequally distributed between native capital owners and workers.

Then some variations of the basic framework are introduced to see how they affect the qualitative results. These extensions are divided in two groups: the ones that do not contradict its conclusions, as in Rivera-Batiz (1983) and Bohning (1984) (i.e. demand contribution by immigrants , two or more goods, international capital mobility) and some, supported by empirical work, that affect the general results (i.e. heterogeneous labour market, short term rigidities in the labour market, increasing returns to scale etc). The connections between theory and empirical evidence have concentrated on these issues. In particular, in order to arrive at definitive conclusions regarding the heterogeneous labour market model, empirical evidence on the degree of substitutability between the different groups is required. Looking at the most relevant studies, the author concludes that they show a negligible effects of migration on domestic workers (i.e. the degree of substitutability between domestic workers and immigrants is low). The author also distinguishes short run from long run effects and claims in favour of a possible increase in unemployment in the short run, determined by the migration flow. Empirical estimates of scale economies in the production sector leads the author to conclude that they are not relevant in the debate. At the same time, he presents empirical studies on the effect of immigration on the public redistributive system which arrives at different conclusions.

Basically, he concludes that final answers are not possible and a lower level of aggregation is required. In the second part of the work, Steineck reports theoretical results and supportive empirical evidence on the dynamic effects of the migration phenomenon. The conclusions depend very much on how technological progress is modelled. Three cases are distinguished:

1. A neo-classical growth model with exogenous technological progress;
2. A neo-classical model in which technological progress is driven by capital intensity in an ad hoc fashion;
3. An endogenous growth model in which technological progress is driven by both physical and human capital intensities.

In the first case, the Steineck concludes in favour of allocative effects of migration, given the assumption that immigrants do not bring any capital along (i.e. a decrease in the aggregate capital intensity). In particular, migration shifts the economy to more labour intensive production which is not negative in its economic impact per se {the shift depends on the saving rates of immigrants since the returns to capital have risen and there is space for positive effects on the rate of accumulation. On the other hand, in case two, he shows the presence of clear negative effects of migration for the welfare of the domestic population. Under the assumption that immigrants on average own less capital per capita than natives, immigration slows down technological progress as well as the rate of growth of the economy. In the final case, based on Bretschger (1993), technological progress depends on individuals' incentive to invest in the R&D sector and to the extent that migration changes the relative factor prices, it affects the rate of progress.3 In this third case, Steineck concludes by saying that migration has a positive effect on growth through technological progress if it increases the return on R&D investments. This will occur if migration consists of skilled workers, thus increasing the skill composition of the domestic labour force. The survey by Borjas (1999), focuses on two main aspects of the economic analysis of immigration, namely the determinants of the immigration decision and the impact of immigrants on the host country. The first part investigates the effects of migration on the host country's labour market which are a synthetic presentation of a family of models already introduced in one of the author's previous works. As in the original work, the theoretical framework is used to describe the effects of migration firstly by assuming a homogeneous labour market and secondly by including an heterogeneous labour market analysis. Then, this set of models are used to simulate the impact of immigration on the US labour market. As in Borjas (1995), the author concludes in favour of a small impact of migration on US labour market. Section 3.1 below describes these results in detail. In the second part of the work, Borjas focuses on the empirical research of skill distribution of immigrants and natives since this is these are the main determinants of the impact of migration on the host country. He examines the factors that motivate only some individuals to migrate in a particular country, a theme that lies outside the scope of this survey.

Borjas concludes the analysis by surveying the attempts to measure the impact of migration on the wage structure in the host country. Most studies have found that immigrants have only a small negative impact on the wages and employment of natives. For example, DeNew and Zimmermann (1994) estimate that a 1 per cent increase in the share of foreign labour caused a 4.1 per cent fall in the average hourly wage of all German workers. This overall effect appears to be slightly larger than the estimates produced for the US

(Zimmermann, 1995). Even those studies which make use of quasi-experimental evidence, such as Card (1990), for the Mariel boatlift of Cubans to Miami, and Hunt (1992) for the repatriation of Algerians to France, find that the inflow of immigrants had only a small effect on the wage and employment levels of native workers. Possible explanations for these findings are that immigrants are sometimes complements to natives in the production process, thereby increasing the productivity of natives, immigration creates extra demand for goods and services and that immigrants may help to erode institutional constraints such as trade unions (Zimmermann, 1995).

However the main point made by Borjas concerns the necessity to include estimates of native responses to immigration in the so called "spatial correlations" estimates, namely correlations between economic outcomes in an area and migration to that area. Two problems arise from this: immigrants may not been randomly distributed across labour markets (a positive correlation would simply mean that migrants tend to concentrate in better performing geographical areas as showed in Friedberg and Hunt (1995) and natives may respond to migration by relocating. Given the failure of spatial correlations estimates to reveal the impact of migration on wages in the host country, the author suggests and reviews the so-called factor proportions literature. This literature relies on a theoretical framework and for this reason it has been criticized by some researchers. Nevertheless, this approach can still say something on the economic impact of migration if we recognize that it is based on a very specific story. As noted by the author, "*the factor proportions approach does not estimate the impact of immigration on the wage structure; rather , it simulates the impact"*.

Borjas (2002) applies a different econometric methodology by analysing the effect that immigrants have on the wages of natives by using occupational rather than geographical clustering. In particular, he finds that by using this approach, immigrants have a much larger effect on wages, an immigrant inflow that increases the supply of workers with particular skills by 10 per cent reduces the wages of natives in that group by 2-3 per cent and lowers weeks worked by 2 per cent. The recent survey by Commander et al.(2002) sets out a number of models to address the brain drain phenomena. In the final part of the survey, the authors focus on an adapted `new' economic geography framework. Looking at the brain drain from that perspective, the phenomenon appears temporary, but with negative welfare effects in the periphery country during the transitional phase.

All of these approaches to study the economic effects of migration have a focus that differs from the main interest of FLOWENLA: Most of the studies emphasise the partial equilibrium labour market effects in the host countries, abstracting from the context of international trade and foreign direct investment. In most of the studies labour is considered to be homogeneous. This excludes the study of the most interesting questions of the effects of migration on economic growth rates. The enlargement of an economic union and the induced effects on trade and factor mobility can only have level effects. That is, after a transition phase, the countries involved will arrive at essentially the same growth path, but on a higher level.

The inclusion of the analysis of the skill composition of the labour force in the source country and the host country, as well as the skill composition of the migration flows allows to examine the consequent changes of the stock of knowledge of the countries forming an

economic union. As the knowledge stock is not used up in the production process, neither on the national level nor on the level of the collection of countries forming an economic union, the impact of the enlargement process in general and the migration streams on the knowledge available for the production process and in particular for research and development. Due to the public good character of knowledge, the specialisation of national economies and coalition of countries on research and development determines the rate of the production of inventions and the capacity to turn inventions into innovations. The higher the rate of innovation the higher will be the long run growth rate of the economy or economies.

To study the link between the liberalisation of trade and the mobility of capital and labour and the growth effects, two innovative theoretical routes have been selected. The first one is depicting the adjustment process from the initiation of the enlargement process to the arrival at the new growth path, and the second to inform on the characteristics of the long-run growth path. They will be presented in the next two subsections.

2.1.2 Theoretical framework to study the short-run effects

The theoretical framework for the analysis of the short-run effects of the interaction between trade, flows of foreign direct investment and migration as well as its consequences on the labour market situation and growth in the individual countries involved has been mainly contributed by the Vienna Institute for International Economic Studies.

The short-run analysis of the migration effects proceeds from a framework of the structural developments and the evolution of competitiveness in the countries of Central and Eastern Europe (CEECs). This framework is based on earlier work of Landesmann and Stehrer (2000) and Stehrer (2001) which attempts to combine a model of catching-up with international trade specialization and thus falls into the category of the dynamic modelling of trade and growth.

The basic outlines of the model have been guided by the 'stylized facts' observed in growth patterns of successful and less successful catching-up economies. Such economies start off with substantial productivity (and product quality) gaps and such gaps are not the same across all industrial branches. Typically, the gaps are greater in the technologically more advanced branches and less in the technologically less demanding ones. This has the following implications: full catching-up has a longer way to go in the technologically more advanced branches and this can be interpreted in two ways. On the one hand, it is 'more difficult' to catch up fully in such branches as it requires a much greater effort in learning, skill acquisition and often a big jump in organizational and managerial capacities; on the other hand, it means that the scope for differential productivity growth (and for product quality upgrading) between the 'technology leader' and the catching-up economy ('the laggard') is higher where the initial gap is larger.

This is a simple application of the Gerschenkron hypothesis ('advantage of backwardness') which states that the 'potential' for growth is highest where the 'initial gap' is the highest (Gerschenkron, 1962). This principle has, of course, been widely applied at the aggregate level and is the background for the much tested 'convergence' hypothesis in the many recent aggregate growth studies (for a survey of such studies see Temple, 1999). What is special in our

model is that we apply this principle at the industrial level with the implication that those industries have the greatest potential for productivity growth and product quality up-grading that start off with the biggest 'initial gaps'. Of course, as pointed out early on by Abramovitz (1986), actual growth is not necessarily equal to potential growth as countries (and in our case industries) might not be able to exploit this potential. Abramovitz emphasized here the importance of 'social capabilities', i.e. a wide range of institutional and behavioural requirements which are necessary such that actual catching-up comes as close as possible to potential catching-up. This analysis opens a wide range of possible catching-up patterns. In the case of our more disaggregated analysis it also means that the *dynamics of comparative advantages* which determines a country's position in the international division of labour can follow quite different patterns for catching-up economies. At a more concise level, the dynamics of specialization advantages and disadvantages is determined by the timing of 'switchovers' in the comparative cost structures across industrial branches. Here the dynamics of relative productivity growth rates and of wage rates across industrial branches plays a decisive role. These patterns of comparative advantages across the historical experiences of a wide range of catching-up economies have been studied in a number of analytical and empirical studies (see Landesmann and Stehrer 2001). The simulation results will be shown in section 3.2.

In an extension of this approach, it is possible to show that the allocation of *foreign direct investment (FDI)* across industrial branches is similarly affected by the dynamics of comparative advantages although in this context we also emphasize the role which price-cost margins (Schumpeterian profits) play in determining (particularly foreign) investment activity. In the present paper we shall also show that – similarly to the uneven productivity dynamics mentioned above – *product quality up-grading* also proceeds at different speeds across industrial branches and this also represents another important aspect of catching-up. Just as the model implies that the range of experiences with respect to catching-up patterns and hence of the positions that economies occupy in the international division of labour can be quite wide, this is borne out by the diversity of experiences we observe in Central and Eastern Europe.

More specifically, first, a simple core of catching-up in productivity levels is formulated in the form of a differential equation - at the level of an individual industry *i* between a 'catching-up economy' *c* and a productivity leader *L*.

$$\dot{a}^{c}_{li,z} = \gamma_{i,z}(a^{c}_{li,z} - a^{L}_{li,z})$$

where $a^{c}_{li,z}$ refers to the (inverse of the) level of labour productivity in industry *i* in country *c* and $a^{L}_{li,z}$ to that in the lead economy *L* (where *z* refers to different skill groupings, e.g. *z=u,s*, where *u* stands for skilled and unskilled labour respectively). On the left-hand side, we have the rate of change of the former variable. This simple formulation allows us to differentiate between a 'weak' and a 'strong' Gerschenkron effect, named after the author of the famous concept of the 'advantage of backwardness' (Gerschenkron, 1962). Take two industries at a point in time and assume that the productivity growth rates of both these two industries in the lead country are the same. Two cases can then be distinguished which lead to differential productivity growth (and hence of catching-up) in the two industries in the catching-up economy:

First, assume that the convergence parameter takes on the same value in both industries. In this case, differences in the rates of productivity growth arise simply because the gaps in productivity levels to the leader, i.e. the terms $(a^c_{li,z} - a^L_{li,z})$, differ between the two industries. In fact, we shall observe higher productivity growth in the industry with the higher contemporaneous gap. We call this the 'weak' Gerschenkron effect. This effect drives 'convergence' in the recent growth theoretical literature which, however, is mainly concerned with the aggregate level. In our case we look at the Gerschenkron effect at the disaggregated, industrial level which has important implications for the dynamics of comparative advantage.

In the second case, the convergence parameters are allowed to differ between the two industries. In the case where this parameter - which we can call the catching-up or learning parameter - is higher in the industry with the higher productivity gap, we shall speak of the 'strong' Gerschenkron effect.

Figure 1 shows the two hypothetical situations in which productivity gaps in the two industries have been plotted. Panel a) depicts the case where both industries are characterised by the same convergence parameter; in Panel b) we show the case where the industry with the higher initial gap is also characterised by a higher convergence parameter (reasons for this will become clear below). In a Ricardian interpretation the second pattern gives rise to a *'switchover in comparative advantage'*, i.e. a situation in which the relative productivity position of the catching-up economy turns in favour of the industry in which the initial relative productivity gap was higher.

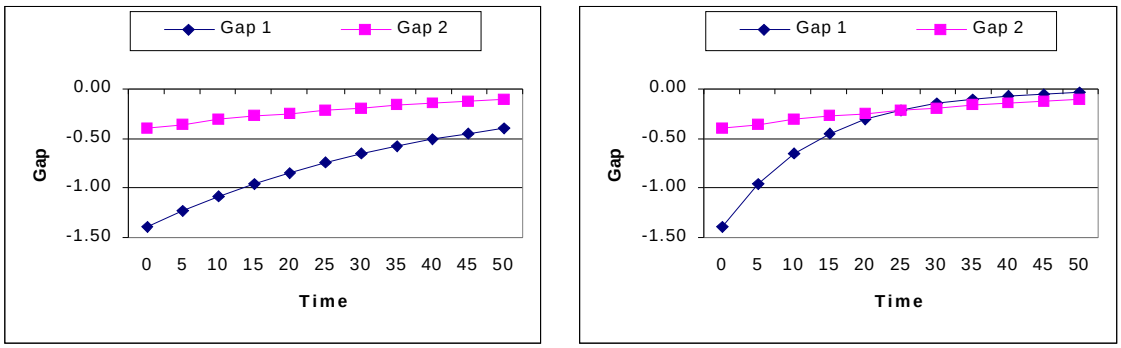
There are three further ingredients to our stylised 'structural model' of catching-up:

One refers to the behaviour of wages, the other to the emergence of 'transitory rents', and the third to the impact which differential rents have upon the attractiveness of different industrial sectors to investors (particularly foreign investors) which in turn contributes towards a fast speed of 'learning' and technology transfer. Let us deal with these in turn.

The dynamics of relative wage costs is developed as follows: Given the specification of relative productivity catching-up discussed above, we now add the behaviour of industry wages in order to analyse the dynamics of relative (labour) unit cost dynamics across sectors.

Labour unit costs of sector *i* amount to $a^c_{li,z} w^c_{li,z}$ where $w^c_{li,z}$ refers to the wage rate paid in sector *i* in country *c*. Wage rates are driven by three factors: by bargaining over 'transitory rents' which are industry-specific (as explained below) and by economy-wide conditions with respect to the rate of unemployment and by a long-run tendency of wage rates to equalise across sectors for the same skill group.

Figure 1: Catching up and the weak and strong Gerschenkron effect



Panel a) Panel b)

The development of skill specific wages is formally described by the following relation

$$\dot{w}^{c}_{i,z} = f\left(\underset{+}{s^{c}_{i}}, \underset{-}{u^{c}_{z}}, \underset{-}{w^{c}_{i,z} - \bar{w}^{c}_{z}} \right),$$

where the s^{c}_{i} refers to transitory rents arising in sector *i*, u^{c}_{z} to the (economy-wide) rates of unemployment for skill group *z*, and $\bar{w}^{c}_{i,z}$ to the average wage rate of skill group *z* in the economy as a whole.

By definition relative (labour) unit costs will fall in a sector where relative productivity growth exceeds relative wage growth. As there are two economy-wide terms in the wage equation, the above formulation implies that sectors with relatively fast productivity growth will experience somewhat faster wage growth compared to other sectors (because of the emergence of transitory rents which affect industry-specific wage growth), but relative wage growth will be less than relative productivity growth (because of the impact of the economy-wide terms). Hence relative unit (labour) costs in this sector will fall. As productivity growth is furthermore specified in relation to an international productivity leader (see above), this relative unit cost dynamics also implies a shift in comparative cost dynamics in favour of this sector.

Next we come to the emergence of 'transitory rents'. Without going into the micro-foundations of price-setting, we simply postulate that prices do not adjust immediately to unit costs plus a (long-run) mark-up. As a result *transitory rents* s^{c}_{i} arise unevenly in different sectors as a function of the speed of relative unit cost movements, and the speed of price-to-cost adjustment.

$$s^{c}_{i} = p^{c}_{i} - (1+\pi)c^{c}_{i}$$

Finally, we relate the attractiveness of different sectors to investment activity in general and FDI in particular to the emergence of relative rents. The relative investment rates (and particularly relative FDI involvement) in different sectors affect, in turn, the speed of 'learning'

(or of 'technology transfer') in different sectors. This provides a powerful mechanism of 'endogenising' relative catching-up rates of different sectors and hence supports the possibility of a 'strong Gerschenkron' effect.

$$\dot{a}^{c}_{li,z} = \gamma_{i,z}(FDI^{c}_{i})(a^{c}_{li,z} - a^{L}_{li,z})$$

Overall the model maps out the following scenario: Uneven rates of catching-up (starting with the 'weak' Gerschenkron effect) give rise to uneven rates of productivity growth across sectors. Given the sector- and economy-wide factors of wage rate determination, there will be uneven unit-cost movements such that relative unit costs fall in sectors with the higher initial gaps. In addition, with delayed price to cost adjustment, there will be the emergence of transitory rents in those sectors with the strongest relative productivity performance. This in turn affects the relative attractiveness of different sectors to investment activity in general and to FDI in particular. It provides a mechanism to endogenise the 'speed of technology transfer' and hence shifts comparative cost dynamics and rent dynamics further in favour of industries in which initial productivity gaps were particularly high. In Landesmann and Stehrer (2000) we gave empirical evidence supporting this type of emergence of 'comparative advantage switchovers' in successful catching-up economies. Implicit in the above mechanism is the assumption that FDI flows lead to endogenous increases in technical and organisational knowledge such that technological laggards might develop into the position of technological leaders. This ‘leapfrogging’ would be the basis of the ‘comparative advantage switchover’ in the sense of a Ricardian model of international trade.

The dynamics of comparative advantages described by this model has, of course, implications for the demand for different skill groups of workers in both the 'lead' and the 'catching-up' economies. We can show in our model analysis (see Landesmann and Stehrer 2000, and Stehrer 2002) that the aggregate demand for different skill groups is a function of four factors:

- the skill composition of labour demand in the different sectors which are defined by the labour input coefficients for different skill types (level effect);

- changes in the skill composition which result, on the one hand, from 'skill biases' in the processes of technological change as well as from substitution effects due to relative wage changes (across skill groups);

- rates of (non-skill specific) rates of productivity growth (or catching-up) in different sectors;

- the evolution of output levels of different sectors (driven by competitiveness and domestic and international demand structures).

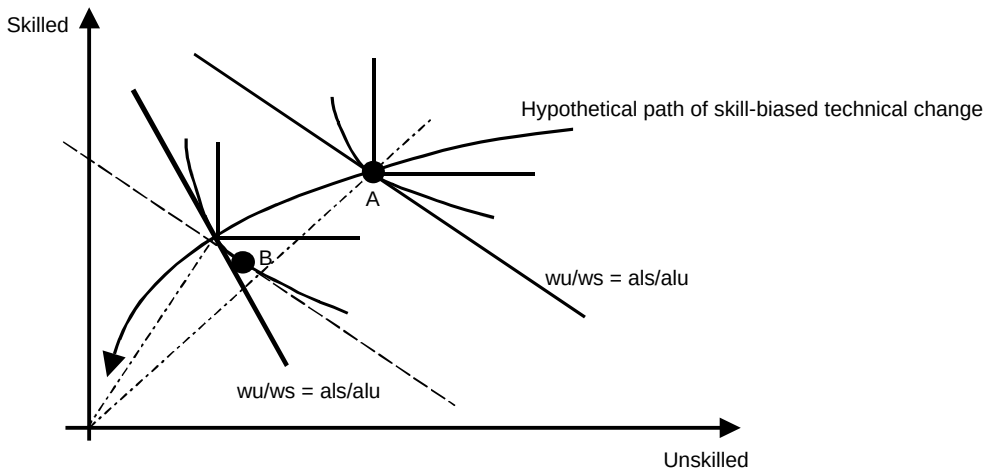
The last factor is endogenised in our model through the evolution of demand. Demand for consumption goods depends on preferences, income and relative prices. Goods are distinguished by the production sector and the national origin. Nominal shares of expenditures for individual goods are derived from a two stage budgeting process, which is based on a CES utility function. In the first stage income is allocated across products, and in the second stage the expenditures for each good are allocated across suppliers from different countries.

It will be a plausible assumption that the gaps in productivity levels get reflected also in gaps of skill composition. Hence, in the Gerschenkronian fashion, a large overall gap in productivity levels also implies a large gap in skill compositions and thus in the rate of (skill biased) technological change. Consequently the rates at which the relative demand for skilled labour changes in different sectors in the catching-up economy will be a function of the initial gaps. A catching-up process with technological convergence will thus imply automatically a skill-biased nature of technological catching-up. On the other hand, the relative wage (substitution) effect could go in the other direction as higher rents in the more skill-intensive sector lead to an increased skill-premium.

The skill-biased nature of a catching-up process (with output composition effects and intra-industry skill composition effects) thus indicates that a - successful (i.e. Gerschenkronian) - catching-up economy will experience increased relative demand for skilled labour. This could be counteracted either by very fast rates of (skill neutral) technical progress in the sector which uses skilled labour more intensively and/or by strong substitution effects induced by large (transitory or permanent) skill-premia. The latter are, of course, also a function of the supplies of skilled vs. unskilled labour.

The model has, by endogenising the dynamics of the relative labour demands for skilled and unskilled labour in the course of a catching-up process (as well as the relative slack variables on the labour markets), also all the ingredients to study the 'pull' and 'push' factors of international migration.

Figure 2: Paths of technical change with weak and strong Gerschenkron effects



The volume of migration flows is determined by the differential in real wages for individual skill groups and the differential in unemployment rates. Skill specific unemployment rates have a direct effect and the aggregate unemployment rate has an indirect via its effect on the skill specific wage levels as set out above.

To summarize: the theoretical research that was mainly carried out by the research group of the Vienna International Economic Studies sees the experience of the transition process in the first half of the nineties as in indication that strong convergence tendencies will continue to exist

with the further development process between Western Europe and the CEECs. The tendencies are based in the stylized facts that increases in labour productivity are the higher the larger the productivity gap between the accession countries and the Western European countries (weak Gerschenkron effect). The catching up process is expected to be accelerated by a flow of foreign direct investment that can, at least transitorily, lead to a speeding up of the convergence process.

