Labour mobility in the Euro area during the Great Recession

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Abstract

During the Euro area crisis, national disparities in labour markets widened. According to the theory of optimum currency areas, labour mobility could be an adjustment mechanism to shocks and help reducing regional imbalances. In reality, there has recently been a perceptible increase in migration flows in Europe. Without these migration flows, the rise in unemployment in the most-hit countries would have been worse. In this paper, we examine the extent of these flows for EA countries and estimate their response to unemployment and wage differentials between these countries.

Keywords: optimum currency areas, adjustment mechanisms, labour mobility, intra-EU migration

JEL Classification: F45, F66, F22

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1 Introduction

The Euro area (EA) member countries underwent a large common shock in 2007-2008, namely the global financial crisis. This shock caused a Great Recession in 2008-2009, and was followed by the sovereign debt crisis in 2010, which had asymmetric effects on their economies. Some countries, in particular the peripheric countries (Greece, Italy, Portugal, Spain), are still struggling for economic recovery. Macroeconomic adjustments have been slow and painful because of a lack of instruments at the country level (Eichengreen, 2014; Gibson et al., 2014).

In this paper, we want to examine the role of labour mobility as an adjustment mechanism in a currency union such as the Euro area. How can labour mobility help adjustment to shocks? What is the extent of labour mobility between member countries of the Euro area? Are migration flows going in the right direction?

In theory, according to the literature of optimum currency areas, factor mobility, and in particular, labour mobility could be an alternative instrument to the flexible exchange rate in adjustment to shocks (Mundell, 1961; Kenen, 1969). The mechanism is simple, at least on paper: labour mobility could help prevent the emergence of regional problems as long as unemployed people move from the depressed region to a booming (or less depressed) one. As labour supply decreases in the depressed home region and increases in the booming host region, regional unemployment disparities are expected to diminish. In reality, the rise in unemployment in the depressed countries has been not only huge but also persistent. Besides, a considerable increase in the dispersion of unemployment rates has been observed in the Euro area since 2008 (European Commission, 2013). Yet, this does not imply that labour mobility is non-existent in the Euro area nor that it has decreased. There has just been a clearly perceptible increase in migration flows since 2009 within the Euro area. For instance, the entry of Spanish citizens in Germany was

about 23,000 in 2012 against an average of inflows of about 8,000 per year before the crisis.[1] This suggests focusing a little more closely on labour mobility as an adjustment mechanism in the Euro area.

We thus study the extent of labour mobility for Euro area countries during the recent crisis and we examine how labour mobility reacts to labour market national disparities.[2] We follow the method proposed by Pissarides and McMaster (1990) and used by Eichengreen (1993) to analyze the response of migration flows to a change in relative unemployment and wage rates. These authors used regional data and net migration of people of all ages, though ideally one should examine households of working age. We overcome this shortcoming by using data on migration flows of working age population and active foreign population from Labour Force Survey (Eurostat). We use national data and consider Euro area countries as regions. We also use migration data directly instead of using proxy. Our sample period is 2007-2014. In contrast, the European Commission (2011) considers migrants of all ages and flows with the rest of the world over the 1991-2009 period. In our empirical analysis, we compare flows with the rest of the world with flows with the EU. In Jauer et al. (2014), mobility is proxied by population change as in the European Commission (2011). In Dao et al. (2014), the adjustment of interregional migration to regional employment shocks is treated as a residual in a system of VAR equations as in Blanchard and Katz (1992).

The paper is organized as follows. In section 2, we explain how labour mobility can help countries/regions adjust to macroeconomic shocks in theory. We also discuss the drawbacks of labour mobility as an adjustment mechanism. One should actually not underestimate the impediments to migration, the costs of migration and some additional

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[1]Source: OECD International Migration Outlook Database.

[2]We focus on the impact of unemployment differentials across countries on labour mobility. The analysis of how labour mobility in turn influences labour market adjustment is beyond the scope of this paper. We nevertheless make a short review of this subject in section 3.

limitations in the role of labour mobility as an adjustment mechanism to shocks. In section 3, we review empirical insights regarding labour mobility. In section 4, we proceed to the empirical analysis. In section 5, we conclude.