Depending on the strength of these mechanisms the migration flows will be smaller than expected against the backdrop of the initial productivity gap between the Western European Countries and the new members. Moreover, the theoretical framework supports the hypothesis that the catching up process, driven by inflows of foreign direct investment which works as a vehicle of technical and organisational knowledge, will lead to strongly increasing productivities and, with some lag in price adjustments, to strongly increasing incomes of highly skilled workers. In the short-run, the catching up countries of the enlarged union would benefit more than the highly developed economies.

This analysis has been complemented by a theoretical analysis of the influence of assimilation costs on the expected migration streams and the resulting labour market and growth effects of the enlargement. The analysis starts out from the observation of empirical studies of other integration processes that migrants with a relatively high level of qualification adopt jobs in the host country which are below their formal level of qualification. (Friedberg 2000) At the same time migrants earn lower wages than their native counterparts with the same formal qualifications.

To what extent and at which speed such disadvantages of migrant workers are overcome depends on the opportunities of training and education open to the migrant workers, and on the labour market institutions of the host country.

More formally, a two country model is studied where the individual countries have different general levels of technological development. The analysis is cast in the framework of Dornbusch/Fischer/Samuelson model with a continuum of goods which are here differentiated according to the skill intensity of the production of the manufacturing goods. (Dornbusch et al. 1980) This trade theoretic model is, in contrast to standard models on interregional trade capable of depicting the situation that in highly developed countries relative wages for high skilled jobs are higher than in less developed countries, despite a greater relative scarcity of highly skilled labour in the latter group of countries. With this characteristic it is able to model incentives of highly skilled workers to migrate from less developed countries to higher developed countries.

The model assumes different levels of general purpose technologies in the two classes of countries. To move from a country with a lower level general purpose technology to a higher level technology economy has two consequences.

- The part of the skill of a worker that is due to experience gained by working with the general purpose technology of the source country is devaluated due to the fact that this experience is technology specific.

- Moreover, to work with the higher level general purpose technology requires additional training which is only possible by reducing the number of hours worked.

The adaptation to the new working environment, and the realisation of the full productivity potential of the migrants requires financing of additional training. If migrants do not dispose of household savings to finance the training it is to be expected that the actual productivity of the migrants in the new working environment will fall short of the potential productivity due to two facts: First, due to moral hazard problems there are no functioning credit markets for finance of training and education. Secondly, if the knowledge acquired is not firm specific and product markets are perfectly competitive employers have no incentive to invest in training and education of the workers. The chances of adapting to the higher level general purpose technology is the higher the higher the firm specificity of the training results, reducing the risk that the employer foregoes the returns to the investment in the training of the migrant. The profitability of the employers' support for the training of the migrants then depends on the equilibrium of the collective or individual bargaining process.

To what extent the labour market conditions, or policy measures, are conducive to the adaptation of skilled migrants to the production conditions of the host country determines the long run growth effects of skilled migration that is the central object of investigation in the theoretical part of FLOWENLA that analysed the long-run growth effects of migration. This part of the project results is reported in the next section.

2.1.3 Theoretical framework to study the long-run effects

The major part of the theoretical work to study the long-run effects on employment, growth and economic welfare was done by the group of the University of Surrey. The starting point of the analysis is an overall measure for the desirability of immigration, developed by Borjas (1995). The concept of the immigration surplus has been used to construct an endogenous growth model, with three production sectors, producing a traditional good, a horizontally differentiated manufacturing good and an R&D sector, producing blueprints for new varieties of the manufacturing good.

In view of recent political events one could hardly wish for a more topical and pressing issue than that of immigration into the European Union, either from new entrants in the forthcoming enlargement, or from outside the EU. It is timely therefore to revisit the question of the size of the economic gain (or loss) to the incumbent Western European population from migration, the so-called `Immigration Surplus' of Borjas (1995). The work of Borjas has provided an influential positive theory of immigration, including a welfare economic foundation that allows for policy evaluation. An important feature of the Borjas framework, the focus on the skill-composition of immigrants was retained in the FLOWENLA work. The extension of Borjas' work maintained the assumption in examining the immigration surplus that skilled labour and physical capital are complements rather than substitutes as is the case with Cobb-Douglas technology. Our contribution to this literature is to extend his analysis in a number of directions.

- First, we study the immigration surplus in the context of a general equilibrium model in which capital is endogenous and the welfare of the indigenous population is set out explicitly.

- Second, we introduce several sectors into the model so that changing the skill composition leads to changes in sector shares. Third, related to the second development, we include an R&D sector and in doing so develop a model with long-term endogenous growth.

To get an idea about the empirical validity of the model we calibrated the model to typical European Union economies. Then, using numerical solutions, we obtain the result that *growth effects* of immigration come to dominate the purely static effects in the original analysis of Borjas, but they are not sufficient to eliminate the emergence of losers among the section of natives competing with immigrants in the labour market

After a short review of the approach of Borjas (1995) the extensions are set out in three stages:

First the Immigration Surplus is calculated for the case of homogeneous labour and a Cobb-Douglas technology. Then two skill types are introduced and finally the skilled labour is assumed to complement physical capital. As mentioned above the model has three sectors : a high-technology manufacturing sector producing an expanding variety of differentiated goods; a traditional sector, producing a single homogeneous good and an R&D sector, producing blueprints for new manufactured goods and resulting in long-run endogenous growth. All sectors use three factor inputs consisting of skilled labour, unskilled labour and physical capital.

This general model is not amenable to closed-form solutions, even if we focus exclusively in the balanced growth steady state, as we do in this paper. Two strategies are adopted to deal with the problem of intractability:

- We first imposed the restriction of imposing a Cobb-Douglas technology and no physical capital input in all three sectors. These assumptions permit closed-form solutions relating growth to the skill composition of immigrants.

- Second, we resorted to numerical solutions. To obtain these solutions the model was carefully calibrated to typical European Union economies.

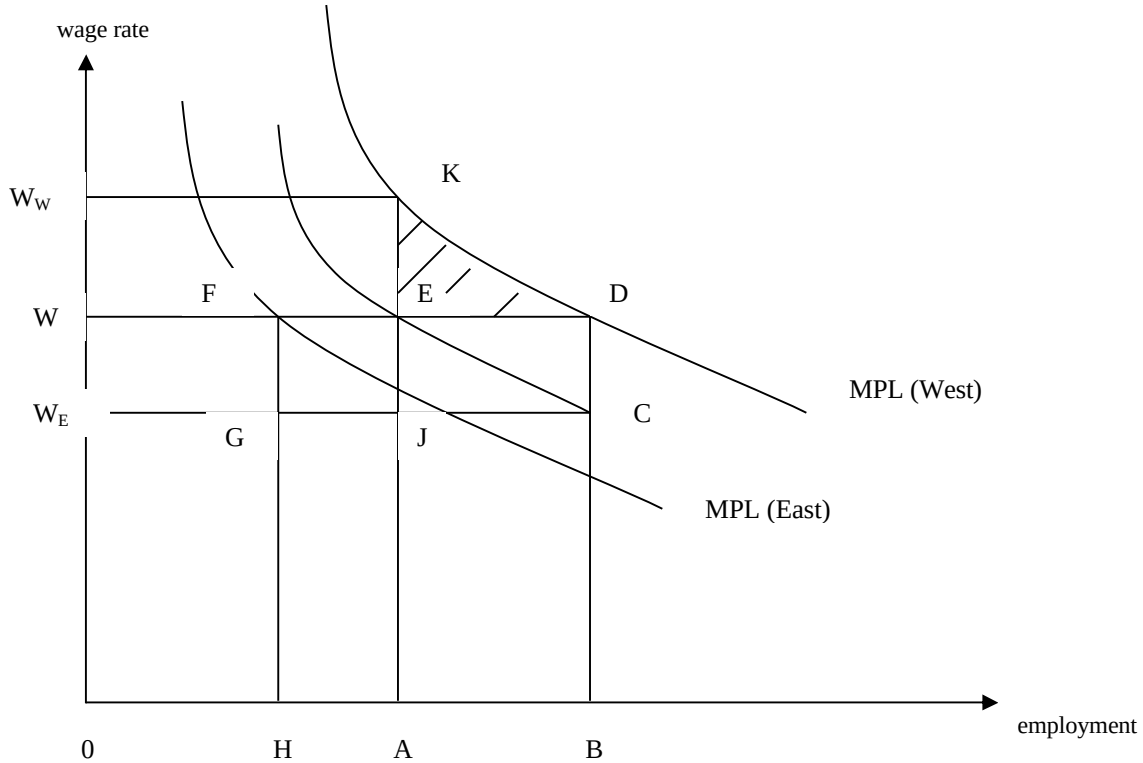
The Immigration Surplus in a Static One-Good Model

The `*immigration surplus*' according to Borjas (1995) is the increase in income of the indigenous population of the host country following immigration. The simplest model to assess the magnitude of the immigration surplus is as follows. We consider a closed economy in which wages are perfectly flexible. Capital of both the physical and human variety are fixed and higher in the West. Both average and marginal output per worker is therefore higher in the West. In addition, following the recent literature on income differences between countries1 we assume that total factor productivity is higher in the

West which creates a further outward shift in the Western marginal product of labour curve relative to the East.

Figure 3 shows what happens when migration from East to West occurs. The Eastern workforce (fully employed by assumption) falls from OA by an amount HA increasing the Western workforce by the same amount AB=HA. The area under the marginal product of labour (MPL) curves give total output and the MPL(West) is higher than its Eastern counterpart MPL(East) because physical and human capital is higher in the West. Ignore for the moment human capital differences; then 1 unit of Eastern labour is equivalent to 1 unit of Western labour. Output then rises by an amount KDBA in the W and falls by an amount FJAH=ECBA in the East. The *net* increase in world output is therefore given by the region KDCE. The real wage falls in the West and rises in the East.

Figure 3: The Immigration Surplus: flexible wages and homogeneous labour



If there are costs associated with migration and migrants maximize income net of costs, migration will cease before wages are equalized. Figure 3 shows the case of *factor price equalization* where migration costs are zero and migration leads to equal wage rates. Migrants gain by an amount EDCJ; non-migrants in the East see total output fall by an amount FJG. The original Western population gains by the shaded amount KDE (the immigration surplus). This constitutes a total gain of W_WKDW for Western capital and a loss of W_WKEW for Western workers. Similarly the non-migrants in the East lose by an amount $FGJ = EJC$. $WFGW_E$ is a gain for Eastern workers and $WFJW_E$ is a loss for Eastern

capitalists. Thus the losers are the original Western workers and Eastern capital owners; the winners are the migrants and Western capital owners.

On the basis of this aggregate measure of welfare effects in the host country, considering labour to be homogeneous, Borjas (1995) estimated that the overall effects of current levels of immigration even for the US or Germany would be minor: A 10 per cent increase in the workforce would lead to an increase of GDP by only 0.105 per cent. This non-significant net gain in overall income would be associated with a drop in the native wage rate of 3 per cent, i.e. with a substantial distribution effect to the advantage of the capital owners.

Distinguishing two classes of workers, unskilled and skilled workers, a similar estimation of a very low overall income effect if the skill composition of the immigrants is equal to the skill composition of the native population. The stronger the deviation of the skill composition of the immigrants from the composition of the native workforce, the greater is the overall welfare effect.

The three sector endogenous growth model

The three sectors mentioned above differ in their skill-intensities, the traditional sector being the least skill-intensive, and the R&D sector being the most skill intensive. The output markets for the traditional good and the inventions produced by the R&D sector are competitive, while the differentiated manufacturing sector has a monopolistic-competition market structure.

The consumers consist of two representative households, the skilled and the low-skilled household, both supplying fixed amounts of labour. Both households optimize their consumption plans with respect to their intertemporal utility function. The composite manufacturing good is aggregated according to a constant elasticity of utility function, expressing the 'love of variety' of the consumers. The optimal consumption plans are determined in two stages. The first stage consists of the current period maximization of allocating expenditures to the varieties of the manufacturing good given total nominal household expenditures for each group of workers. The second stage of determining the optimal consumption plan is intertemporal. To optimize the distribution of consumption over time the households hold assets consisting of equity stakes in new blueprints, domestic physical capital in all sectors and claims on domestic and foreign residents. Arbitrage in capital markets within each country, or group of countries, ensure equality of the rate of return from these assets. The fixed labour supply, the ownership of assets and the equilibrium market prices determine the budget constraint.

The traditional sector

As the traditional sector is assumed to be perfectly competitive, factor inputs are rewarded according to their marginal product. The unit cost functions and the corresponding unit factor requirements are derived from a constant elasticity of substitution production function. Restrictions on the production elasticities for labour and skills capture the empirical possibility that skilled labour and physical capital are complements.

The manufacturing sector

The firms producing the varieties of the manufacturing good also use technologies that can be represented by CES production functions. The input demand functions are determined like for the traditional sector. In contrast to the traditional sector the firms in the manufacturing sector have price setting powers. The profits are a negative function of the number of available varieties. That is, the higher the output of the R&D sector, which produces the blueprints for new varieties the higher is the efficiency of the overall economy.

The research sector and knowledge capital

The production of new varieties is a function of the accumulation of knowledge capital in the sector. This capital stock represents the accumulated ideas and techniques available to later generations and has the characteristics of a public good. An innovative concept of knowledge capital was employed which avoid the problematic consequence of other endogenous growth models that the long-term growth rate of an economy is a positive function of the population size. Knowledge capital depends on the density of varieties in the population and not on the absolute number.

Analysis of the steady state

The general formulation of the model defies a general equilibrium solution. To derive and interpret the model results, three routes have been chosen. First, in order to make comparisons with the Borjas (1995) calculations of the immigration surplus, a static version of the model is formulated. This is done by assuming a total factor productivity of the R&D sector that falls below a certain minimum threshold. In that case the arbitrage condition of the finance sector dictates that the R&D sector disappears in the steady state. The disappearing R&D sector, and with it the fact that the number of varieties is fixed in the long run, imply that there is no economic growth in the steady state. Under these restrictions the model results are identical to the static model results on the immigration surplus reported above.

Second, a closed form solution for the model can be obtained if it is assumed that all sectors use a Cobb-Douglas technology and none uses physical capital. With these restrictive assumptions, and equal skill intensities in the manufacturing and the traditional sector growth increases proportional to the share of skilled workers in the overall workforce. This model variant provides a minimal structure to argue that the immigration of skilled workers, increasing the relative endowment of the economy with human capital has not only a level effect in the process of immigration and adjustment to a new equilibrium of trade, production and endogenous factor endowments but also an effect on the long run growth rate.

The mechanism which translates the higher relative skill endowment of the economy into a higher growth rate is the following: If the skill-intensity of the R&D sector is higher than the relative skill endowment of the economy, an increase in the proportion of skilled labour decreases the skilled-unskilled wage ratio and encourages more employment in R&D. If the research sector employed only skilled labour this conclusion is generally true. If this sector

needs both skilled and unskilled labour, and therefore competes with the traditional and manufacturing sector, the marginal contribution of skilled labour to the creation of new varieties falls. This has the consequence that there can be *too much* skilled labour in the sense that a further increase in the relative skill endowment of the economy reduces growth.[1]

For the general case of balanced growth in the steady state, the immigration surplus is calculated as the difference in welfare between the pre- and post-migration steady states. Before these steady states can be determined, assumptions must be made on the asset accumulation of the native and the immigrant population. The model developed employs the assumptions of a homogeneity of labour of the same type whether it is the labour supply of a native worker or an immigrant, that there is no discrimination against immigrants in the labour market and that migrants invest all their savings in the host country.

To make welfare in the pre- and post-migration situation comparable the utility of the post-migration situation has to be converted into an equivalent permanent consumption change under the hypothetical assumption of the pre-migration number of varieties in the steady state.

Numerical results of the static case

The numerical results of the simulations for the case of a non-viable R&D sector are shown in Figures 4 to 6. The migration shock is assumed to be a 10 per cent increase in the native population, identical to the one assumed by Borjas (1995): Figure 4 shows a result that is similar to the results of Borjas. If the skill composition of immigrants is the same as that of native, then the only source of an immigration surplus is through a change in the interest rate, which can only occur in the non-static case. As can be seen from the figure. the highest immigration surplus is obtained if all migrants are skilled migrants. The immigration surplus is then 0.33 per cent of GDP. If all of the immigration is non-skilled the immigration surplus is 0.18 per cent of GDP. The results confirm the basic results of the earlier analysis: *Without migration affecting the steady state growth, the overall effects are minor.*

Figures 5 and 6 show the distributional effects. Figure 5 shows that skilled immigration causes the skilled wage to fall and the unskilled wages to rises relative to the numeraire of GDP. For the case of immigration of only skilled labour this is an equivalent consumption increase of about 8 per cent for the unskilled households and a 5 per cent decrease for the skilled household. These distributional effects are reversed if immigration is entirely unskilled. These results again confirm the outcome of the early work on the immigration effects, i.e. while the overall migration effects are minor the distributional effects can be substantial, depending on the difference of the skill composition of the migrants from the skill composition of the native population.

[1] This result requires that all of the above assumptions hold. If for example the manufacturing sector is more skill intensive than the traditional sector, which is assumed in most of the endogenous growth literature, there is always a positive relationship between the skill endowment and the long-run growth rate of the economy.

Figure 4: The immigration surplus of the representative household: static case

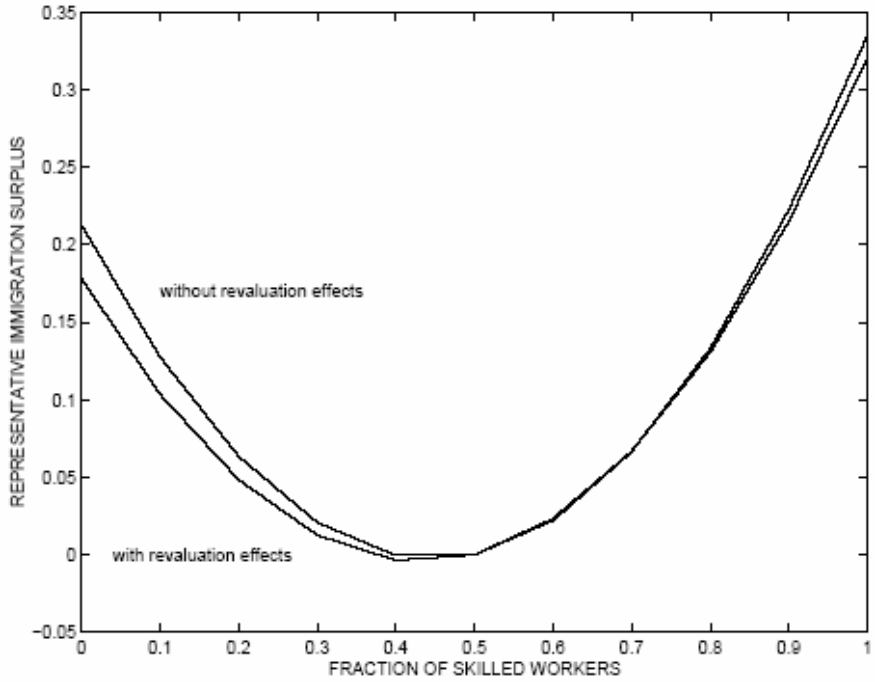


Figure 5: Wage rates before and after immigration: static case

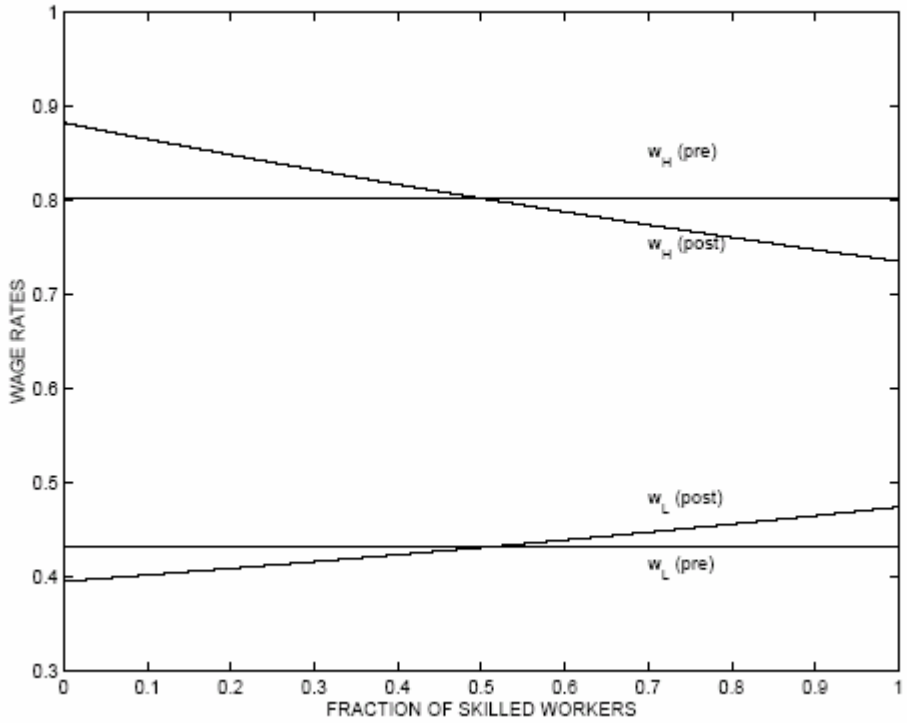
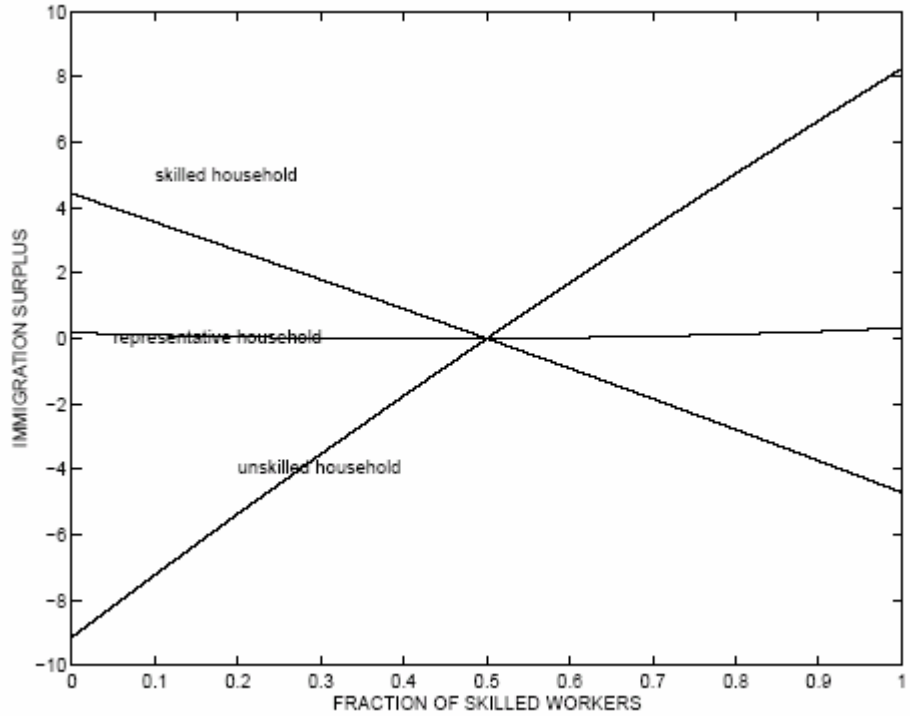


Figure 6: The immigration surplus: static case



This is clearly shown in Figure 6. While the welfare gain for the average household is hardly discernible, there are strong changes of the welfare position of the unskilled and the skilled depending on the fraction of skilled workers.

Numerical results of the endogenous growth case

The endogenous growth case occurs with the total factor productivity of the R&D sector being greater than the minimum threshold level that leads to its disappearance in the steady state, analysed in the preceding section.

As can be seen from figure 7, in an economy with a viable research and development sector an increase of the share of skilled immigrants leads to an increase of the long-term growth rate. In the endogenous growth setting the immigration surplus can rise to as much as an equivalent permanent consumption increase of 3.6 per cent for the representative household (with a 10 per cent population increase due to immigration as above). The indicator goes up to an increase of 14 per cent of the equivalent permanent consumption of the unskilled workers if all of the immigrants are skilled workers, while in this case the income of the skilled workers falls by around 2 per cent. On the other hand, if all of the immigrants were unskilled workers, the equivalent permanent consumption of the unskilled workers would go down by more than 15 per cent while the indicator for the skilled workers would only increase by around 2 per cent. That is, in a model of endogenous growth and heterogeneous labour, where skilled workers produce knowledge (here in the specific form of blueprints for additional varieties), the composition of the migrant workforce has strong effects on overall growth and the distribution of the gains.

Figure 7: Growth gain from immigration

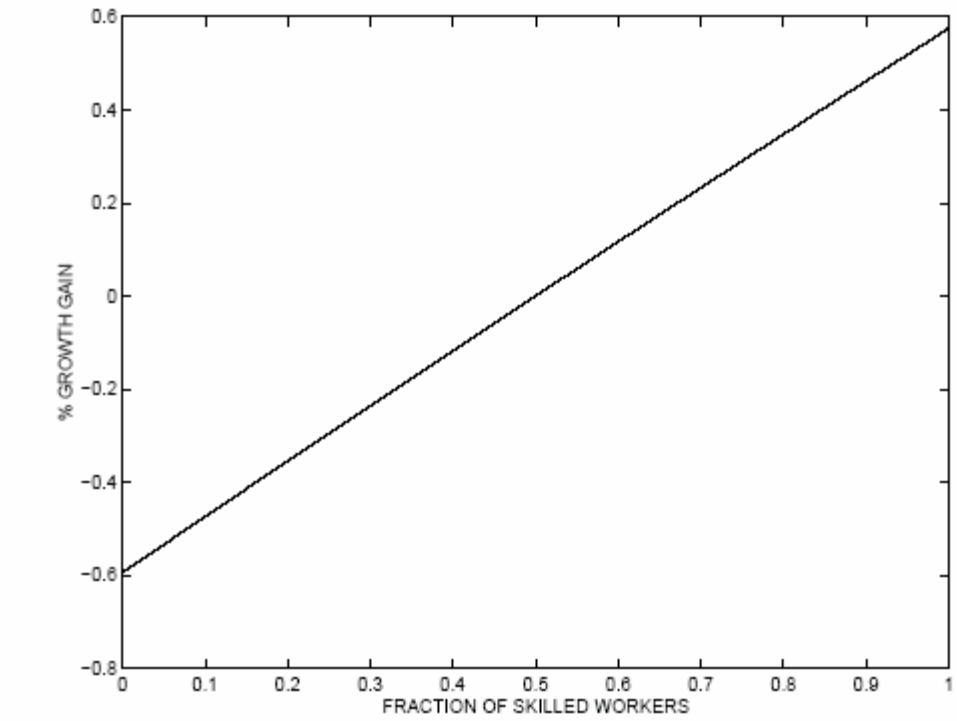


Figure 8: Immigration surplus of classes of households, endogenous growth

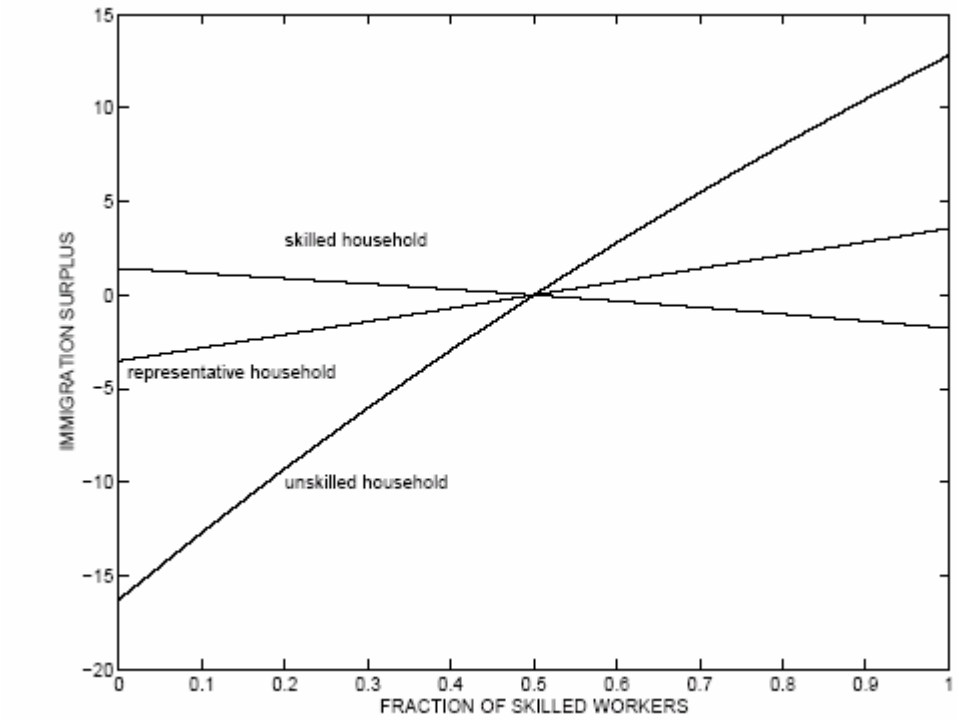
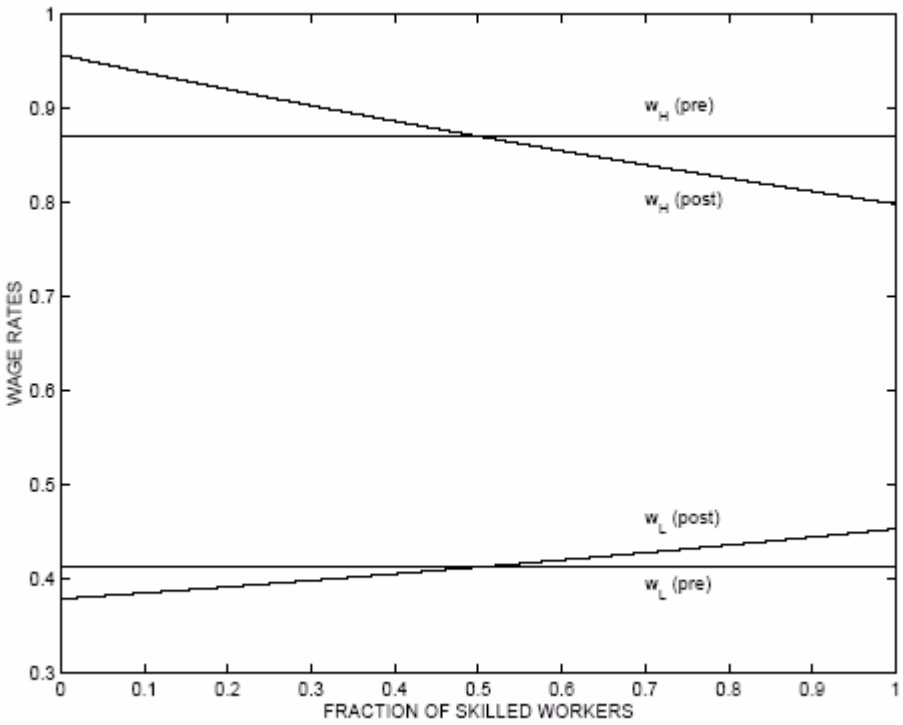


Figure 9: Wage rates with and without immigration with endogenous growth



With endogenous growth, the simulation results that it is the more likely that the overall immigration surplus is negative, the higher the share of unskilled immigration. The gains obtained in this case by the skilled workers do not suffice to (potentially) compensate the loosing unskilled workers. Figure 9 shows how these overall results are brought about by the induced changes in wage rates of the two groups of households.

The higher the share of skilled immigrants the higher will also be the interest rate, leading to a gain for the native population whose assets are revaluated.

The tendencies of the results are reinforced if there is a complementarity between physical capital and skilled workers. While the gains of the skilled workers increase only slightly in the case of only skilled immigration, the loss for the native unskilled workers is substantially higher if unskilled immigration dominates.

2.2 Empirical research on the labour market and growth effects of economic integration

The empirical part of FLOWENLA research has investigated a large number of aspects of the link between the enlargement and the labour market and growth effects of the induced migration flows. All of the analysis implicitly or explicitly assumed differences in the speed of trade adjustments, reactions in foreign direct investment flows and responses by relocations of the working population. All of these processes lead to second round adjustments on national labour markets and the growth processes of nations or country groups.

Following the timing of these adjustment processes we present the results of the empirical work of FLOWENLA in the following order: First, the work on the trade adjustments and their effects on the labour market situation will be reported. This part of the empirical work was mainly carried out at Bocconi University and the University of Parma. In particular, it addressed the following questions:

- Would the changes in the trade pattern that is induced by the enlargement of the Union lead to a widening or a reduction of the differences in the trade structures of the countries involved? The answer to these questions would give an indication of whether the changes in the trade patterns and the associated changes in relative factor prices would lead to a reduction of the incentives to migrate between the accession countries and the Western European countries.

- To what extent would trade between countries or regions at different levels of development like Western Europe and the accession countries imply a transfer of technical and organizational knowledge, thereby contributing to a reduction of the Ricardian arguments for international trade and factor mobility.

- To what extent does the recent, general phenomenon of international integration, the vertical disintegration of manufacturing production processes in the advanced countries and the relocation of the production of intermediate goods to foreign countries have specific labour market effects that would influence the prospective migration flows?

A second block of empirical studies looked at the flows of foreign direct investment induced by the enlargement process. This stream of contributions to the empirical work of FLOWENLA started with the analysis of the location behaviour of multinational firms facing liberalization of international economic relations. The multinational firms' location decisions, and more generally the impact of foreign direct investment on wages in Central and Eastern European countries were studied in general and, in –depth and based on Hungarian firm level data, by project partners at Bocconi University, the Hungarian Academy of Science, and the Hamburg Institute of International Economics.

The largest block of empirical research of FLOWENLA focused on the direct effects of migration on the labour market conditions and growth. Two studies focus on the migration behaviour in East and West. Both studies derive conclusions on the likely migration streams from examining the effects of migration on regional convergence. A further important section of the empirical research of the consequences of migration looked into the detail of the social situation of migrant workers in Western European Countries. Both were based on social security household data. They studied the competition between migrants and native workers on the Italian and the German labour markets. The data of the latter study allowed to confirm the results obtained in other contexts, i.e. that migration of skilled workers seems to be associated with the devaluation of educational attainments and of individual labour market experience. It shed light on the efforts of immigrants to adapt to the new working environment.

A special aspect of the labour market effects of the migration flows associated with the enlargement process which was studied as part of FLOWENLA's empirical work was the

effect on agricultural labour markets, contributed by the Centre for European Policy Studies, Brussels.

A paper of the University of Surrey addressed the important question of the development effects of migrant workers' remittances. The substantial shares that remittances have in total investment in some transition countries show that the project's empirical work has contributed significantly covering an important and mostly neglected aspect of the distribution of the migration gains across source and host countries to the migration research.

Endogenising policy making, two papers analysed the pressures that might be exerted on policies that influence the incentives to migrate. A first one, studies the incentives that result from international or interregional difference in welfare state policies to migrate and the pressures of the welfare systems to adjust. It provides an estimate to the benefits and costs of induced changes of redistributive policies in those countries that invite immigration by the characteristics of the welfare systems. Finally, a paper of the Hungarian Academy of Sciences discusses the effects of bilateral agreements between Western European countries and the CEEC's to allow selective immigration.

2.2.1 Enlargement, trade structures and labour market effects

Convergence of trade patterns

A first part of the trade related empirical research work focussed on the question whether the accession process had already led to adjustment processes that implied a strong similarity between the CEEC's and the Western European countries such that the enlargement process would no longer imply major changes to the trade structure of the new members of the Union. (Benedictis and Tajoli 2004).

The European Commission closed accession negotiations with Poland, Czech Republic, Hungary, Slovenia, Slovakia, Estonia, Latvia, Lithuania, Malta and Cyprus, and officially declared that all these countries could be ready for joining the European Union (EU) by 2004. This ”readiness” came as a consequence of a long process during which the economies of the candidate countries had to become ”functioning market economies” and show ”the capacity to cope with competitive pressure and market forces within the Union”, as stated by the so-called Copenhagen criteria defining the membership conditions. The conditions for accession to the EU, requiring that applicants reach an economic, political and institutional situation comparable to the one of the EU members, is precisely motivated by the assumption that convergence will ease integration. In this first part of the FLOWENLA research this issue was analysed by considering a specific manifestation of a ”market economy”, that is its trade pattern. It analysed the trade patterns of the Central and Eastern European countries applying for membership to the European Union by comparing them to those of the current members of the EU. In particular, it focused on countries' specialization as suppliers for the EU market. The analysis compared the structure of exports directed to the European Union market from EU members and members-to-be.

Since there is neither an obvious measure of similarity, nor a universally accepted methodology in terms of the indicator to use in order to compare trade patterns, a first research step was the evaluation of the appropriateness of different classes of indices. The similarity in export structure was analysed using the (plain and rank) correlation index and two distance metrics, the Euclidean index and the Bray-Curtis index, this latter metric - broadly used in geostatistics and in biometrics and was for the first time applied to trade issues.

The research group examined the evolution of similarity along time - from 1989 to 2000 - considering both self-similarity (how the export structure of a EU member-to- be had changed with respect to the beginning of the transition process) and EU-similarity (if and how the export structure of a EU member-to-be had changed with respect to the EU export structure). For all four countries examined (Poland, Hungary, Romania, Bulgaria), the trade structure changed significantly, especially in comparison to what happened to the EU, that displays a much higher stability of its export structure in the same period. These changes brought Poland and Hungary much closer to the EU, while Romania started to display a little convergence only in recent years, and Bulgaria instead has been diverging. Finally, it was examined how the process of integration with the EU influenced the CEECs' current pattern of specialization.

The sample countries signed agreements with the EU nearly ten years ago, liberalizing to a large extent their bilateral trade flows, receiving a large amount of foreign direct investments from EU members, and integrating their industries with the Western European ones through different forms of delocalization of production. This issue was tackled emphasizing the relevance of temporary trade flows related to the international fragmentation of production of EU members in the evolution of similarity and in the convergence in specialization, showing how processed trade is relevant in determining the structure of exports of *both* EU-converging and EU-diverging transition countries.

In the case of Poland, all indices show convergence toward the EU, especially after 1994, possibly accelerating in the last few years. More difficult to interpret is the case of Hungary. In terms of correlation, Hungary approaches the EU and gets even closer than Poland. But if we look at the distance indices, after a period of fast reduction in the distance from the EU, from 1995 Hungary seems to diverge again. Through careful examination of the data, one can see that this occurs because Hungary, in its specialization, goes "beyond convergence". In fact, its main sectors of specialization (machinery and electrical machinery) are the same as for the EU and the general structure of specialization is in line with the EU, as confirmed by the high correlation. But the weight of these important sectors is much higher than for the EU. The Euclidean and Bray-Curtis distance metrics pick up this type of differences and indicate this strong specialization as an increase in distance. The figure for Romania is quite unstable, and it is difficult to see a tendency for the entire time span. But in the last three years Romania as well showed some convergence toward the EU export structure. The tendency for Bulgaria is instead unexpected. This country's export structure has been diverging from the one of the EU, and this tendency appears quite clearly from all indices. Even in the last period there are no signs of a reversal in this trend.

The analysis of the correlations of the export structures showed, as expected, that the CEECs changed their export structure much more dramatically that the EU in the same

period. But Hungarian and Polish changes from one year to the next were continuous throughout the decade, while Romania and Bulgaria showed substantial jumps initially and smaller changes in the more recent past. In terms of similarity to the EU, we have a somewhat parallel behaviour for Poland and Hungary, moving away from the initial specialization. Romania started to converge toward the EU only in the last few years and to a very small extent, and Bulgaria displays a clear divergence, in spite of starting off as the most similar (or next-to-most similar, depending on the metrics) country to the EU.

The analysis of the dynamics of the CEECs specialization and their convergence toward the EU export structure shows that the process of re-shaping the pattern of trade has been long, and it is still continuing. Another aspect which is emerging is that the evolution of different candidates is dissimilar. While we have a converging behavior for Poland and Hungary, moving away from the initial specialization toward the EU, Romania started to converge toward the EU only in the last few years and to a very small extent, and Bulgaria displays a diverging trend. It seems therefore that two different tendencies emerge, creating a ”convergence club” and a group of countries that so far are not showing a clear and definitive sign of convergence towards the EU trade structure. This kind of result emerged also in other different works, but it is interesting that our comparison, without making any assumption on the countries' structural characteristics, indicates the countries displaying less convergence are also the countries that were found not ready for accession, using quite different criteria. This result gives support to the view of the evolution of trade patterns being in line with the evolution of other economic indicators. The issue of what caused the change in trade pattern is at this stage still open. But our evidence shows that CEECs total exports toward the EU are influenced by other forms of integration, such as fragmentation of production. Processing trade can foster both convergence or divergence in trade structures, according to the characteristics of the industries involved, and whether these are shrinking in the EU and being moved to other locations or expanding.

The work on the convergence of trade structures showed that there is no automatism in the convergence pattern. Some of the country experience, in particular the experience of Hungary, confirms the theoretical propositions on the short-run adjustments of the economies of the CEEC's presented in the theoretical part. The link between trade patterns and the labour market conditions implied by the adjustment dynamics of the theoretical models on the short-run adjustments would justify the expectation of strongly reducing incentives to migrate due to rapid catching up processes on labour and product markets in the CEEC's.

Effects of economic integration on labour demand elasticities

One of the much debated propositions on the recent experience of integration processes is the statement that economic integration has led to a increase of the labour demand elasticities. While this had the general consequence of decreasing the bargaining power of workers versus capital owners, the more important consequence in the context of FLOWENLA is the fact that the increased price responsiveness of labour demand might increase migration incentives in case of diverging development of relative wages between different classes of workers. The redistribution effects that follow from migration that have been discussed in the theoretical analysis of the long-run effects of migration would be

more pronounced due to the impact of trade liberalisation on the elasticities of labour demand.

The most prominent protagonist of the thesis that economic integration is a catalyst to an increase of price elasticities is Dani Rodrik (1997) who states in his book "Has globalization gone too far?" that a higher responsiveness of labour demand to changes in labour prices results as a direct consequence of international economic integration "regardless of economic structure and the identity of the trade partners" (Rodrik, 1997, p. 26).

The variable of interest, the total own-price labour demand elasticity is composed of two parts (Hamermesh, 1993): 1) the scale effect, which explains the employment variation due to the wage-induced change in the demanded output; and 2) the substitution effect, which explains the employment variation due to substitution toward other inputs for constant output. In this context, trade might theoretically influence the total own-price labour demand elasticity via the scale effect due to the increased competition on the output market and/or via the substitution effect generated by modifying the firm production possibility set to include new foreign and domestic inputs, or to increase the efficiency of the existing ones.

With reference to the substitution effect, greater international openness enables firms to employ a larger variety of intermediate products and capital equipment, produced both domestically and abroad, and potentially to directly substitute foreign to domestic factors of production. In addition, trade may be a vehicle for technological spillovers, through both the import of goods embodying foreign knowledge and/or the acquisition of useful information that would be otherwise costly to obtain (Coe and Helpman, 1995). All these factors contribute to expand the business and technological opportunities of the firm, enhancing not only the substitutability among factors of production, but also technical efficiency. The empirical study of FLOWENLA focussed on the measurement of constant output own-price labour demand elasticity, evaluating the impact of globalisation. A general framework was developed to test the impact of globalisation on labour demand elasticities that generalises the afore mentioned empirical contributions. A labour demand equation was obtained from the solution of a firm's cost minimization problem. In this specification, a trade variable is included, both in interaction with the relative wage and alone as a demand shifter. This model is estimated using an industry-year panel for a number of industrialized countries, including major European countries, Japan and the US over the period 1970-96. Employment adjustment costs are accommodated by estimating a dynamic specification.

Moreover, to estimate a globalisation effect free of technical change bias, we also include a time trend. Overall we do not find any significant effect of trade on labour demand elasticity. The only exception is France. Our results seem to confirm, on a more general ground, the findings of Slaughter (2001) for the US and of Greenaway et al. (1999) for the U.K. An increasing elasticity over time in absolute term for all sectors is observed for Germany, the UK and the US and decreasing for Italy, Japan and Spain. A mixed picture is offered by France in which for only a subset of sectors (transport, traditional and chemical) the elasticity increases in absolute value.

The trade activity is the key variable of the model. We allow trade intensity to play a role in expanding the domestic production possibility set of the firm. International trade might exert an impact on the production possibility set by bringing with it new production techniques and inputs that were previously unknown, or not accessible, to the firm. Also, trade might enhance the productivity of the existing inputs by bringing new immaterial inputs, such as new foreign knowledge and the acquisition of useful information, or simply by acting as a yardstick of performance for the domestic labour, inducing more effort in the workplace. Overall these forces may influence labour's own price elasticity, as well as bring about a direct effect on labour demand, with international activity acting as a demand shifter.

Turning to the estimation aspects, it is well known from the dynamic panel data literature that the standard within estimator applied to a first order autoregressive model yields consistent estimates only when the number of time periods T is large (Nickell 1981), which is not the case for most panels, ours included. To solve such a problem, econometricians have suggested various instrumental variable approaches (e.g. Arellano and Bond 1991, Ahn and Schmidt 1995). Here we follow the Generalized Method of Moments (GMM) estimator approach suggested by Arellano and Bond, widely used in most recent dynamic panel data applications, which exploits all available linear orthogonality conditions. International activity effects can work on labour demand through two channels: the direct effect and the effect via elasticity. Increasing international integration has the Rodrik expected elasticity augmenting effect only for France. It has the opposite effect for Japan (but this result is not robust to the change of the globalisation variable). In all remaining countries international integration has not significantly affected labour demand elasticities. This result confirms, on the basis of a larger set of countries analysed within a common framework, those obtained by Slaughter (2001) for the US, by Greenaway et al. (1999) for the UK, by Krishna et al. (2001) for Turkey and Fajnzylber and Maloney (2001) for a group of Latin American less developed countries.

Hence, the claim that increasing international integration affects labour demand elasticity does not receive strong support from our results for eight industrialized countries. Only for France we are able to find evidence for it. This result is substantially robust to changes in variable measurement and in the estimator adopted. Moreover, we have shown that not for all countries/sectors the estimated elasticity is increasing in absolute terms. These results are in line with those obtained by the recent literature on this issue. The innovative contribution of the project work was firstly, the theoretical framework in which the role of international integration is consistently introduced into a dynamic labour demand equation (avoiding a two-stage approach à la Slaughter). Secondly, this framework is utilised for a set of industrialised countries allowing coherent comparison of the results. Thirdly, particular attention has been devoted to the properties of the estimators adopted both with reference to consistency and to small sample properties.

CEEC – EU trade and skill bias in production

A central question concerning the labour market consequences and the growth effects of the enlargement of the EU is whether the trade effects, which precede migration, systematically impact on the wages of different groups of workers. If we could assess such a systematic impact it would allow us to predict the incentives to migrate for individual groups of

workers and to predict the structure of the migration flows. Given the functional relationship between the skill-intensity of production, discussed theoretically in the above section on the endogenous growth effects of migration, the expected skill composition of the migrants would be a basis for forecasting the long-run growth effects of the migration streams associated with the enlargement of the EU.

From the viewpoint of orthodox trade theory the effects of integration on the relative wages of different skill classes is straightforward: When a developed country trades with a less developed one, the developed economy being more skill intensive in production, unskilled labour of the former should tend to be hurt by reduced domestic production of unskilled labour intensive import substitutes or, more precisely, by increased net imports which would push the labour demand relatively more toward skilled than toward unskilled labour.

If wages were flexible, relative wages would be skewed in favour of skilled labour. However, according to most analysts, in the EU wider wage differences tend to be broadly resisted due to the power of the labour unions, to minimum wage or income legislations and to various other institutional forces that reduce wage flexibility. In this situation, the pressure for wider skill differences should rather emerge as shortages of skilled labour and surpluses of unskilled labour. In other words, when relative wages are rigid, a rise in the relative demand for skilled labour tends to cause a shortage of skilled labour and a surplus of unskilled labour. So, according to theory, this type of trade should hurt unskilled workers in the EU, pushing them out of jobs, while the skilled workers would see their position bettered. This type of analysis and the fears that go with it find fertile ground in the general evolution of EU industrial employment in the last decade. Official data show that employment growth in industry has been rather stagnant in the period under consideration, especially in comparison to the more dynamic evolution of the service sector. The result has been that manufacturing employment as a percentage of total employment fell from 31 at the beginning of the period to roughly 25 per cent by the new century. Moreover, industry has been facing a period of significant structural change, increasing its contribution to the unemployed cohorts. Although undistinguishable by sectors, unemployment rates were still at almost 8 per cent on average in the EU at that date. As for the types of labour, recent studies show that a large part of the new unemployment stems from unskilled labour, while employment expands more for the highly skilled than for the lowskilled manufacturing sectors. One should further add the continuous process of skill upgrading in the EU industry: the share of the low-skilled in the EU labour force has been dropping, while the share of both medium- and high-skilled workers has been rising over the last five-year period.

Are the theory and these fears confirmed by the recent history of trade liberalization between the EU and the CEECs? What categories of workers have really been affected? Can we safely affirm that the EU unskilled labour has unequivocally been hurt, while its skilled counterpart has only benefited from this type of trade? These are the main questions of the empirical work of FLOWENLA which was mainly carried out by the University of Parma.

The CEECs considered in this work are not only the eight countries which became EU members in 2004, but also the other two – Bulgaria and Romania – that will very likely gain entry in the upcoming years. The period under exam - from 1993 to 2002 - saw the

trade liberalization content of the association agreements with the CEECs being progressively applied. Its impact could be an indication of what might happen in the medium term, after the accession of the CEECs and the elimination of the anti-dumping and the safeguard clauses, given that the time span is not long enough to alter significantly the structure of reciprocal trade flows.

Although relevant by itself, the present study is also ignificant for the evolution of official immigration from the CEECs in the medium term. The reason is that the accession treaties do not imply an immediate full liberalization of migration flows, which should take place roughly at the end of the decade. As a consequence, official migrations will very likely continue to occur within the same present restricted framework, i.e. through bilateral government agreements or other restricting forms of labour flows. Since the latter tend to be mainly determined by the demand of labour in the EU economies, a study of the medium term trade impact on demand conditions in the EU labour market seems to be of some interest in the present context.

The analytical technique applied is a simple version of the 'factor content of trade' methodology. The researchers first calculated the employment content of domestic production in each industrial sector and then applied these labour coefficients to trade flows. In other words, they estimated how many persons are required to produce the goods exported to the CEECs and how many persons would have been required to produce domestically the goods belonging to the same category that are imported from the CEECs.

Contrary to most analysts who have previously applied this kind of methodology, this approach is more dynamic, since employment coefficients, as well as the skill ratios, do not refer to one particular year or to an average over the period, but are calculated on a year-by-year basis and as such applied to annual trade data. In this respect, productivity changes and skill upgrading over the period are also taken into consideration. Domestic output and employment data were matched with trade data through an appropriate concordance between the 3-digit level of the NACE classification of industrial sectors and the 8-digit level of the CN classification of products imported/exported by the EU from/to the CEECs. The data were then duly reaggregated into 22 more manageable 2-digit NACE sectors. All the data come from Eurostat. When data were lacking or suppressed for reasons of confidentiality in the EU database, they were either taken from other sources or estimated by the author. Similarly to other methods already utilised elsewhere, our procedure rests on some strong assumptions.

Contrary to most long-term partial and general equilibrium models, that assume long-term flexible wages and full employment, implicit assumptions are short-medium term relatively fixed wages and unemployment. Within reasonably large industrial categories, EU industrial imports were considered as competitive with domestic goods, that is to say we assume that imports are perfect substitutes with domestic output. Previous detailed studies by the same group at the 8 digit level of the CN classification reveal that the EU tends to import from the CEECs mostly the same categories of industrial goods that it exports in exchange, the 'only imports' category (one way trade) being very limited - generally intensive in domestic resources. Even in this case, the fact that these goods are imported from the CEECs without an export counterpart does not necessarily imply that they are not produced anymore in the EU and sold elsewhere in the world. Furthermore, since our

purpose is to study the impact on manufacturing industry and not on the whole economy, the study focussed exclusively on the direct employment effects, that is to say it considers only the domestic labour required for producing the individual industrial good without considering the labour used up in the production of the materials and components needed to obtain the final product. Although the majority of indirect labour belongs to services and raw materials, so far as components belong to the manufacturing sector, this is not included in the analysis, thus underestimating the final results. The basic assumption here was that a given rise in imports (exports) would displace (generate) a proportionate number of jobs. The effect of trade was then calculated as the difference in labour content between additional exports and imports. The procedure rests then on a kind of trade multiplier, i.e. on calculating the employment effect of additional net exports, defined as additional exports minus additional imports of manufactured goods. In other words we estimate changes in employment as a function of the changes in the trade balance. The use of this Keynesian kind of multiplier that is short-run in its very nature appears to be justified when seeking to analyse historical year-by-year effects of trade liberalization.

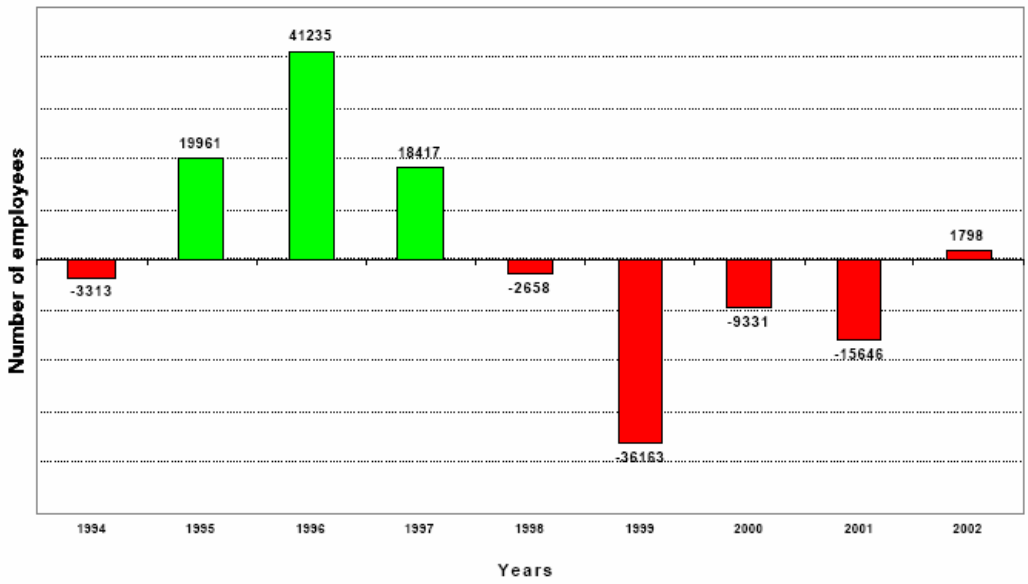
Many previous studies have quantified the employment effects of a hypothetical increase in trade that leaves the trade balance unchanged. However, this kind of procedure seems to be justifiable only when one wishes to simulate the potential long-term impact of some trade flows. On the other hand, actual surpluses and deficits appear to be important in so far as one tries to quantify the trade impact on labour demand derived from historical trade flows. It should be emphasized that through this analytical technique - in fact through most of the methodologies which have been applied in the past – one cannot estimate the actual numbers of job created or destroyed, as some analysts tend to imply, but rather the employment losses netted out of the employment gains which would have occurred ceteris paribus, i.e. keeping other factors, like domestic demand and trade with the rest of the world, fixed. What is obtained then is the potential trade impact on net labour demand or, in other words, the size of the potential trade-induced demand shift in the EU labour market. What the actual impact on jobs is concerned, trade may be automatically beneficial, whenever exports keep growing, supporting a corresponding rise in employment levels, even in the presence of a rising trade deficit.

The analysis was conducted not only for industry as a whole, but also and more particularly for 22 different industrial sectors corresponding to the 2 digit level of the NACE classification, thus allowing to highlight where the net negative effects did take place and where, on the contrary, net positive results occurred instead. Finally the approach differed from several previous studies that have taken into consideration only one global category of labour or at most two types, skilled and unskilled. On the basis of the International Standard Classification of Occupations of the International Labour Office, ISCO 88, a distinction is being made among the different skill types of labour for each of the 22 industrial sectors, finally aggregating them into four more manageable broad categories, the white-collar and the blue-collar labour each being subdivided into the skilled and unskilled categories. Following the OECD, the white-collar high-skill includes senior officials, managers, professionals and technicians, while the white-collar low-skill regroups clerks, service workers shop and sales workers. The blue-collar high-skill workers are represented essentially by craft and related trades workers; finally the blue-collar low-skill workers include plant and machine operators and assemblers plus elementary occupations.

In line with the expectations the estimated global net direct employment effects of EU trade changes with the CEECs during the period from 1994 to 2002 were rather small and positive; altogether labour demand having been favourably affected for less than fifteen thousand persons, which is less than 1 per cent of total industrial employment.

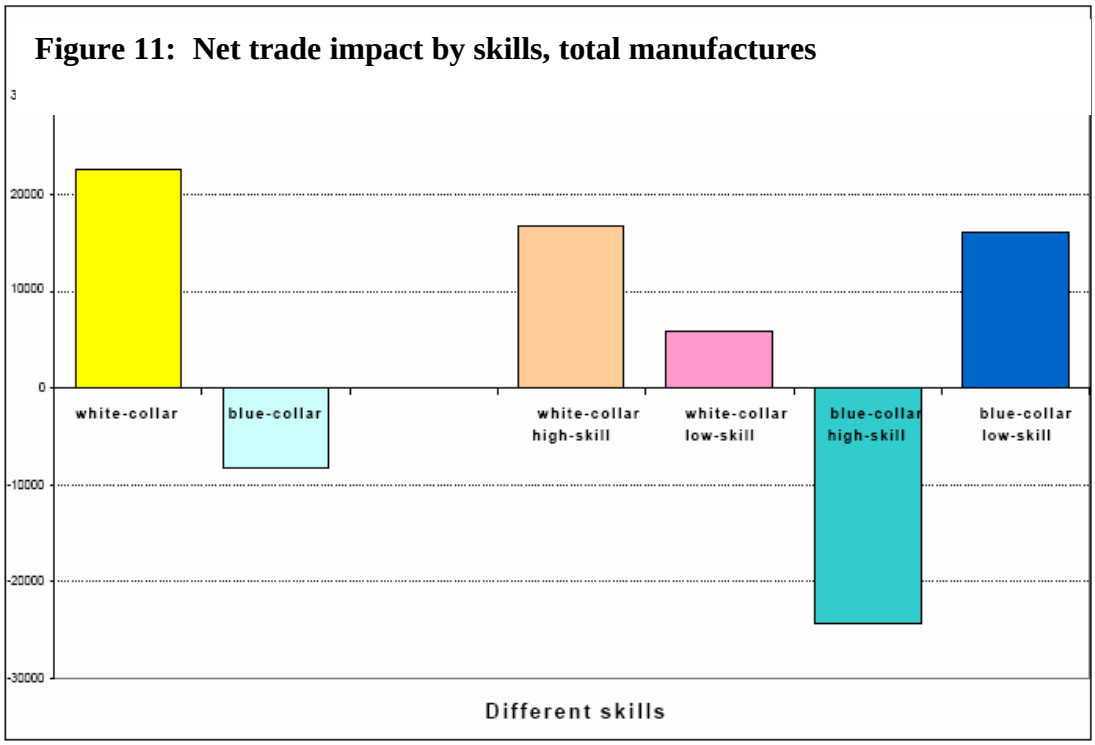
The results vary, however, over time and sector. The net positive results are mostly concentrated on three years at the beginning of the period, while the negative results are spread through five years and mostly concentrated at the end of the same period. Thus, the closing stages of the nineties and the opening of the new century saw a worsening of the situation.

Figure 10: Net trade impact, total manufactures, 1994-2002



Disaggregating by skill requirements and relying on the white-collar/blue-collar distinction to proxy for the skilled-unskilled distinction, the results suggest that on the whole skilled workers appear to have been positively affected, while the contrary seems to be true for the unskilled labour force. However, this distinction was found to be too crude since many workers belonging to the white-collar labour force are low-skilled, like clerks and shop workers, while correspondingly several blue-collar workers are rather skilled, like craft and related trades workers. If we then make a further subdivision into the four segments scheme illustrated in the previous section, it is the blue-collar high-skilled labour that appears to be the only losing category, all the other three having received benefits from this type of trade, the white-collar high-skill coming first, as can be seen from the figure.

Figure 11: Net trade impact by skills, total manufactures



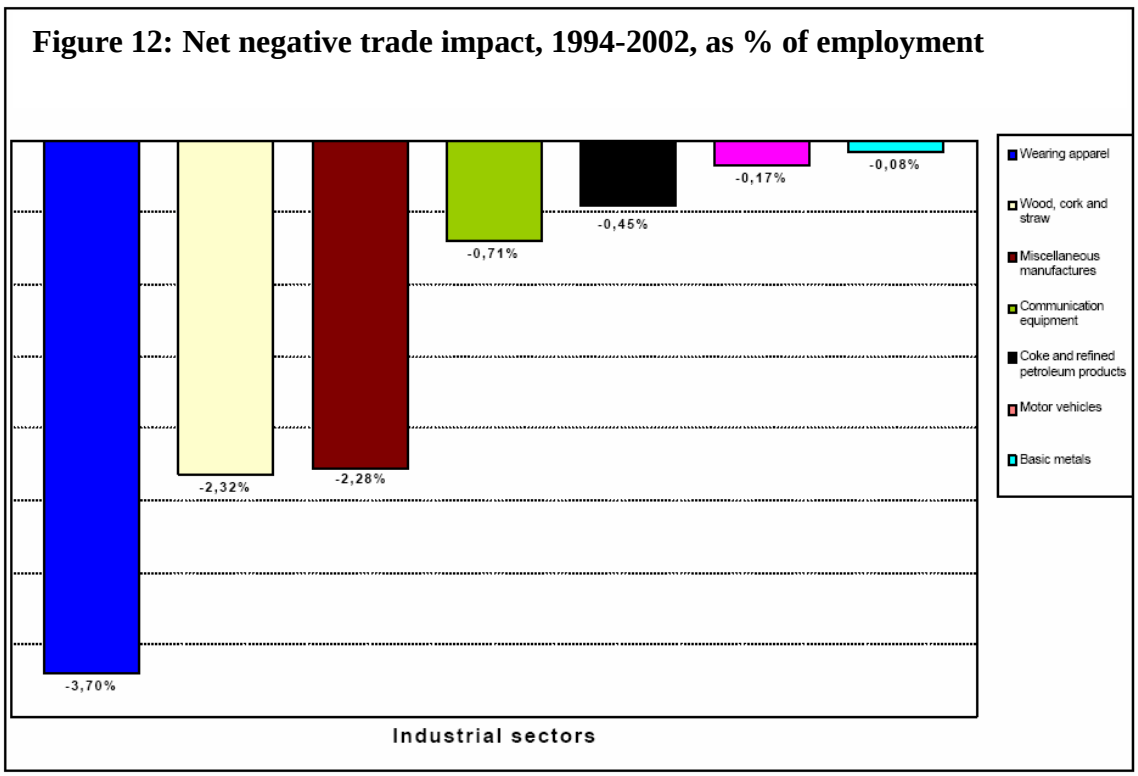
Disaggregating to 22 manufacturing sectors at the 2-digit level of NACE classification, the first observation made is that, with a few exceptions in particular years, all sectors of EU industrial exports to the CEECs show a rather steady increase during the period under consideration. That is to say, in most cases each year exports have supported at least the same level of employment as the previous year and in general a rising amount. Overall, anyway, the export values of the end period were much larger than the ones at its beginning.

Therefore EU commercial relations with the CEECs do not appear to have caused directly actual losses of jobs, even in the presence of increasing imports and negative trade balances. In fact, and more accurately, any eventual loss incurred at a certain quality level inside the same sectors and/or for different types of products at the same quality level has been more than offset by gains at another quality level within the same category of products or in different types of goods belonging to the same quality level. However, this reasoning may only be deducted from the type of intra-industry trade characterising EU-CEECs relations, but cannot be calculated precisely, since no EU dataset is available on production and employment beyond the 3 digit NACE classification. Furthermore, it should be pointed out that these commercial relations might of course have induced some trade diversion from other partners in the world, a question that is not treated in the present analysis.

Negative employment effects might have nevertheless occurred in the form of negative pressures on potential labour demand might have materialised. What we are talking about is the negative impact on labour demand compared to a hypothetical situation in which the trade balance had remained unaltered vis-à-vis the previous year. The negative numbers then represent a cost in potential jobs, i.e. the number of persons that would have been employed to produce those goods domestically if they were not imported. In other words, it

is the cost of non-creation of the corresponding jobs. When these negative employment effects are disaggregated by industrial sectors, it appears that cumulative net losses of potential labour demand materialised in 7 out of the 22 sectors considered, wearing apparel ranking first, and its net cumulative negative impact through the whole period being equal to almost 4% of the employment in the sector (figure 12). This cumulative impact is the sum of the results for nine years: obviously, each year the impact is but a much smaller share of the respective employment level.

Figure 12: Net negative trade impact, 1994-2002, as % of employment



As figure 12 shows the negative effects were strongly concentrated in the apparel sector. Together with the sectors “wood, cork and straw” and “miscellaneous manufactures” they account for 90 per cent of the negative effects.

If one measures the skill intensity of production by the ratio of white-collar workers to total workers in each manufacturing sector, one can immediately see that these three sectors are also the least skill-intensive in the manufacturing industry, coming at the low end of the ranking, with a ratio of white-collars of between 22% and 26% of employment. Just for comparison, the most skill-intensive industries - like office machinery and chemicals - have a labour force in which white-collars represent between 59 per cent and 68 per cent of employment. Besides being low-skill intensive, these three losing sectors are also low or medium-low technology sectors, if technological intensity is measured by direct and indirect R&D intensity, and are further characterised by relatively fragmented markets, with weak entrance costs and limited scale economies.

The decomposition by sectors and skills allows taking into consideration one important aspect. When the trade impact on labour demand is negative, all the skills specific to the losing sectors tend to be devalued, beyond the blue-collar and including the white-collar

workers as well, the only exception being the lower skilled white-collar workers in the basic metals sector.

While hypothetical job losses are highly concentrated (7 sectors), the potential positive impact on labour demand tends to be spread out more evenly over a larger number of sectors (15). Chemicals by far take the lead, the net favourable impact being estimated at roughly 28 per cent of the total positive impact, corresponding to just under 2 per cent of its employment levels (Figure 13 and Figure 14). This is one of the most skill-intensive industries, its ratio of white-collars amounting to 59 per cent of all workers. It is also a

Figure 13: Positive trade impact, 1994-2002, as % of employment

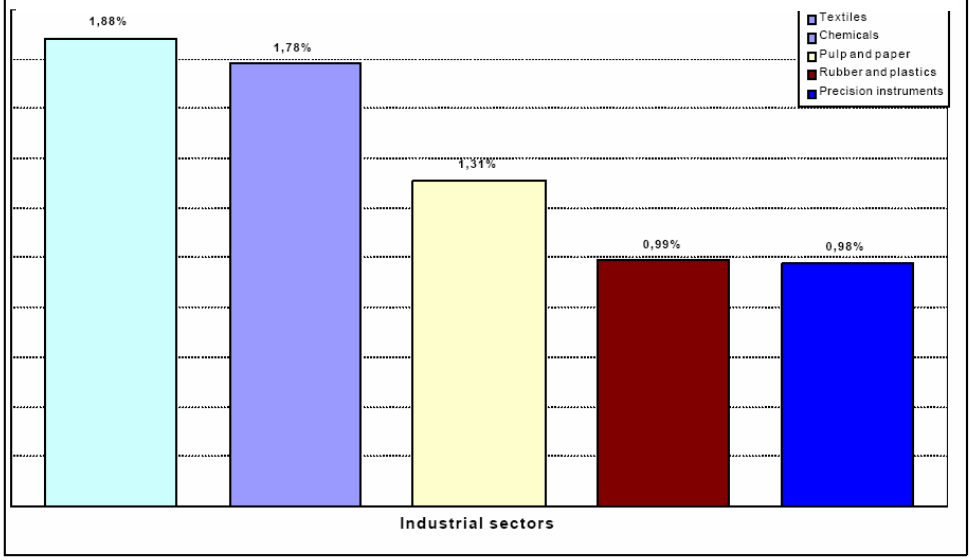
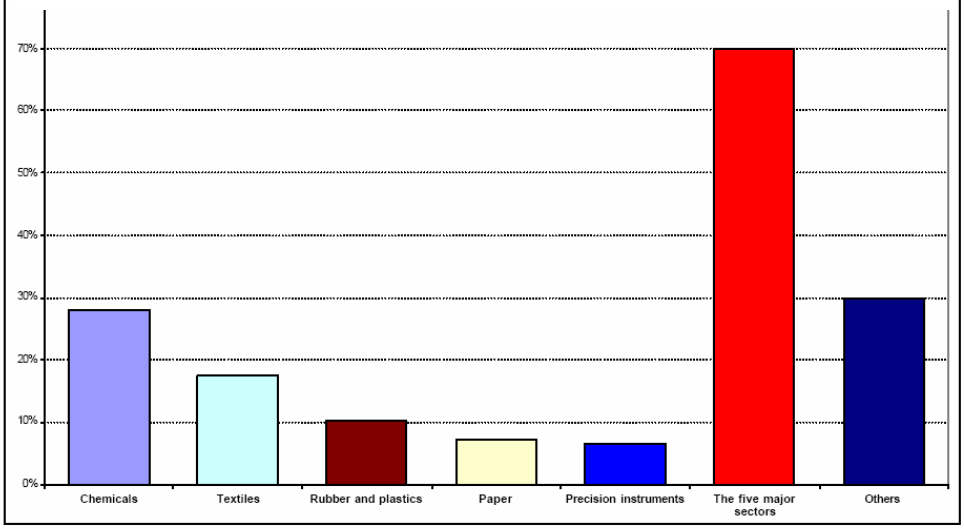


Figure 14: Distribution of the total net positive trade impact among the different sectors



medium-high technology industry, characterized by segmented markets with high scale economies and entrance costs. Never during the period under consideration does the sector suffer from any negative impact. Textiles, rubber & plastics, pulp & paper and precision instruments follow suit, representing altogether another 42 per cent of the global impact, its ratio to the corresponding employment levels of each sector being around 1 per cent. Altogether these five sectors represent 70 per cent of the net global positive impact (Figure 14). It is worth noting that, with the exception of precision instruments, the great bulk of the positive impact appears mostly in intermediate products, generally not at the top end of the technology spectrum.

What the empirical analysis of the labour market effects of the trade liberalisation shows is that the employment effects are highly concentrated sectorally. Which sectors are most affected is what one would have expected in view of the theoretical results. What is in some contrast to the predictions of theory is the impact on the wage structure. It is not the most unskilled workers group that is affected most, as would be suggested by standard theory of international trade, but the group of skilled blue collar workers according to the OECD classification of labour qualifications.

The result implies, in turn, that the incentives to migrate for this class of workers may be reduced by the trade liberalisation and the labour market developments that precede the movements of workers.

International trade and the diffusion of knowledge

A further study of Bocconi University highlighted the influence the implicit and unintended technology transfer might have that result from the trade of manufacturing goods. (Navaretti et al. 2003) If goods' trade implies the transfer of technical knowledge, the opening up to trade leads to an increase and the improvement of the quality of the knowledge stock in the importing country. At the same time it would increase the demand for skilled labour, thereby reducing the incentives for relatively high skilled labour to leave the country, as an increase of the relative wage of skilled labour would reduce the wage differential between the more and the less developed countries. Moreover, the change of the relative wage of skilled labour would strengthen the incentives to invest in training and education. Via these mechanisms trade in (knowledge intensive) goods could work like a substitute for migration of skilled labour.

More specifically, the study examines the impact of imported technologies on productivity growth in countries that are technologically catching up. Many studies analyse trade related channels for transferring technologies and knowledge and their effects on productivity. In contrast to this earlier literature, the FLOWENLA study focussed on the technological content of imported factors of production rather than on imports per se. It also explicitly modelled the choice of technology. Hence, it dealt with the endogenous nature of the relationship between imported technologies and productivity growth.

It studied the effects of knowledge, the 'weightless' good (Quah, 1999), when it is embodied in machines, the most physical of all factors of production. The research group used an indirect measure to capture the amount of knowledge contained in machines: the average unit value per ton of machine imported. Does this measure, relating the value of a weightless good to the weight of its container, make sense? Federal Reserve Chairman Alan

Greenspan once noted that through the second half of the twentieth century, the US tripled the real value of its output with no increase in the weight of the material produced. Indeed, *at any point in time*, the price of machines reflects their relative productivity. If we enter any computer shop we'll find that the price of computers grows with their megahertz or other embodied features. However, *over time* the relative price of equipment falls and the increasing productivity of increasingly weightless (knowledge intensive) machines is not mirrored in their prices (Gordon, 1990, Eaton and Kortum, 2001). The cost of computers has been declining for years, although their capacity to process information has skyrocketed. Thus, the evolution of unit values of machines over time fails to capture their technological content. To overcome this problem, the unit values of the machines imported by our sample countries were normalized by the unit value of the same machines imported at the same point in time by the US, assumed to be the technological frontier. They consequently derived an index, measuring the distance of the technology of the imported machines from their technological frontier at any point in time that can be used for comparisons across countries, industries and time.

The group specifically analyzed the machines exported by the EU to a sample of neighboring developing and transition countries in Central-Eastern Europe and in the Southern Mediterranean. They found that although the importing economies buy increasingly productive machines overtime the technology embodied in these machines persistently lags behind the one purchased by the US. A theoretical model that analyses the choice of technology and relates it to the expected productivity outcomes was developed. The model was tested, using industry specific data for the sample countries. It was found that the choice of lower technologies is optimal for the technologically lagging countries, given local skills and factor prices. However, an increase in the level of complexity of the machines imported has a positive impact on TFP growth, which turns out to be larger than an increase in the share of imported machines in total investments.

Consequently, it does not seem that the trade in goods, and in particular intermediate goods, provides a windfall profit to the importing countries in the form of an expanding production possibility set resulting from the technical knowledge being available through the availability of intermediate goods that embody relatively high levels of technical sophistication. Rather, the results suggest that skilled labour is the limiting factor to the development of the technologically lagging economies. The results indicate that the technologically less developed are constrained in using complex technologies by the availability of unskilled labour. Against this background we cannot exclude that emigration of relatively skilled labour from CEECs implies costs in terms of the speed of the convergence processes of these countries.

2.2.2 Enlargement, foreign direct investment and labour market effects

The next major part of the empirical studies of FLOWENLA concerned the effects of foreign direct investments in conditioning the labour market and growth effects of migration between CEECs and Western European Countries. Two studies have been completed, on the foreign direct investment labour market effects in Poland, Bulgaria and Romania by Bocconi University and an in-depth study on the wage effects of foreign direct

investments in Hungary in a joint project of the Hungarian Academy of Sciences and the Hamburg Institute of Economics.

In the aftermath of price liberalization, privatization and opening-up to the world economy, foreign investors have been either encouraged as in the cases of Hungary, Czech Republic and Poland or gradually admitted as in the cases of Bulgaria and Romania. Evidence confirms that Hungary, Czech Republic and Poland have been favorite targets for foreign direct investment (FDI) since the early 90s. Bulgaria and Romania have registered substantial FDI inflows only after 1996 (World Bank, 1999).

A number of prominent hypotheses exist on the positive economic effects of foreign direct investment. They include employment creation; regional development; enforced firm restructuring (Blanchard 1997); efficient corporate governance in privatized enterprises when sold to foreign investors. One particularly prominent argument refers to the productivity gap between foreign and domestic firms, and the resulting potential for spillovers, i.e. productivity and wage spillovers, from inward investment. Such spillovers may occur through various channels, such as direct transfer of technological know-how, imitation and worker mobility.

Both studies on foreign direct investments carried out in FLOWENLA study the spillover effects of foreign direct investment. Were the hypothesis of a general positive wage effect confirmed, the hypothesis of FDI, which precede the migration flows, reducing the scope of migration and prospectively dampening a skill bias of the migration flows could be supported.

There is an extensive literature that looks at FDI spillovers for industrialized and developing countries other than the CEECs. Using firm level data, Djankov & Hoekman (1999) find no ownership effect in productivity equations looking at the experiences of the Czech Republic. As far as wages are concerned, evidence for the US (Aitken et al., 1996) indicates that higher levels of foreign investment at the industry level are associated with higher wages for the whole sector. Moreover, in the US a higher foreign presence is associated with higher domestic firms' wages.

The lack of spillover effects have been explained by differences in the technologies used by domestic and foreign firms, or by the lack of managerial and technical skills to absorb new technology. Another hypothesis sees foreign and domestic firms operate in different labour markets, due to institutional factors or different skill compositions of the workforces. Alternatively, as foreign firms invest more in worker training, they might offer higher wages and, thus, inhibit labour turnover which might provide a channel through which productivity increases reach domestic producers (see, for a modelling framework, Fosfuri et al., 2001).

The study carried out at Bocconi University looked at the relationship between FDI and wages in three countries of Central and Eastern Europe: Poland, Bulgaria and Romania. Using firm level data on manufacturing over the period 1994-1997, it studied whether the entry of foreign investors in a local labour market is associated with higher average wages as well as with higher wages offered by domestic firms.

The empirical analysis used data aggregated up to the industry and regional level, and at the firm level. Conducting the analysis at the industry and regional level, there seems to be a positive relationship between FDI and manufacturing wages in Poland, Bulgaria and Romania. The positive relationship is consistent with studies showing that the entry of foreign firms in a local market shifts upwards the labour demand curve for the whole sector. In addition, evidence suggests the existence of a positive relationship between foreign presence and domestic firms' wages in Poland, but not in Bulgaria and Romania, where the effect was limited to foreign firms.

In all countries, there exists a positive relationship between foreign activity and manufacturing wages when all firms, i.e. domestically- and foreign-owned, are included in the estimation. However, when industry and regional dummies were included in the estimation, the FDI coefficient loses significance for the Polish sample. Foreign investors seem to be attracted by particular industries and regions in Poland, perhaps those that offer better infrastructure, higher proportions of skilled workers or government incentives. For Romania and Bulgaria, the FDI impact was somewhat reduced, but still positive and significant. The coefficient on lagged capital stock is also positive and significant in all countries, implying that investment in new machinery and equipment has a positive impact on wages. Presumably, the FDI coefficient captures wage increases which are a reflection of increases in the productivity of workers and thus, through labor mobility, of the local labour force.

In Bulgaria and Romania, the positive FDI impact on wages disappears as soon as foreign firms are excluded from the estimation. Consistent with the results found for Mexico and Venezuela (Aitken, Harrison and Lipsey 1996), foreign activity does not seem to affect domestic producers, at least in terms of wages, in Bulgaria and Romania. Poland shows a different picture. Not only is there a positive relationship between foreign activity and wages when all firms are considered, but foreign activity seems also to affect domestic firms in terms of positive wage increases. A 1 per cent increase in local FDI is associated with a 1.3 per cent increase in domestic firms' wages. However, as soon as industry and regional dummies were included in the estimation, the positive effect disappeared.

In order to investigate more precisely the impact of FDI on manufacturing wages the group conducted the analysis using firm level data. The analysis proceeded in two steps. First, it was tested whether foreign-owned firms pay higher wages than domestic producers. Secondly, it was checked whether a higher foreign presence in the local market is associated with higher manufacturing wage as well as with higher domestic firms' wages. Conducting the analysis at the firm level allowed to take into account firm characteristics, such as ownership and firm size.

Since the measure of FDI activity is defined as an industry-regional share of output (sales) that is produced in foreign firms, this might create collinearity problems with relative market size. Therefore, in the estimation, industry/regional variables are defined in net terms, i.e. excluding the firm which the information is taken from. We measure firm R&D as the firm's stock of intangible fixed assets reported at time *t-1*. We use a lagged R&D variable for the same reason why we use a lagged capital stock variable excluding the possibility of testing a reverse causality between capital and wages. Our measure of firm R&D might control for situations in which firms offer higher wages because they have a

higher skill composition of their workforce. Alternatively, they might have access to a better technology and thus, being more productive, offer higher average wages. Of course, it might be that the effect of R&D on wages varies according to ownership. In order to test this possibility, we experiment interacting the foreign dummy with our measure of firm R&D. While for Poland and Bulgaria the interaction term is not statistically significant, the interaction is positive and significant at the 5 per cent level for the Romanian sample with a coefficient of .025.. This result suggests that in Romania, among firms with the same level of R&D intensity, foreign firms offer higher wages than their domestic counterparts. The result can also indicate that foreign-owned firms pay higher wages when characterized by higher level of R&D activity. For the Bulgarian sample, the ownership effect disappears as soon as we introduce industry and regional dummies. This finding suggests that there are limited wage differentials between foreign and domestic firms operating in the same industry and region and with a similar market size.

Several explanations have been proposed by the literature for the lack of positive FDI spillovers over wages. Perhaps domestic and foreign firms are operating in different labour markets with scarce or no labour mobility between them. Thus, transfer of technology cannot occur through worker mobility, but only through direct transfer or imitation (Aitken et al., 1996). If foreign firms incur higher search costs than domestic producers, which know better labour market and country institutions, they might decide to offer higher wages for keeping their workers. As a consequence, labour mobility is reduced and also the extent of FDI spillovers on wages. Alternatively, as foreign firms invest more in worker training, they might offer higher wages for retaining trained workers (Fosfuri et al., 2001). Another explanation focuses on the competitive effect of FDI, which is called also demand effect. The entering of foreign investors, instead of acting as a discipline devise, appears to be detrimental for the productivity of domestic producers, at least in the short run. This is more likely to occur in product markets that are imperfectly competitive and where sunk-costs of entry are high.

Under these conditions, the productive advantage of foreign firms might draw demand from local producers and force them to cut production substantially. In addition, the lack of FDI spillovers on wages in Bulgaria and Romania might simply reflect the fact that it takes time for FDI spillovers to materialize. Worker training and labour mobility are time-consuming processes. Moreover, domestic firms in Eastern European countries need time, expertise and capital to acquire a sufficient level of R&D that will allow them to absorb new technology. Statistical evidence shows that Bulgaria and Romania have become target countries for FDI much later than the Central European countries, in 1995 and 1996, while Poland, Hungary and Czech Republic have been open to FDI since the beginning of the 90s. In addition, as Faggio (2001) provides some evidence, multinational enterprises seem to be mainly driven by cost considerations when investing in Bulgaria and in Romania. If cost considerations are relevant, the entry of foreign investors in the host country is unlikely to be accompanied by rapid wage increases. The labour productivity in foreign subsidiaries might rise substantially, but the productivity increases will not be translated in wage increases, at least in the short run. However, as time proceeds, productivity enhancement will start putting upward pressure on wages in foreign-owned firms and then through FDI spillovers (direct transfer of technology, imitation and labour mobility) on domestic firms also. Finally, the impact of FDI might be different according to the sector of activity in which domestic- and foreign-owned firms operate. Evidence of no spillovers at the

aggregate level might hide the presence of spillovers at the industry level or the fact that spillovers are concentrated on a few sectors. Table 8 provides preliminary evidence which seems to support this hypothesis.

To summarise, despite different economic conditions and levels of development, we find that across all three countries higher levels of FDI are associated with higher manufacturing wages. However, in Bulgaria and Romania, the effect is limited to foreign-owned enterprises. Higher foreign presence in a local labour market does not seem to be associated with higher domestic firms' wages. Poland offers a different picture. Evidence shows the existence of a positive relationship between foreign presence and domestic firms' wages. Results appear to be sensitive to the introduction of industry specific effects. Thus, we perform a simple exercise in order to test whether FDI effects are different according to the sector of activity in which domestic- and foreign-owned firms operate. Evidence shows that the FDI impact varies across sectors suggesting that product market characteristics and, particularly, the degree of competition between foreign and domestic firms, are relevant in analyzing the impact of FDI on domestic wages.

Complementary results were obtained by the joint study of the Hungarian Academy of Science and the Hamburg Institute of Economics. (Cengödi et al. 2003) This study seems to confirm the "pick the winner" hypothesis, i.e. the hypothesis that higher wages of foreign direct investors in the host countries is not the result of superior technologies or training and education effects but to the investment of foreigners into firms that are more productive at the outset.

Both the major growth of foreign direct investment (FDI) in the last decade and some spectacular development success stories such as Ireland have drawn attention to the impact of FDI on the local economy. Since the abovementioned study of Aitken et al. (1999), economists are also aware of detrimental effects of FDI to the local economy. However, Aitken et al. (1996) established one major link through which multinationals can benefit the local economy: multinational enterprises (MNEs) seem to pay higher wages for a comparable type of worker than indigenous firms. Indeed, if a country attracts new MNEs and these pay higher wages for a given local workforce, then this can be seen as a positive externality of MNEs on the local economy and would justify some sort of subsidies to MNEs by local authorities.

For this reasoning to be confirmed by an econometric analysis, any type of self-selection effect must be excluded. For example, such self-selection may occur, when MNEs are able to attract workers with better unobservable talents than domestic firms. The larger wage payments would then reflect the larger productivity of those workers but do not imply a wage rise of the economy on average. Another self-selection effect may be detectable when MNEs take over indigenous firms that did already have a positive unexplained wage premium compared to the average domestic firm. The latter self-selection effect has become known as the "picking-the-winner" hypothesis (Oulton, 1998): MNEs take over the most successful domestic firms (skim the cream) and these firms appear at the same time to pay higher wages even before they become foreign owned. The wage-premium is thus generally a firm characteristic but not specifically an ownership type characteristic.

The main focus of the study was to evaluate to which extent the foreign firm wage premium that is unexplained by industry-, region-, worker-, and firm characteristics is due to MNEs taking over domestic firms that paid already larger wages before. More specifically, it is asked whether the wage premium relative to the average wage of an indigenous firm before takeover overbid or underbid the premium after takeover. This issue was investigated on Hungarian employee-employer matched data from 1992 until 2001 and find a U-shape pattern of the inexplicable wage premium. Target firms payed on average a wage premium of 9 per cent immediately prior to the takeover. Contrary to what one may expect from the previous literature, the wage premium falls significantly immediately after the takeover. Only in the long run, the wage premium rises slightly above the initial level before the takeover. It was shown that the reasons why a foreign firm takes over an indigenous firm are also reasons for those takeover targets to pay higher wages. These reasons are large labour productivity, large share of white collar workers, and large operational profits. Moreover, the U-shape development of wages in the lifetime of a takeover is followed by total factor productivity. Moreover, there is evidence for labour force restructuring before and immediately after the merger and a below average worker mobility of foreign takeovers in the long run. These stylized facts are in line with the hypothesis that the wage premium may also intend to reduce worker incentives to leave the MNE and transfer superior MNE technology as a free good to indigenous firms in the long run. However, self-selection accounts for up to 3 quarters of the Hungarian foreign firm wage premium.

These results are first based on a replication of a standard wage regression for Hungary as in Kertesi and Köllo (2001) which explains annual gross wages of a worker by her education, experience, occupation, gender, average firm labour productivity, capital intensity, firm size, and region- and industry dummies. In addition, the variable of interest is a dummy with value 1 whenever an employee is working for a foreign-owned firm. The study confirmed the result of Kertesi and Kollo (2001) on the same data that there is a wage premium paid by foreign-owned firms over the one of indigenous firms of 15 per cent even after controlling for worker and firm characteristics. This result also confirms on a worker survey rather than firm data the existence of a wage premium paid by foreign-owned firms that was first found by Aitken et al. (1996). The coefficients of the control variables are as expected. Gross wages are the higher the better the education, the higher a firms' average labour productivity and its capital intensity. Moreover, there is a typical non-linear relation between gross wages and job-experience. Male workers earn about 22 per cent more than female-workers and white collar workers earn more than blue collar workers.

It was investigated whether the wage-premium may stem from MNEs having a different employment structure than indigenous firms. For example, MNEs may undertake more specialized production steps due to intra-firm specialization and apply over-proportionately many workers for who learning-by-doing is more important than formal training. Then the wage premium may pick up the effect from MNE specialization in high-skilled, but low formal training jobs. When adding fixed effects for more than 600 occupations, however, the wage premium not only does not disappear, it even remains the same. One of the possible explanations for the wage premium of MNEs is that the wage premium is not typical for the MNE as such but due to some unobservable firm characteristic that is particularly frequent among MNEs. For example, MNEs may frequently produce high-quality goods and pay a premium for a particular care that workers apply at their work. While we cannot implement worker fixed effects with our data, firm fixed effects were

introduced without the foreign-ownership dummy. It was observed that firm-fixed effects increase the R^2 from 0.56 to 0.67. Hence, there exist some firms that follow a high-wage policy and other firms that follow a low-wage policy. Finally, we add the foreign-ownership dummy in a specification of the estimation equation with firm fixed effects. Since there are firm fixed effects and ownership is a firm characteristic, the foreign-ownership dummy explains only wage differentials between domestic and foreign-owned firms of those firms that change their ownership status in the sample. Surprisingly, the wage premium drops substantially to a mere 3 per cent while still remaining significant at the 1 per cent level. This result suggests that takeovers behave fundamentally different to foreign owned firms in general and have thus been the focus of the analysis.

So far, we found that ownership change between domestic and foreign investors may be correlated with the wage premium, but it is neither possible to follow the development of a takeover firm over time nor can we distinguish the two directions of change. Hence, we consider next the wage-premium of foreign takeovers one year before the ownership change, the year of the ownership change, one year thereafter, two years thereafter and three and more years thereafter. Ownership change is noticed by the change of foreign participation in firm equity from below 50 per cent to above, when comparing one end-year balance sheet to the previous one.

On this basis the main result of the research is established: Those domestically-owned firms which will be taken over by foreign investors have already a 9 per cent higher wage premium compared to the average Hungarian manufacturing firm even after controlling for employee-, location-, industry-, and firm characteristics. It was an unexpected result that the wage-premium actually dropped right after the foreign takeover. Only in subsequent years, the wage premium rose slightly above the level before the takeover which explains why there is a small wage-premium of foreign-owned firms when controlling for firm-fixed effects in the previous table. The long-run value of the wage premium appears even slightly lower than its pre-takeover value. This result is fully in line with the "picking-the-winner" hypothesis but in strong contrast to the previous literature which suggests that foreign-owned firms pay higher wages for comparable jobs and thus a foreign-takeover suggests a rise of wages, not a fall. In particular, the hypothesis that MNEs implement a superior technology in their acquisition does not explain why the target firms paid already a higher wage premium before. Instead, there seems to be a self-sorting process at work. Those firms that afford higher wages are preferred targets for foreign takeovers.

These results do not suggest that foreign direct investment has a general wage increasing effect in CEECs. It does therefore not seem that foreign direct investment will be a major force of an upward drift of wages in general and skilled wages in particular that would reduce any incentive for the migration of highly skilled labour. Moreover, the confirmation of the hypothesis that foreign direct investors pick winners in the host countries does not suggest that the capital flows have been associated with a substantial and general diffusion of technical and organisational knowledge.

A paper of Altomonte (2003) shows, however, that processes of FDI flows associated with regional integration agreements might not proceed in a continuous way. He applied a model of international location choice to the case of the formation of regional integration agreements.. It was found that an increase in the degree f trade integration among countries

can give rise to “bursts” of economic transition. Multinational firms will locate in the region until the integration area converges to a new equilibrium characterised by a higher stock of foreign capital. The econometric analysis of the model showed that increased integration associated with the setup of a regional integration area reduces regional transport costs. This enhances the region’s overall market potential, hence generating positive and sustained profit opportunities for multinational firms. The spans of positive profits resulting from the integration dynamics, denoted as transition “bursts”, attract MNEs unit the entry of firms and the associated increase in the degree of competition offset the positive effects of market potential, thereby lowering profits and leading the economy to a new equilibrium characterised by a higher stock of foreign capital.

2.2.3 Migration and labour market effects

The classical topic of direct effects of migration on local or national labour markets is the topic that has earned more attention than other topics in the migration literature at large. Two FLOWENLA studies studied migration from this micro perspective, complementing the general equilibrium and macro perspective of other studies of the programme.

The labour markets looked at were the national labour markets of Italy (Venturini and Villosio 2003) and Germany (Radu 2003). The vast majority of studies on the labour market effects of immigration focus on the wage effects of immigration. The FLOWENLA studies took a different perspective by concentrating on the unemployment effects in the case of Italy and the labour market careers of individual migrants in the German labour market.

The Italian debate about the effect immigrants have on the labour market has been heated, on the one hand natives feared the competition of immigrants in the labour markets, while, on the other hand there was an excess demand for labour not matched by natives. The issue of competition is, however, recent, not only because the novelty of the phenomenon has centred attention on access into the country, on the illegal presence of foreigners and on the revision of the law but also because no dataset was available to study this issue.

Only recently has the individual data derived from the social security archive made it possible to analyse the effect of immigration on the Italian labour market. Gavosto, Venturini, Villosio (1999) tested the effect of the share of foreign workers on the native wages. Their results show that the inflow of immigrants raises the wages of native manual workers (i.e. it has a complementary effect), and this effect is larger in small firms and in the North of the country. This result was to be expected in a country with strong trade unions and centralized bargaining where adjustments probably take place on the quantity side and are in line with the main European evidence. A complementary effect is found with a similar approach by Haisken-De New and Zimmermann (1999) in Germany, by Dolado, Jimeno and Duce (1996) in Spain, by Winter-Ebner and Zweimuller (1996) in Austria, by Carrigton and De Lima (1996) in Portugal just to cite some researches done in other countries.

However the effect of immigration on native employment or unemployment seems less homogeneous: Pischke and Velling (1997) found no evidence of the displacement effect on

unemployed natives in Germany, Winter-Ebner and Zimmermann (1999) find that immigration in Austria reduces the employment of natives in high immigration industries while in Germany immigrants seem to be complementary and Dolado, Jimeno and Duce (1996) in Spain found a negative but non- significant coefficient for foreign share variable on the one for employment growth. There is no analysis of the effect of immigration on Italian unemployment and thus the object of this paper is to investigate if there is competition between natives and immigrants at an occupational level.

The only data available to analyse the effect of immigration on native employment, is the micro data available in the Italian Labour Force Survey. This survey collects, quarterly, information regarding the main characteristics of the labour supply from a sample of about 76.000 households. Unfortunately only a small section of the sample has the characteristics of a panel with too few observations for our purpose. Moreover an analysis of the length of unemployment from such data is limited by many problems. Thus we can only use the cross-section version of this survey which contains, in the second quarter, a retrospective question on the individuals' professional status in the previous year. The answer to this question is used to qualify natives' movements from unemployment into employment and vice versa in a particular year. It is impossible, however, to study the effect of immigrants on long term unemployment which has moreover more structural origins, but it is possible to get the effect of immigration on the short and medium term unemployment which is mainly located where the immigrants are concentrated. Two aspects of the unemployment experience are examined: *displacement risk* and *job-search effectiveness*.

Both aspects can be affected by the presence of immigrants in the labour market. *Displacement risk* occurs to employed workers who can be displaced by foreign workers. It is assumed that this competition could be stronger for specific categories of workers: young people, workers with low education. Also *job search* can be affected by the presence of immigrants who may reduce the probability of natives finding a job. The effect of immigrants on the job search for natives can be different for first job seekers or for workers looking for a new job. In this analysis displacement risk and job search effectiveness are considered separately. As an indicator of displacement risk the probability of moving from employment into unemployment (E-U) is used and as an indicator of job-search effectiveness the probability of moving from unemployment into employment (U-E) within one year is used.

The empirical model estimates separately the probability of losing a job for the employees and the probability of finding a job for the unemployed. In this last case we have been able to consider individuals who are looking for the first job separately from those who are looking for a new job. Our analysis is carried out for the years 1993 to 1977 in order to see whether subsequent immigration flows have modified the employment opportunities for natives over time. Data on individuals are merged with some aggregate data drawn from different statistical sources in order to check for the local condition of the market in which individuals make their choices. One of these variables is the foreign share derived from administrative data (as explained in Gavosto, Venturini, Villosio 1999).

Search for the first job: In order to focus only on the young unemployed, and to exclude those who have had some previous unrecorded experience, as would be the case of someone who had worked in the black economy, the sample was restricted to individuals

under the age of 30 Results from the probit analysis for the North and Central Italy suggest that the presence of immigrants reduced the probability of finding a job only in 1993, soon after the end of the legalisation procedure, while no significant effect emerges in the following years and in 1997 a complementary effect seems to prevail. To understand the target group of the possible competition from immigrants better, a subdivision by level of education of natives is used. Surprisingly immigrants complement natives with low education in the recent period while the only group to show displacement by immigrants is made up of medium educated natives in the North-Central Italy, and this happened in 1993.

Search for a first job: Similarly the probit analysis was replicated for those searching for a new job. The results are in line with the above findings: the probability of finding a new job is lower for women, it falls with age, and is not affected by marital status or by the number of cohabitants and, finally, it is higher for those with higher education. Among the macroeconomic variables, the unemployment rate negatively affect the probability of finding a new job, while there is almost no significant effect due to the value added and the net firm's creation rate.

What is more important for this analysis, however, is the effect of immigration on the employment probabilities. In this case, different from the results obtained before, the impact of foreign workers in Northern and Central Italy was positive in 1993, not significant up to 1995, and the effect was significant and positive for the last year analysed. For the South the variable is positive and significant only for 1997, especially for the low education group. Thus, a complementary effect seems to dominate the relationship between foreign workers and natives with previous work experience especially for low educated natives, the group which was expected to be more at risk.

Summarising the analysis of the relationship between probability of finding a job and the presence of immigrants, different effects are detected for people looking for the first job and people looking for a new job. In the former case, for individuals without any job experience the negative effect is restricted to the first year and to medium educated natives, while the effect is positive in the most recent periods. For older and more experienced workers, who are looking for a new job, the presence of immigrants has either no effect or a complementary effect, especially for those who have a lower level of education

Displacement risk: In the test of the transition from employment into unemployment most of the findings for this transition are in line with the previous results: the probability of losing one's job is higher for women; it falls with age, and is higher for the unmarried or divorced. It is lower for more educated individuals, especially if they have a secondary level qualification. The likelihood of becoming unemployed is higher in those regions where unemployment is higher, is lower when the net number of new firms increases and, when value added increases.

The share of immigrants employed seems, in general, to have no effect on domestic workers' displacement risk up to 1995, with the exception of a complementary effect found in 1994 in the services in the North and in 1995 in the South. A competitive effect is detected in the North in the construction sector. In 1996 there is a competitive effect in the North in manufacturing, while a complementary effect emerges in central Italy in both manufacturing and services. Unfortunately, as data after 1996 is not available, it is not

possible to see if the competition effect that emerges for 1996, continues in the subsequent years.

Overall the probabilities of finding a job or loosing a job do not seem to be much affected by the level of immigration. If negative effects can be detected they are confined to first job searchers, particular sectors (construction sector) and geographic areas (Southern Italy).

Two papers studied the migration behaviour at the national level to conclude about the likely consequences of the enlargement on the migration flows, and their growth consequences.

A paper contributed by the Institute of Economics of the Hungarian Academy of Sciences looked at mobility and migration in Hungary between 1990 and 1999 at several levels. (Cseres-Gergely 2003) Using aggregate as well as individual data, the structure and large-scale trend of mobility was described, the relevant population characterised and a simple behavioural model estimated to show and evaluate the effects of economic incentives.

Mobility in Hungary is among the least frequent in Europe, both compared to the EU or other Central and East European countries. In terms of migration (long-range mobility) however the country is more comparable to the European experience. A puzzling fact at first sight is that although labour market inequalities increased after the start of real economic growth in 1995, the trend of mobility followed them only through a brief period, flattening down by the end of the decade. Aggregate analysis on the other hand established that the 1990s witnessed a structural change in mobility. The former pattern of urbanisation was gradually replaced by that of suburbanisation, people moving mainly from big towns to smaller ones and villages. This phenomenon explains why the aggregate data seem to contradict conventional wisdom.

To look at economic incentives, an aggregated version of a gravity model was estimated, modified to be used with data on outward mobility rates for individual regions. Results indicate that before 1995, both unemployment and wage differentials have the expected and significant effect, while after 1995, this is true only for unemployment. Although the economic significance of both effect is small, they together are able to explain some of the heterogeneity found in the data.

Detailed data on individual characteristics allowed to look at the composition of mobile population closely. Personal attitudes showed that although economic incentives are an important factor in mobility migration, there are many others to consider. Using factor analysis, it was shown that an increasingly dominant reason to move is seeking a pleasant environment. This corroborates the already established results of the importance of suburbanisation and other, non-economic factors.

Aggregate behaviour was shown to be different in the case of temporary and permanent movers. Temporary movers, about half of the overall mobile population, contain a possibly large proportion of students, whose movement seems to follow economic incentives. This however seems to be the result of the close connections between the hierarchical structure of the schooling system and the incidence of higher wages and lower unemployment. While the pool of temporarily mobile people contains a large proportion of mostly young, single

or cohabiting people without a child or in full time studies, permanent movers are different. They are older (but not old or middle-aged), raise children in many cases, live in families where men are working and women take care of children in an above-average proportion. Individual data also allows re-visiting the role of economic incentive in mobility, taking both characteristics of the sending and the receiving settlement into consideration. Results show similar qualitative properties as the aggregate case, underlining the important part that labour market opportunities play. Opposed to the aggregate findings, these effects prove to be stronger and _ along with individual characteristics _ capable to generate the observed heterogeneity. The difference between the two estimates can be explained by the effect of aggregation. The results are robust to a number of scrutinies. They also show that although there are a large number of movers whose behaviour can be captured by the underlying simple model, this is not true for the suburban dwellers whose importance is increasing.

The results do not suggest a high propensity to migrate over longer distances or internationally. Differences in economic opportunities in Hungary did not have a strong effect on the migration behaviour. The mobility of Hungarian workers, it seems, is influenced by adherence to certain lifestyles, which seems to be a driving force of suburbanisation.

The second paper studying interregional mobility reflects on the role of labour market institutions for the migration behaviour and which consequences this has for regional growth and the regional income distribution (Faini 2003).

The study starts out from the puzzle that there is very little mobility in Europe given the high level of interregional income differences. In 2000, the latest year for which a fully comparable set of data is available, income per capita – in purchasing power standards - in Inner London was approximately two and half times larger than the EU-15 average. Conversely, GDP per head in the Greek region of Ipeiros was less than 50 percent of the European value. Disparities are somewhat less pronounced at the national level, but far from negligible. Even if we neglect Luxembourg, income per capita ranges from 119 per cent of the EU average in Denmark to around 68 percent in Portugal and Greece. These large, and sometimes persistent, gaps in GDP per person reflect both differences in productivity and in labour market performance. National unemployment rates cover a broad range from 13.1 percent in Spain to 2.3 percent in the Netherlands. At the regional level the gap is substantially wider, from 24.8 in Calabria in Italy to 1.2 percent in Utrecht in the Netherlands. Perhaps more disturbingly, in Europe high unemployment regions tend to coincide with low income per capita regions. Poverty and unemployment become two faces of the same coin.

One would expect these large differentials in income and employment conditions to foster substantial migratory flow from low income and high unemployment regions toward high income and low unemployment regions. They do not. With the exception of the UK, internal migration flows represent a much smaller share of resident population than in the US, despite the much greater variability in the income and employment outcomes in Europe.

Would greater mobility among European regions foster convergence? Should policy therefore act to encourage migration within Europe? These are some of the questions that I

intend to investigate in this paper[1]. Surprisingly enough, the role of migration in favouring convergence does not seem to be a major priority for European policymakers. The European Commission second progress Report on Economic and Social Cohesion lists a broad set of factors that hamper cohesion, but fails to mention the lack of mobility among them. Similarly, the sixth periodic Report on the Social and Economic Situation and Developments of the Regions in the EU notes – in a text box – that migration may be associated with faster convergence, but then does not pursue the issue any further. Only the demographic implications of migration are considered.

The theoretical analysis of the paper builds upon the seminal article by Blanchard and Katz (1992), assuming constant returns to scale and short-run immobility of capital and labour between regions. With a shock to regional production and no factor mobility there is no equilibrating mechanism and the region will fall behind the rest of the country. The outcome is one of regional stagnation. Even if capital is mobile but labour is not and wages are rigid, the new equilibrium will feature unemployment. Wage rigidity will also limit the inflow of capital into that region.

In this perspective factor mobility and labour market flexibility play a key role in determining the final outcome of regional incomes. With nominal wage rigidity, a regional shock will lead to unemployment, prompting mobile workers to migrate. If labour is immobile, regional unemployment will tend to persist. Blanchard and Katz argue that the first pattern fits the US case, while in Europe the lack of labour mobility is associated with high unemployment persistence. The issue does not arise at the regional level. The adoption of a common currency in 12 European countries means that exchange rate fluctuations can no longer be used to cushion national economies from the impact of idiosyncratic shocks. Given restrictions on exchange rate movements, in the absence of both labour mobility and wage flexibility, unemployment may then tend to be quite persistent at the national level as well.

Table 1 provides further evidence that mobility is substantially lower in the EU than in other OECD countries. The data must be treated with some caution given that regional entities are not typically comparable across countries. Still, they show that, with the exception of the UK, the conventional wisdom of a limited mobility in Europe happens, as it often does, to be true. The most striking facts are the low mobility and the limited regional wage dispersion in countries such as Italy and Belgium – and also to a lesser extent in Germany and Spain – despite the very pronounced disparities in regional unemployment. Once again, this finding highlights the crucial role of labour market conditions in affecting the regional outcome.

Table 1: Regional wage dispersion and mobility in selected OECD countries

	Coefficient of variation of regional hourly earnings 1995	Gross internal migration (share of population)	Coefficient of variation of regional unemployment
Belgium	8.0	1.27	49
Germany	13.7	1.24	48
Spain	11.7	0.60	35
France	18.4	1.49	22
Italy	9.4	0.50	68
Netherlands	4.9	1.61	24
Portugal	19.5	0.54	30
Sweden	19.3	1.61	21
UK	19.3	2.30	43
US	16.7	2.22	24

For the purpose of this paper, the central question is whether greater mobility is associated with convergence. We speak about association, knowing too well that causation could run both ways. While, as predicted by the standard growth model, factor mobility should boost the speed of the convergence process, it could well be that regions that suffer from poor growth performance will be characterized by large outward migration. In the latter case, however, the relationship would be negatively signed. A finding of a positive and significant relationship could then be safely interpreted as indicating that the causality runs from factor mobility to convergence.

In what follows we use two different measures of mobility: the rate of net outward migration and the total migration turnover, both as a ratio to the regional population. The second indicator is meant to capture the positive income effects that a significant two-way flow of workers with other regions may entail. We focus on four countries – Italy, Germany, Spain, and the UK – that exhibit significant regional disparities and ask whether mobility and convergence are positively correlated. Table 2 reports some descriptive evidence. Again we distinguish four different cases: a) regions that are initially relatively poor and grow at a faster rate than the EU, b) regions that are initially relatively rich and grow at a slower pace than the EU, c) regions that are initially relatively poor and grow at a slower pace than the EU, d) regions that are initially relatively rich and grow at a faster rate than the EU. The first two groups can be said to exhibit convergence, the other two do not. For each of these four cases, we show in Table 2 the median[7] value of our two mobility indicators for the eighties and for the nineties.

An important result for FLOWENLA is the result that if labour market distortions are not tackled by economic policy, mobility is not an unmitigated blessing. Indeed, in the presence of widespread labour market distortions, greater factor mobility may worsen the income and employment plights of relatively poor regions and income groups. However, as already underscored in the text, this finding must not be taken – by no means – to imply that the removal of the barriers to factor mobility should not be a priority on the agenda of policy-makers. Quite the opposite; our results underscore the need to tackle at the same time both the obstacles to mobility and the most severe distortions in the labour market.

Table 2: Convergence patterns and mobility indicators (median values)

	Convergent and poor	Convergent and rich	Divergent and poor
Net emigration rate 1980	0.19	-0.78	-0.97
Net emigration rate 1990	-0.19	-0.56	0.38
Migration turnover 1980	11.6	12.6	10.8
Migration turnover 1990	14.2	13.8	11.4

Remittances and return migration

To complete the analysis of the effects of migration a paper of the University of Surrey studies the effects of migration on the home labour market. (Drinkwater et al. 2003) For this reason, the relationship between migration and development in the sending economies required a more detailed analysis. The most obvious effect that migration from Less Developed Countries (LDC) should have on the labour market in the home economy is that, in itself, migration should lower the unemployment rate by reducing the supply of labour. However, the relationship between migration and the labour market in the labour exporting country is far more complex than this. For instance, given that it is often the most skilled individuals who migrate, a brain drain could negatively affect the labour market of the labour exporting country, although more recent studies argue that the brain drain need not harm LDCs.

For example, Stark et al. (1998) examine the notion that the gains from prospective migration may increase the human capital levels in the source country. They show how a positive employment probability in the host country provides an incentive to increase human capital formation because of higher returns to human capital overseas. Domingues Dos Santos et al. (2000) also suggest that migration can improve the efficiency of the home country's labour market since migrants can diffuse back the knowledge they have obtained overseas and return migrants will bring both physical and human capital back with them. The analysis in the framework of FLOWENLA mainly focussed on literature on the effect that remittances have on the labour market in the home country. From a theoretical perspective, Djajic (1986) showed that stayers may benefit from migration if migrants send a sufficiently large amount of remittances back home. In addition to this positive perspective of migration, there may be other effects (since a central feature of our model is the dual use of remittances and its effect on the home labour market).

The empirical literature, by contrast focussed on different phenomena. First remittances from migrants to their families increase consumption demand in the home economy. Return migrants spend their extra income in durable and non durable goods. At the same time, part of this remittance flows can be used in a productive way through direct investment in a project or through savings channelled by the banking system. (Straubhaar 1986) Funkhauser (1992) notes that migration and remittances can have two effects on participation decisions on the home country's labour market. The loss of the migrant worker may mean that other household members, in particular females, enter the labour market.

However, the receipt of remittances could reduce participation rates because of the income effect. He further suggests that high levels of remittance flows into local labour markets may increase aggregate demand and hence the demand for labour. To test each of these influences, he used cross section data on individuals from El Salvador to estimate a labour force participation equation which includes whether a household member is a migrant and the predicted amount that households receive in remittances as explanatory variables.

He found that having a household member abroad has a negative and significant effect on the participation decision of males and a negative but an insignificant effect on the participation decision of females. Furthermore, remittances have a negative and significant influence on the labour force participation of both males and females. However, the coefficient on the migrant in the household variable becomes positive in the participation equations for both males and females when the predicted level of remittances is also included. To proxy the effects of migrants on the local labour market, Funkhauser (1992) added the proportion of migrants from the local labour market. He does not find that this variable exerts a significant influence on participation rates. He concludes that for males, the negative income effect from remittances dominates all other effects but for females the positive but small effect of the local labour market is enough to outweigh the negative remittance effect. Leon-Ledesma and Piracha (2001) adopt a positive view of the relationship between migration and development by modelling the effects of short term migration on labour productivity. Remittances can be channelled into investments and increase productivity in the home economy. The authors study the impact of migration and remittances on employment performance of Central and Eastern European countries (CEECs). They claim that most of the CEECs migration is temporary and that the main sources of the migrant' savings from overseas are used productively in the home country. Their study is mainly an analysis of the effects of return migration on the home country and their focus is on the contribution of return migration on investment and skill acquisition. This is captured by a term which measures the average product of labour.

Drinkwater et al. (2003) add a new dimension to the research by basing the work on the effects of remittances on an expansion of the search theoretic model of the labour market. The model developed by the group of the University of Surrey makes use of Pissarides' basic model with capital and perfect capital markets and the result that the standard unemployment model (Pissarides 2000) is unaffected by the introduction of capital. Firms choose the optimal level of investments and the introduction of new savings in the economy does not have any effect on the output produced by each firm. On the other hand, the introduction of credit-constraints generates new effects and creates a link between the literatures on matching theory and on the effects of remittances on labour exporting counties.

Migration with remittances has two opposite effects on the unemployment rate: (1) It increases the search income and the unemployment rate rises. (2) It relaxes the credit constraint facing firms, raising the capital stock towards its optimal level and reducing the unemployment rate. When remittance income is sufficiently high, the optimal capital stock is reached and any further increase only has effect (1). The condition for (2) to outweigh (1) is given if domestic unemployment income is independent of the wage rate, and this is less likely to hold if the credit constraint is severe and/or total factor productivity is high and/or domestic unemployment support is low.

To further examine the relationship between remittances and the effect they have on relaxing credit constraints, Table 3 reports estimates for two different investment series. These three series are Private Investment and Gross Domestic Investment. Two specifications are estimated for each of the dependent variables, one which includes remittances and the other control variable, the real interest rate, in levels and a second where the lagged values of these variables are included.

Table 3: Fixed Effects Estimates of Investment in Developing Countries

	Private Investment		Gross Domestic Investment	
	1	2	1	2
r_{it}	0.342	0.619	1.291	1.470
	(2.20)	(2.44)	(9.54)	(5.69)
r_{it-1}	-	-0.443	-	-0.177
		(1.71)		(0.66)
i_{it}	-0.058	-0.083	-0.076	-0.078
	(2.28)	(2.48)	(2.87)	(2.50)
i_{it-1}	-	-0.023	-	-0.038
		(0.85)		(1.41)
Constant	14.581	14.225	19.322	19.694
	(13.97)	(15.65)	(31.58)	(28.27)
R^2	0.010	0.005	0.253	0.253
NT	168	152	250	231
N	16	15	18	18

To summarize, it was shown that remittances have two opposing effects on unemployment in the labour exporting country. Firstly, unemployment could increase if remittances are seen by their recipients as providing some sort of welfare payment. Secondly, remittances could reduce credit constraints in developing economies and hence encourage firms to increase their investment levels. The overall effect on unemployment will depend on which of these effects dominates. The relationship between remittances and unemployment was tested using data from a panel of developing economies. It was found that remittances have a small negative effect on unemployment but this is not significant, thus suggesting that the investment and search income effects of remittances more or less cancel each other out. The effect of remittances on investment was also tested econometrically and the results indicate the investment effect receives strong empirical support.

Consequences of the CAP on the labour market effects of the enlargement

The Centre for Economic Policy Studies covered the issues concerning the particular labour market effects that will result from the Common Agricultural Policy for the labour market effects of the enlargement. (Schneider 2003) Background of the study of the effects is the current massive reduction of the agricultural labour force in the CEECs.

Accession to the EU may slow down the shedding of labour from agriculture because of the inflow of subsidies. On the other hand, further movement of employment out of agriculture will result from the need to restructure and increase productivity in agriculture, as well as the increase in job opportunities in the rest of the economy with growth in other sectors. The latter is expected to be reinforced with enlargernent. It was shown that the impact on labour allocation, including exiting farming, is not severely affected by a change of a policy which is geared towards reduced support. That means that farmers are still covering some of their fixed costs with the direct support and hence they do not move out of agriculture. Translated towards the CEECs, by being used to lower and unsupported income, the transfer of direct support income, as promised with the Agenda 2000, is expected to prevent massive labour exiting the agricultural sector.

In both Spain and Portugal the outflow of labour from agriculture increased after their accession to the EU (see Table 4). In fact, the average annual rate of reduction in labour employment in both countries was around one per cent larger in the ten years after accession (between three per cent and four per cent annually on average) than in the five years before. Over the last decade, labour reduction in these countries is somewhat less (around 2 per cent) than in the rest of the EU-15 (average -3.2 per cent). Under the AC-8 scenario , one can expect that between 800,000 and 1.7 million workers will leave agriculture in the countries that join the EU in the next decade. The extent to which this outflow will contribute to migration to the EU-15 after accession depends on several factors. Several of these factors suggest that the impact will probably be small.

Table 4: Average annual employment change in EU agriculture (in per cent)

	Spain	Portugal	Greece	ex-DDR	EU-15
5 years before accession	-3,1	-2,0	na.	na.	
1-5years after accession	-3,9	-3,2	-1,0	-15,8	
5-10 years after accession	-3,9	-1,1	-4,7	-5,2	
1-10 years after accession	-4,1	-2,8	-2,8	na.	
1991-1998	-2,1	-2,0	-0,9	**..122	-3,2

Source: Eurostat

First, a significant share of the outflow is the large number of older people currently still employed in agriculture and who will retire over the next decade. Second, a significant amount of workers will leave agriculture for jobs in other sectors as economic growth continues and even increases with enlargement. Under the optimistic scenario, this reallocation will be twice as strong. It can be expected that the higher skilled workers currently still employed in agriculture will move proportionally more to jobs in other

sectors. Third, incentives for migration will be larger for those who are laid off by restructuring farms and cannot find other employment, or for those who remain inefficiently employed on farms.

However, those who cannot find employment in growing sectors are older and less skilled workers; a disproportionate share of both groups is employed in agriculture. However, the same factors which constrains them finding jobs in other sectors also limits their incentives and constrains opportunities for migration to the EU15. As is explained, mostly better educated workers and the better off tend to migrate to the EU-15 because of investment costs associated with migration. This suggests that other workers are rather immobile and do not tend to migrate to other regions within the CEECs where jobs are available.

In conclusion, a large share of the future outflow of agricultural labour concerns retirements and higher skilled workers moving to better jobs. Those are unlikely to migrate to the West. The people with most incentives are those which are either unemployed or inefficiently employed on farms; however they are constrained by low skills and mobility constraints. Hence, while rural (open or hidden) unemployment certainly provides incentives for migration, the factors causing it simultaneously constrain labour migration to the West. Future changes in CEEC (relative) productivity in agriculture will be determined by the same factors as in other sectors of the economy, such as improved access to capital and 17 technology, changes in management and company restructuring, changes in wages and other (local and imported) input costs and exchange rate developments. At this moment, agricultural productivity in CEECs is considerably lower than in the EU-15. CEEC agricultural productivity is expected to increase significantly, especially for those countries that become part of the EU both because of the economic conditions that will have been fulfilled and because of the improved access to capital, technology, etc., which results from enlargement. However, there is no consensus about the extent to which these productivity increases will emerge in the next decade.

Empirically, one can already observe significant productivity increases in some of the CEECs since the mid 1990s (e.g. in sugar beet and milk production). However this seems less the case in the two large countries, Poland and Romania, both with a large share of agricultural employment, are also largely characterised by unfavourable production structures. Around eighty per cent of Polish land and most Romanian land is used by (very) small-scale *family* farms. Empirical evidence indicates that these small-scale family farms have not been conducive to rapid restructuring and productivity growth over the past years. They are characterised by hidden unemployment, low skills, difficult access to input and inefficient scales in imperfect market conditions. Given the large share of total CEEC-10 agricultural inputs (land and labour) employment by these farms, this will be an important additional constraint on future productivity and output growth for the CEEC-10. Looking at the impact of southern enlargement (Greece, Portugal, Spain) on productivity and input use we find that there was no fast reduction in the productivity gap either before or in the first years after accession in some of the most protected commodities (wheat, barley, milk, wine). For some of these products the productivity gap with the EU average has not reduced and has even increased further. While one should be careful with this comparison, it does suggest that one should not necessarily expect a quick catch-up in productivity to emerge with accession or in the five years afterwards.

As described above, the impact of enlargement on agricultural labour migration is not seen to be large. With this in mind, one has to look at the implications this may have for policies. In terms of agriculture, CAP reform with its extension of direct farm support to the CEECs as well as the emphasis for greater Rural Development payments, has addressed income, productivity and efficiency problems. Therefore, it is expected that the CAP will translate into the migratory problem out of agriculture by providing greater income support. Evidence of this is given by Hvorka (1992), where he described how a support payment being made to Austrian mountainous farmers slowed down significantly the exiting of farmers in those regions. The extension of EU subsidies via the CAP to CEECs, is expected to slow down significantly the migration of agricultural labour. Income support will help smaller farms in the transition period and hence many farmers will stay in agricultural, at least temporarily. In addition, the emphasis agreed under the mid-term review of the Agenda 2000 to strengthen the Rural Development aspect of the CAP will further assure that levels of out-migration is kept low. Another aspect addressed in this study was, how the enlargement process impacts on productivity, bearing the potential outflow of agricultural labour. Productivity in the CEEC agri-food sector is expected to improve over the next decade and in combination with the removal of trade barriers to increase competition for EU farms.

However, so far the removal of trade barriers has led to a dramatic increase in net agri-food exports from the EU to CEECs. Given the importance of hygiene and quality requirements for agri-food products this development may continue although accession should reduce differences. In summary, the effects of enlargement in agriculture will have little impact on overall EU-15 growth since agriculture accounts for a small share in GDP and employment. Another aspect addressed in this study was, how the enlargement process impacts on productivity, bearing the potential outflow of agricultural labour. Productivity in the CEEC agri-food sector is expected to improve over the next decade and in combination with the removal of trade barriers to increase competition for EU farms.

2.2.4 Migration and endogenous policy choice

Distortionary effects of social assistance differences

Also contributed by the CESPRI research group from Bocconi University was a study on the impact the existing differences in national welfare systems would have on the migration decisions and what the welfare economic consequences would be would, to avoid a race to the bottom of social policy, the EU countries agree to the social policy of providing a harmonized Minimum Income. (De Giorgio and Pellizari 2003)

Based on Borjas' model of migration decisions they use the data of the European Community Household Panel (ECHP) for an empirical analysis of migration behaviour. They identified differential effects for migrants from Eastern European countries by interacting the measures of welfare generosity with 2 dummies, one which takes value 1 if the migrant comes from Eastern Europe and one which takes value 1 in all other cases. The results suggested that migrants from Eastern Europe seem to be less sensitive to the generosity of welfare and much more attracted by countries with good economic conditions. In fact, the effect of the unemployment rate is negative and large for this group

of migrants compared to a marginally (at the 10 per cent level) significant positive effect for all other migrants. Eastern European citizens are also 5 times more sensitive to real wages, thus moving into countries that guarantee the best earning opportunities (which are also likely to be those with lower unemployment). On the other hand, the generosity of the unemployment benefit and the social assistance systems is found to have a positive effect on the decision to migrate for all migrants but those from Eastern Europe. For this latter group the effect of social assistance is not significant and that of the unemployment benefit is oddly positive but only marginally significant. The same estimates were replicated excluding migrants from inside the EU, thus comparing migrants from Eastern Europe to all other migrants from outside the Union. The results were similar. While it is not to be expected that there will be a strong orientation of migrants towards the welfare benefits offered by potential destination countries, there remains the problem that generous social assistance has the potential to distort migration flows in the sense that migrants might accept high probabilities of unemployment in anticipating high levels of support. With downward rigidity of wages generous social welfare systems might not be sustainable when confronted with induced migrations flows. Without coordination this fact could lead to a "race to the bottom" of dismantling welfare support to avoid an excessive inflow of migrants.

A way out of such a dilemma is the harmonization of welfare systems across the European Countries, like discussed by De Giorgio and Pellizari, based on an agreed minimum income in purchasing power parity terms. The FLOWENLA research looked into the benefits and costs of such a system, considering a number of financing options. These options are lump-sum taxes or proportional taxes, either as a country specific tax or as a harmonized European tax. Table 5 shows the results, in terms of the winners and losers of such a harmonized minimum income scheme.

Table 5: Winners and losers of a harmonized EU minimum income scheme

	Winners and Losers					
	Lump Sum Regime			*Proportional Regime*		
Country	MI=300	MI=608.5	MI=1000	MI=300	MI=608.5	MI=1000
Denmark	L(10)	L(12)	L(14)	L(13)	L(14)	L(14)
Netherlands	W(7)	L(11)	L(11)	W(8)	L(9)	L(9)
Belgium	L(9)	L(10)	L(10)	L(10)	L(11)	L(11)
France	L(11)	L(9)	L(9)	L(11)	L(10)	L(10)
Ireland	W(1)	W(3)	W(5)	W(3)	W(5)	W(6)
Italy	L(13)	L(8)	W(7)	L(9)	W(7)	W(7)
Greece	W(8)	W(4)	W(2)	W(6)	W(2)	W(2)
Spain	W(5)	W(2)	W(3)	W(4)	W(3)	W(3)
Portugal	W(4)	W(1)	W(1)	W(2)	W(1)	W(1)
Austria	L(14)	L(13)	L(12)	L(14)	L(13)	L(13)
Finland	W(2)	W(5)	W(4)	W(1)	W(4)	W(4)
Sweden	W(3)	W(6)	W(6)	W(5)	W(6)	W(5)
Germany	L(12)	L(14)	L(13)	L(12)	L(12)	L(12)
Luxembourg	L(15)	L(15)	L(15)	L(15)	L(15)	L(15)
United Kingdom	W(6)	W(7)	W(8)	W(7)	W(8)	L(7)

Note: W-winner, L-loser. Between brackets country rank by column based on annual gain per household (PPP). (1) First of the winners, (15) Last of the losers.

The table shows who benefits (W) and who looses (L) from such a system, given the different levels of the minimum income in terms of PPP Euros, and according to the financing option. It also shows that quite independent of the option considered some

countries will always belong to the group of the implementation of such a scheme, indicating the prospective political difficulties to implement such a system.

Managed immigration by bilateral agreements

The Hungarian Academy of Sciences contributed a study of the managed migration between Hungary and a number of Western European countries. (Hars 2003) The study shows that the bilateral agreements have successfully managed to channel migration flows between Hungary and mainly Germany and Austria. It also shows that the bilateral agreements reflect the intention of the host countries to contain the number of permanent migrants.

Migration under bilateral agreements is a special frame to stimulate the desired labour migration. The paper is based on the experiences of bilateral labour programmes between Hungary and the countries of the European Union which are of increasing importance in the accession process. The hardly known labour migration under these programmes was discussed in depths and the effects of this way of channelling and controlling labour migration were thoroughly discussed.

East-to-West migration became a major issue following the political and economic changes of the late 1980s and early 1990s in countries of Central and Eastern Europe. After the first signs of considerable emigration from the previously communist region, countries of Western Europe soon enacted restrictive regulations. The arguments were mostly connected with the increasing unemployment and the burden of migrants onto the welfare system of the welfare states.

Most of the previous work on East – West migration had been based on the implicit assumption that migration is traditional *long-term or permanent migration*. However, the importance of new types of migration is well known and described in details. Contrary to earlier experience, East-West migration of the 1990s assumed a new feature: economic migrants and commuters move spontaneously to countries of the European Union *for limited periods* (Wallace et. al., 1996; Czakó-Sik, 1999; Iglicka, 1999).

Focussing on the Hungarian - European Union bilateral agreements, Germany has been the main receiving country of the participants in the frame of bilateral agreements from Central and Eastern-European countries, while the main sending country has been Poland. Other actors (countries) are also interested in the schemes, in much smaller share, however. Nearly 85 percent of the annually employed temporary migrants were seasonal worker, around 13 percent project tied worker, and the share of participants in other programmes was negligible in Germany, less than 5 percent all together .[1]. The programme for seasonal workers was the programme where the largest number of Hungarians was involved. The share of Hungarians among seasonal worker in Germany is rather marginal, although the share of seasonal workers, as will be shown later, is considerable among the total number of Hungarians working abroad in various programmes.

[1] Data refer to the year of 1998, based on Federal Employment Service data (cp. Boeri - Brücker 2000, table 5.5)

Most of the programmes, especially the guest-worker type trainee programmes, are reciprocal; citizens of both countries have the right to work in the corresponding country. In practice, however, the agreements work asymmetric and offer employment abroad for Central and Eastern European (Hungarian) citizens.[1] The *project-tied employment* is, by it's principle, a service, where a foreign (German) employer enters into contract with a Hungarian subcontractor to carry out a temporary project with the subcontractor's workers. From the point of view of migration the project-tied work is, however, a sort of guest-work (cp. Faist et al 1999, Hárs 1999). Some of the bilateral employment programmes are limited by *quotas and* face to additional restrictions concerning conditions of the employment while others, in particularly the seasonal worker programmes are not. Table 6 gives an overview on various requirements a participant should meet when entering into the given programme.

Table 6: Employment programme requirements based on bilateral agreements

Type of program	Upper age limit (years)	Qualification required	Language knowledge required	Former employment in the destination country as exclusion from the program	Support in finding employment
Trainees					
in Switzerland	30	2.2.4.1 required	2.2.4.2 exam required	yes	no, except hotel and catering
in Austria	35	Required, but also previous experience is satisfactory	2.2.4.3 exam required	yes	no
in Germany	40	required, except hotel and catering, where previous experience is satisfactory	2.2.4.4 exam required	yes	yes
Seasonal workers					
in Germany	no	not required	knowledge is necessary but no exam	no	yes
in Austria	no	not required	?	no	no
Frontaliers					
in Austria	no	not required	?	no	no
Project-tied employment					
in Germany	no	required, special exam	not required	yes (max of 2 years)	Hungarian firm is the employer

Source: Author's calculations based on Hungarian National Labour Market Centre information

Regulations and external limits control the selection of participants of the bilateral migration programmes. The applicants for various *trainee programmes* are limited by age (40 in Germany, 35 in Austria 30 in Switzerland), qualification and language knowledge is required. Beyond that, former employment in the receiving country excludes the applicants from the next labour scheme in the given country. Most of the programmes are confined to some industries and professions while exclude others or the group of employment desired is specified. Quotas, age ceilings, skill requirements, etc. limit some programmes and the

[1] Other agreements that were signed with the neighbouring countries and serve mostly for employment of Slovaks or Romanians in Hungary will not be discussed here.

quotas can not be filled up. Other programmes have no limit at all. S*easonal work programmes* are designed, by nature, for short-term unskilled additional labour. Seasonal work programmes in Germany are restricted to agriculture, hotel and restaurant industry and some more specific unskilled activities. The scheme is unlimited, however, in number: there is no quota to maximise the number of participants, neither age nor skills limit would tighten the supply. The short-time employment of 3-6 months can be repeated in the following year. The *frontalier employment to Austria* is restricted to the borderline regions. The programme has been designed basically to agricultural work and that in the hotel and restaurant industry.

Table 7 gives estimates on the number of Hungarians working abroad in various programmes of bilateral agreements.. Quota can be considered as demand for a type of foreign labour corresponding to the given programme. According to data it can be estimated that around 15 thousand persons are employed in various schemes in one year. Actual number of persons in programme can be considered, on the other hand, as labour supply for the programme in case the number of persons is less then the quota or there is no quota at all.

Table 7: Quotas and actual participants in bilateral programmes

Type of program	**quota**	**duration**	**actual number of persons**
Trainees			
In Switzerland	100	1-1.5 year	less than 100
In Austria	900	0.5-1.5 5year	900
In Germany	2000	1-1.5 5year	around 1000
Seasonal workers			
In Germany	no	3 month	about 4500
In Austria	no	6 month	(estimated 500)
Frontaliers			
Frontaliers in Austria	1200	6 month	around 1200
Project-tied employment			
In Germany	about 4-5000	maximum 1.5-2 years	around 7000
Together (estimated)			over 15000

Source: Author's calculations based on Hungarian National Labour Market Centre information

The results on the bilateral agreements of Hungary shows that they allow host countries to effectively control the inflow and the length of the stay of migrants. All of them seem to respond to specific needs of the host countries' employers. From a quantitative point of view the seasonal labour programmes are by far the most important, the by far largest movement of workers being the seasonal labour supply of Polish workers to Germany. The cross-border commuter programme was the next important programme. A major part of the cross-border commuting labour supply is, however, likely to be converted into cross border trade of services which does not underlie restriction after enlargement.

The labour market effects of the current programmes are therefore non existing, because immigrant labour works in sub-sectors where employers find it difficult to find domestic labour supply at all as in the case of seasonal labour, or they will be weak due to the small number of participants that is allowed to immigrate. Stronger effects could result in the border regions, due to the liberalisation of the trade in services.

Bilateral agreements could, however, become more important in the future. The host countries will try to allow immigration to respond to specific labour shortages, which might be transitory, or to avoid an upward wage drift for certain professions. Past attempts to achieve the latter objective, like with the German Green Card programme, have proven to be ineffective.

In a more general sense the bilateral agreements on temporary migration, or more subtle measures like taxes or subsidies for certain professions and sectors to influence their labour market performance, imply the tendency of a competition between the potential host countries. Like other examples of cream skimming, such a competition can lead to a distortionary fiscal measures which can only be avoided by multilateral cooperation.

3 Conclusions and policy implication

The results of FLOWENLA provide a rich picture of the labour market and growth effects of the expected migration flows associated with the liberalization of the movements of workers

The theoretical part of the network's output is subdivided into a short-run and a long-run analysis of the adjustment processes induced by the enlargement process, that both inform on the potential policy problems that might arise from the migration flows that will be associated with the changes of trade patterns and foreign direct investment flows.

Conclusions of the theoretical analysis of short-run effects

The short-run analysis does not give rise to the expectation of massive migration streams. At the heart of the short-run analysis lies the dynamics of the process of technological catching up. the catching up is driven by the perceived relative ease with which movements to the technology frontier can be achieved compared to movements of the frontier. The catching up processes are proceeding with constant speeds (called the "weak Gerschenkron effect" reminiscent of the work of the economic historian Gerschenkron on convergence processes) or with accelerating speed ("strong Gerschenkron effect"). the catching up is measured by increasing labour productivities in the laggard countries for all of the skill groups of workers as a function of the distance to the labour productivities of the technologically leading countries.

The fact that during the catching up process the dynamics of (downward) price dynamics and (upward) wage dynamics lags behind the productivity developments leads to transitory rents on the technological advancement which drive capital accumulation and foreign direct investment flows, providing the foundation for the convergence process, or, in the case of a strong Gerschenkron effect, of a switchover in technological leadership.

This picture is complemented by the empirical research showing the convergence of the trade structures of Eastern and Western European countries. Such a move from inter-industry trade to (more intensive) intra-industry trade should reflect a convergence of relative costs and relative factor prices in both country groups.

Given the restrictions on migration up to the year 2010, catching up processes may reduce average income differentials, and differences in relative factor prices. As a consequence, incentives to migrate may be weaker by the time of the liberalisation of the movements of workers.

The theoretical analysis of the short-run adjustment processes in production, labour markets and trade suggest that the short-run dynamics of economic development in the CEECs will reduce the migration potential that might be expected given current differences in technologies used and relative factor prices. Expected technological catching up processes will reduce differences in absolute income levels and in relative wage levels. By the time the restrictions on the free movement of workers will be lifted wage differentials for the individual skill groups may be sufficiently reduced to lead to relatively small migration

flows and to a much smaller skill bias than is expected on the basis of a mere extrapolation of the current situation.

Conclusions of the theoretical analysis of long-run effects

The theoretical analysis of the long-run effects of the enlargement and migration shows that the long-run effects of the migration flows might differ substantially from the short-run forecasts.

The long-run is distinguished from the short-run by its focus on the impact the development of the research and development sector has on the development of regions, nations, or groups of countries. Central to this impact is the fact that the output of the R&D sector is an input to the performance of other economic sectors, that is not used up when employed in the production process. The knowledge stock produced by this sector is rather the basis of future extensions of technical and organisational knowledge. The higher the share of the research sector the higher will be the long run growth rate due to the positive effect of the knowledge stock on the capacity to produce innovations.

As is shown by the research of FLOWENLA, the realisation of a positive immigration surplus, which includes the surplus obtained from fostering the growth effects for the group of countries, depends on removal of the migration barriers. There is however, a possible trade off between the growth objectives and objectives related to the distribution of incomes in two respects:

An unequal distribution of research activities across countries or regions has first the potential to lead to an unequal distribution of development performance in a geographic sense. Second, as the R&D sector is the most skill intensive one, a geographic concentration of research would lead to strong immigration of skilled workers, leading to potentially negative consequences for the source regions. As this will lead to a reduction of relative wages of the skilled workers in the host region the immigration of skilled labour might lead to a more equal income distribution among workers. As it also leads to an increase of the interest rate it can imply a more unequal income distribution between workers and capital owners.

Depending on income distribution objectives of EU member countries, fiscal redistribution schemes to achieve a secondary income distribution that differs from the primary income distribution could be conducive to realising the full potential of growth for the union of countries.

To a large extent the above facts will also depend on the portability of the skills of the potential migrants. At least in a situation where substantial differences in the general technologies used in the individual economies exist, the transferability of formal skills and work experiences seems to be less than perfect. The theoretical work has shown highlighted the importance of capital market imperfections and the importance of labour market institutions for the adaptation of skilled migrants to the work environment of the host country. Depending on the wealth, or the credit demand of migrants, the supply of finance for training and education provided by capital markets and the distribution of the surplus of labour relations between employers and workers, government support may be required to

facilitate the integration of skilled workers to realise their productivity potential in the R&D sector. As the absence of such measures would effectively reduce incentives to migrate, they would also avoid inefficiently low rates of migration of skilled workers.

Conclusions of the empirical research

The empirical research provides new insights into the empirical patterns of interaction between international trade in goods, foreign direct investment flows and migration patterns as well as the direct implications of immigration and emigration on the labour markets and the growth paths of the source and the host countries.

More than leading to direct policy conclusions the results inform the predictions of the likely volume of worker mobility and its impact on the labour markets in different geographic regions and of different qualifications. In several respects the result support the expectation that the EU enlargement and the associated migration streams will not lead to disruptions of labour markets and dramatic changes to the growth paths seen so far. This overall result may be read as an indication that negative perceptions and expectations that play a prominent role in public debates are rather exaggerated.

The propensity to migrate

A number of contributions to FLOWENLA have tried to empirically analyse the willingness to migrate. Drinkwater (2002) is the most general paper as it uses cross national survey data to assess the willingness to move of individuals from several CEECs. The approach adopted in this paper emphasises the reasons why individuals may not want to move, for example because of high psychic cists of migration within a human capital framework. It is hypothesised that the costs of migration may outweigh the possible high rewards in the west for many individuals. The results suggest that the willingness to move varies considerably between the CEECs , with some countries displaying a relatively high willingness to move (e.g. Bulgaria) but others exhibiting a relatively low willingness to move (Latvians and Hungarians). These differences remain even after controlling for personal characteristics. Of these personal characteristic, it is interesting to note the important influence of education because it is found that the most highly qualified individuals have the highest willingness to move. Many studies on the macro economic influences on the willingness to move proceed from the hypothesis that per capita income differentials and differences in unemployment rates will dominate the migration decisions. While it was impossible to falsify these hypotheses, the effects turned out to be statistically insignificant. A positive effect on the willingness to migrate had the previous migration of compatriots. That is, the results suggest that network effects are important.

The study of Cseres-Gergely (2003) on residential relocation in Hungary found that the most educated workers were also the most likely to move. using individual level data, it was found that residential amenities were a principal reason for relocation. Analysing the influence of wage differentials on migration decisions it was shown that they had a significant but very weak influence on the internal migration behaviour.

A general conclusion from the studies on migration attitudes is that the general propensity to migrate was low, that in particular differences in household income had surprisingly

weak effects. Among the different skill groups of workers skilled workers are clearly more willing to migrate than unskilled workers. If anything the results seem to suggest that general perceptions on the attitudes towards migration in the CEECs is overestimated. Given the labour market effects of the demographic developments of the Western European countries bilateral agreements may try to respond to specific skill shortages in the countries of the EU 15.

The effects of international trade on labour markets and migration

The results of the research group of Bocconi University suggests that the adjustments in the trade patterns between Western Europe and the CEECs have started early on and were largely finalised before the accession. According to the results of the study the adjustments in international trade flows should not cause serious disruptions of the labour markets. However, some sectors, like clothing, leather, wood, furniture and motor vehicles appear to have received rather negative impacts on their potential labour demand, although they do not seem to have incurred into actual job losses directly due to the bilateral trade flows.

In a situation characterised by widespread unemployment, this might imply a slower pace of recovery toward full employment in those negatively hit sectors. In the sectors which are negatively affected the blue collar workers seem to be affected more strongly than other skill groups. In contrast to what would be expected from the viewpoint of orthodox trade theory, the group that was most strongly affected is the group of skilled blue collar workers rather than the unskilled blue collar workers.

Although the overall effect on employment is likely to be small, the policy advocated is to require that the winners, i.e. consumers and winners in the export industries, should in some way compensate the losers. This could be accommodated in the structural funds program through temporary aid to workers and firms adversely affected by the trade developments. As the “losses” occur as unrealised expansion of employment the support should be less compensatory than forward looking, in the form of retraining programs, job search assistance and contributions to the costs of relocation. Training and education measures to increase the share of skilled white collar workers would, it seems from the empirical analysis, be less vulnerable with respect to the consequences of the integration process between East and West Europe.

The effects of foreign direct investment flows on labour markets and migration

FLOWENLA’s empirical research of the labour market and growth effects of foreign direct investments give new insights into what are dominant views on the effects of foreign direct investments. Access point to the impact of foreign direct investments were the study of the link between FDI and the wage level in Poland, Bulgaria and Romania by the study of the CESPRI at Bocconi University and of the study of the Hungarian labour market effects that were jointly conducted by the HWWA and the Economic Institute at the Hungarian Academy of Science.

The hypothesis of foreign owned firms paying higher wages was confirmed in all cases. Would foreign direct investment contribute to wage increases of local domestic firms as well, it could significantly substitute for migration. The potential channels of such a spill-

over could be the increase in overall labour demand resulting from the presence of foreign firms for the labour markets of the CEECs, the use of superior technologies by the foreign firms that is, after some learning process, adopted by local firms as well and the mobility of workers who have been trained by foreign firms transferring a higher labour productivity to the domestic firms.

However, the existence of such spillovers has not been confirmed by the empirical studies of FLOWENLA. Only in the case of Poland has there been an increase of the wage level of the local firms with the arrival of multinational firms, and has the differential between the local wage level and the wages paid by the foreign owned firms decreased. Whether economic policy could do something to support and increase the spillovers is a question that goes beyond the studies of the network. It is however, to be expected that an increased spread of technical knowledge and/or the increase of the numbers of workers trained by foreign firms moving on to local ones might negatively impact on the level of foreign direct investment. The higher wages paid by the foreign owned firms may reflect a mechanism to avoid the loss of internally trained work force to the local labour market.

Moreover, the detailed labour market data set of Hungary allowed showing that the firms which attracted foreign direct investment paid higher than average wages even before the increase of foreign equity. This result is interpreted as the foreign firms "picking winners" when deciding on investments. In other words, the firms that attract foreign direct investment employ already superior technologies and employ workers with above-average productivity before the changes in the ownership structure.

Without spillover-effects to the local labour market the extent to which foreign direct investment substitute for migration will be limited. If foreign direct investment would increase the general wage level, and be the vehicle of a broad technology transfer it would narrow the wage gap between the Western European countries and the CEECs. In the absence of technological spillovers the growth effects of foreign direct investments will also be limited.

Direct labour market and growth effects of migration

What the direct labour market and growth effects of migration is concerned two aspects were studied. A first study addressed the question whether immigrant workers have competed with domestic workers, reducing the probability of finding a new job and whether immigration has increased the displacement risk of the Italian workforce.

The analysis of the relationship between probability of finding a job and the presence of immigrants detected different effects for people looking for the first job and people looking for a new job. In the former case, for individuals without any job experience the negative effect is restricted to the first year and to medium educated natives, while the effect is positive in the most recent periods. For older and more experienced workers, who are looking for a new job, the presence of immigrants has either no effect or a complementary effect, especially for those who have a lower level of education

The share of immigrants employed seemed, in general, to have no effect on domestic workers' displacement risk up to 1995, with the exception of a complementary effect found

in 1994 in the services in the North and in 1995 in the South. A competitive effect is discernible for individual sectors, in the Italian case in particular for the construction sector in the North.

The relatively weak impact of immigration on the labour market in Italy, a result that confirms a broad literature on the US, does not suggest that no particular measures are necessary to protect the domestic workforce against the consequences are required in general. Particular problems for certain sector and regions may arise that should be accommodated by the general active labour market measures as discussed for the labour market effects of the adjustments in international trade.

That immigration might reduce the probability of finding a job for first time searchers is a surprising result. It might be interpreted as the high valuation of work experience by employers, regardless of the environment where this experience has been earned. To confirm such a hypothesis would require additional research. If it were confirmed, labour market policies should address the particular problems of youth unemployment which is a pressing labour market problem in Italy and elsewhere independent of immigration.

Where immigration impacts on unemployment, it indicates often more fundamental problems calling for labour market reform that go beyond the effects of immigration. One of the research papers of FLOWENLA shows evidence that the more flexible the labour markets the greater is the contribution of migration to regional coherence. Labour mobility can then serve the function to absorb regional production shocks.

A study conducted at the HWWA, based on a panel of data of individual migrants confirms the hypothesis that migration is associated with a devaluation of work experience and formal qualifications of the migrant workers. The results of the study show that there is an unsolved integration problem that concerns the financing of the adaptation to the new work environment. Whether the correction of capital market imperfections to finance training and education suffices depends on the supply of general, i.e. not firm specific, training. In the absence of an emerging supply of training and education courses that help the migrants to improve their labour market performance without being overly tied to their current employer support for training institutions might be required.

Important innovative results were obtained by FLOWENLA on the economic effects of remittances. It was shown that remittances have two opposing effects on unemployment in the labour exporting country. Firstly, unemployment could increase if remittances are seen by their recipients as providing some sort of welfare payment. Secondly, remittances could reduce credit constraints in developing economies and hence encourage firms to increase their investment levels. The overall effect on unemployment will depend on which of these effects dominates. The relationship between remittances and unemployment was tested using data from a panel of developing economies. It was found that remittances have a small negative effect on unemployment but this is not significant, thus suggesting that the investment and search income effects of remittances more or less cancel each other out. The effect of remittances on investment was also tested econometrically and the results indicate the investment effect receives strong empirical support.

Migration and endogenous policy choices

FLOWENLA studied two aspects of policies being induced by the prospective migration flows. The first one is a study of the hypothesis that migration streams are considerably influenced by the social assistance provided by potential host countries. It also studied the deeper question of how the members of the Union could coordinate if this is a serious distortion of the migration flows with the consequence of rendering the social security systems of member countries unsustainable.

While according to our results it is not to be expected that there will be a strong orientation of migrants towards the welfare benefits offered by potential destination countries, there remains the problem that generous social assistance has the potential to distort migration flows in the sense that migrants might accept high probabilities of unemployment in anticipating high levels of support. With downward rigidity of wages generous social welfare systems might not be sustainable when confronted with induced migrations flows. Without coordination this fact could lead to a "race to the bottom" of dismantling welfare support to avoid an excessive inflow of migrants.

A way out of such a dilemma is the harmonization of welfare systems across the European Countries, developed as part of the FLOWENLA activities, based on an agreed minimum income in purchasing power parity terms. The FLOWENLA research looked into the benefits and costs of such a system, considering a number of financing options. These options are lump-sum taxes or proportional taxes, either as a country specific tax or as a harmonized European tax.

It also shows that quite independent of the option considered some countries will always belong to the group of the implementation of such a scheme, indicating the prospective political difficulties to implement such a system.

The second aspect dealt with systems of managed migration, concretely with bilateral migration agreements Hungary has signed, the most important ones being with Germany and Austria. The labour market effects of the current programmes are so far very weak, because to a major extent immigrant labour is attracted in sub-sectors where employers find it difficult to find domestic labour supply at all as in the case of seasonal labour, or they will be weak due to the small number of participants that is allowed to immigrate. Stronger effects could result in the border regions, due to the liberalisation of the trade in services.

Bilateral agreements could, however, become more important in the future. The host countries will try to allow immigration to respond to specific labour shortages, which might be transitory, or to avoid an upward wage drift for certain professions. Past attempts to achieve the latter objective, like with the German Green Card programme, have proven to be ineffective.

In a more general sense the bilateral agreements on temporary migration or more subtle measures like taxes or subsidies for certain professions and sectors to influence their labour market performance, imply the tendency of a (wasteful) competition between the potential host countries. Like other examples of cream skimming, such a competition can lead to distortionary fiscal measures which can only be avoided by multilateral cooperation.

4 Dissemination and/or exploitation of results

The first instrument of dissemination of the results have been the conferences, organised as part of the project work. Three public workshops had been organised, the kickoff-meeting at the beginning of the project period and the last meeting in Hamburg were internal meetings.

1st Workshop on

EU Enlargement: The Impact of East-West Migration on Growth and Employment (FLOWENLA)

A CESPRI-HWWA workshop, Milan, 31 May - 1 June 2002

Programme

Friday, 31 May 2002

14.00 – 14.15 Welcoming address

Session 1 ***International Integration and Migration:***
Chair: Riccardo Faini (Italian Treasury and CSLA) TBC

14.15 – 15.00 **"The effect of immigration on native employment in Italy".**
Alessandra Venturini (University of Turin) Claudia Villosio (R&P,Torino)

15.00– 16.45 **Overall view on welfare and growth consequences:**
"Empirical Aspects of Migration and the Impact of Migration"
Stephen Drinkwater (University of Surrey)

"The Immigration Surplus Revisited"
Paul Levine (University of Surrey)

"Calibration Methodology"
Emanuela Lotti (University of Surrey)

"Total Factor Productivity Differences, Stages of Development ! and Protectionism"
Joe Pearlman (London Guildhall University)

"Growth, Migration and Trade in an Enlarged European Union
Paul Levine (University of Surrey)

16.45 – 17.15 coffee

Chair: Giovanni Graziani (University of Parma)

17.15 – 18.00 "**Spatial Distribution of Foreign Direct Investment and Its Impact on Regional Labour Markets in Hungary"**
Karoly Fazekas (Institute of Economics at the Hungarian Academy of Sciences, Budapest)

18.00 – 18.45 **"Transition Bursts: Market Potential and the Location Choices of Multinational Enterprises"**
Carlo Altomonte (Bocconi University)

Saturday, 1 June 2002

Session 3 ***International integration and the labour market***
Chair: Paul Levine (University of Surrey)

9.30 – 10.15 **"Modelling the dynamics of international integration, catching-up and labour market effects"**
Michael Landesmann (Vienna Institute of International Economic Studies)

10.15 – 11.00 **"Measuring the Effect of Gobalisation on Labour Demand Elasticity"**
Giovanni Bruno (Bocconi University), Anna Falzoni (University of Bergamo and CESPRI), Rodolfo Helg (Cattaneo University - LIUC and CESPRI)

11.00 – 11.30 Coffee

Session 4 ***International integration and intra-industry trade***
Chair: Fabrizio Onida (CESPRI, Bocconi University)

11.30 – 12.15 **"Intra-industry trade and adjustment costs between the EU countries and the CEECs"**
Anna Ferragina (University of Rome II)

12.15 – 13.00 **"A note on relative quality levels in trade between the EU and the candidate countries"**
Giovanni Graziani (University of Parma)

13.00 – 14.00 Lunch

Session 5 ***International integration and production fragmentation***
Chair: Michael Landesmann (WIIW)

14.00 – 14.45 **"International fragmentation of production, comparative advantage and growth in Europe"**
Salvatore Baldone, Fabio Sdogati and Lucia Tajoli (Politecnico di Milano)

14.45 –15.30 **"Foreign direct investments and wages in Central and Eastern Europe"**
Giulia Faggio (CEP, London School of Economics)

15.30 – 16.00 Coffee

16.00 Planning meetings and future work schedule

Organizers: Rodolfo Helg and Andreas Kopp

2nd FLOWENLA Workshop Vienna Institute for International Economic Studies

Programme

Friday, December 6

11.00 - 13.30	*Andreas Kopp, Michael Landesmann* **Introduction**	*HWWA, WIIW*
	Giovanni Graziani: **Implications for the EU labour market of trade relations with the CEECs**	*Universiti di Parma*
13.30 - 15.00	Lunch	
15.00 - 16.30	*Joe Pearlman, Paul Levine:* **Long-Term Growth without Scale Effects in an East-West Model of Migration**	*University of Surrey*
	Emanuela Lotti, **Labour Market Effects of Migration and Remittances**	
16.30 - 17.00	Coffee break	
17.00 - 18.30	*Andreas Kopp:* **Migration, assimilation costs and relative wages**	*HWWA*
	Anna Ferragina: **Factor inputs and labour skills in Italian trade with candidate countries**	*Universiti di Parma*
19.00	Welcome dinner	

Saturday, December 7

9.00 - 10.30	*Michael Landesmann, Robert Stehrer:* **A (nearly comprehensive) model of international integration and catching up** **Structural patterns of East-West European integration: strong and weak Gerschenkron effects**	*WIIW*
10.30 - 11.00	Coffee break	

11.00 - 13.30	*Laszlo Halpern, Karoly Fazekas, Zsombor Cseres-Gergely:* **Residential Mobility, Migration and economic incentives. The case of Hungary in 1990-1999** *Agnes Hars* **Channelled East-West labour migration in the frame of bilateral agreements**	*Hungarian Academy of Sciences*
13.30 - 15.00	Lunch	
15.00 - 16.30	*Rodolfo Helg, Michele Pellizzari, Mauro Maggioni:* **Patterns of international fragmentation of production and implications for the labour markets**	*Bocconi University*
16.30 - 17.00	Coffee break	
17.00 - 18.00	**Discussion, Outlook**	

Third Workshop on

EU Enlargement: The Impact of East-West Migration on Growth and Employment (FLOWENLA)

A CEPS-HWWA workshop, Brussels, 8-9 September 2003

Programme

Monday, 08 September 2003

09.30-10.00 Welcome

10.00-10.45 The Knowledge-Content of Machines:
North-South Trade and Technology Diffusion
Giorgio Barba Navaretti (Universita' degli Studi di Milano, Centro Studi Luca d'Agliano)
Maurice Schiff (The World Bank)
Isidro Soloaga (Universidad de las Américas-Puebla)

10.45-11.30 The Impact of Foreign Investment on Relative Wages and Employment in EU Accession Countries
Giovanni S. F. Bruno (Istituto di Economia Politica Università Bocconi)
Rosario Crino (CESPRI - Università Bocconi)
Anna M. Falzoni (CESPRI - Università Bocconi, Università degli Studi di Bergamo)

11.30-12.00 Coffee

12.00-12.45 Welfare Magnets in Europe and the costs of a harmonised social policy
Giacomo Degiorgi and **Michele Pellizzari** (LSE and fRDB)

12.45-14.00 Lunch

14.00-14.45 Migration and convergence: a bit of theory and some empirical evidence
Riccardo Faini (Ministero del Tesoro and Centro Studi Luca d'Agliano)

14.45-15.30 The Economic Impact of East-West Migration in an Enlarged European Union
Paul Levine, Emanuela Lotti, Richard Pierse (Department of Economics, University Surrey)
Joseph Pearlman (University Surrey and London Metropolitan University)

15.30-16.00 Coffee

16.00-16.45 International Economic Integration: Patterns of Catiching up, Foreign Direct Investment and Migration Flows
Michael Landesmann et al.
(Vienna Institute of International Economic Studies)

16.45-18.00 Policy Discussion and further Programme of Work

Tuesday, 09 September 2003

09.30-10.15 The Labour Market Effects of Remittances
Paul Levine, Stephen Drinkwater and Emanuela Lotti
(Department of Economics, University Surrey)

10.15-11.00 Foreign takeovers and wages in Hungary (tentative title)
Dieter Urban (University of Mainz and HWWA)
Rolf Jungnickel (HWWA)
Sandor Cergely (Institute of Economics, Hungarian Academy of Sciences)

11.00-11.30 Coffee

11.30-12.15 The Impact of Trade with the CEEC's on EU Labour Market: What kind of skill bias?

11.30-12.16 **Giovanni Graziani** (Department of International Economics, Finance and Law, Università di Parma)

12.15-13.00 Impact of Enlargement on Italian Regions: an Analysis of Trade with Central and East European Countries over 1992-2002
Anna Ferragina (Università di Roma II)

EU Enlargement: The Impact of East-West Migration on Growth and Employment (FLOWENLA)

HWWA, Hamburg, 13 December 2003

Programme

09.00-09.30 Welcome
Thomas Straubhaar (President, HWWA)

09.30-10.00 Migration Policy and the Enlargement Process
Andreas Kopp (OECD/ECMT and HWWA)

11.00-11.30 Coffee

11.30-13.00 Growth Impact of Skill Differentiated Migration: Theory
Paul Levine (Department of Economics, University Surrey)
Growth Impact of Skill Differentiated Migration: Empirics
Stephen Drinkwater (Department of Economics, University Surrey)

13.00-14.00 Lunch

14.00-15.00 Impact of Trade and FDI on Migration
Rodolfo Helg (CESPRI and Universita di Bocconi)

15.00-16.00 EU Labour Market Effects of Enlargement
Giovanni Graziani (Universita di Parma)

15.30-16.00 Coffee

16.00-16.45 Labour Market Careers of Migrants: The German Example
Dragos Radu (HWWA)
16.45-17.30 EU-CEEC Migration with Special Reference to Agricultural Labour
Andreas Schneider (CEPS, Brussels)

A first dissemination of the results of the FLOWENLA network has been organised by setting up the webpage www.eastwestmigration.org. It informed on the papers produced by the network and the workshops organised.

The research papers which have come out of the work of the FLOWENLA network have been edited and published as the FLOWENLA working paper series. The papers are downloadable from the website of the HWWA research programme "International mobility of factors".

The results and a discussion of policy conclusions have been provided to a broad general public by the newsletters and press information services of the Hamburg Institute of International Economics (HWWA) and the newsletter of the Centre for Economic Policy Studies in Brussels (CEPS).

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