2 Theoretical considerations

In his seminal paper, Mundell (1961) advocates the role of factor mobility in a currency union as an alternative instrument to the flexible exchange rate in adjustment to shocks. He does not elaborate on the effects of labour mobility though. Kenen (1969) uses Mundell's example of a demand shock in order to explain them. Suppose that the East produces cars and the West produces lumber products. And suppose that there is a demand shift from cars to lumber products. The East suffers from a fall in output, a trade deficit and unemployment while the West enjoys a rise in output, a trade surplus but inflationary pressures (that is a rise in the prices of home-produced goods). With labour mobility, unemployed people could migrate from East to West. As a result, labour supply could decrease in the East and this would alleviate the unemployment problem. In contrast, labour supply would increase in the West and this would lessen the increase in wages and prices there. From the point of view of balance of payments, the migrants in the West would consume: their purchases of lumber products would increase home demand in the West and their purchases of cars would increase exports of the East to the West, and this would reduce the trade deficit in the East and the trade surplus in the West.[3] In terms of stabilisation of output, more exports of cars to the West would increase output in the East.

Farhi and Werning (2014) look at the impact of interregional migration on those

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[3]Migration additionally increases the capital-labour ratio at home which lessens the required fall in real wages for workers who stay at home (Eichengreen, 1990).

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who stay in the depressed region in a static version of a NOEM model (New Open Economy Macroeconomics) describing a two-region currency union with sticky prices. In the benchmark case, it is assumed that migration causes a reduction in the demand for non-traded goods only: as a result, there is no spillover on the situation of stayers because the decrease in the labour supply is matched by a decrease in the labour demand (in the non-tradable sector). In contrast, if the decline in demand is localised in the tradable sector (and assuming that there is no home bias in the demand for traded goods), stayers benefit from an increase in the demand for traded goods from those who left, and thus enjoy an improvement in employment, income and consumption. The authors conclude that the macroeconomic spillover effects depends on the degree of trade openness between the regions within the currency union.

There are however some drawbacks in relying on labour mobility as an adjustment mechanism to shocks. Kenen (1969) notes that the good working of this adjustment mechanism depends on consumption patterns and methods of production in both regions, and on the occupational mobility of workers. The labour-market problems cannot be solved if the skills of workers in the car industry are not suitable to jobs in the lumber industry. In reality, labour is not homogeneous. Similarly, the balance-of-payment problems are not easily solved if prices are not allowed to rise in the West (authorities could act in order to prevent prices from rising). Then, the burden of adjustment in terms of the needed change in the terms of trade would fall primarily on the East. This would require a painful decline in output and employment. Moreover, according to the absorption approach to balance-of-payments, if one category of total domestic spending falls, then expenditures decline, and so does output. If the multiplier is larger than one, then real income falls more than absorption, and as a result, the current account worsens. In this case, the fall in private consumption following the emigration of unemployed would not be an effective instrument to attenuate the fall in output and correct the external

imbalance in the East.

Finally, one should not ignore the obstacles to labour mobility and the costs of mobility for migrants. First, there are some impediments to geographical mobility across European countries: besides linguistic and cultural barriers, there are administrative difficulties in transferring social security rights from one country to an other, and inefficiencies in the housing/renting markets. Some policies may also diminish incentives to move out, such as state-aid to declining industries or regions or (extended) unemployment benefits. Second, there are costs of migration which are borne by migrants and which depend on their characteristics (gender, age, education, skills, household composition, housing). There might also be some long-term negative consequences for regions of origin, such as the loss of human capital. Eichengreen (2014) points to some good and bad in labour mobility, and refers to the concern of brain drain about Spanish emigrants.

3   Empirical insights from the literature

In terms of incentives, individuals, who contemplate migrating, compare the gains and the costs of migration. In principle, the latter can be reduced within a currency union as long as countries and regions share a single currency and thus benefit from a reduction in transaction costs. As for the gains from moving, they are increasing with the probability of being hired and earning a higher income in the host region. For given migration costs, the greater the difference between regional unemployment rates or wage rates, the greater labour mobility is expected to be. Thus, the empirical method consists of regressing the net migration rate on the relative wage and the unemployment differential. In Pissarides and McMaster (1990), the net migration rate for each region i at each time t is regressed on the first difference of the relative wage rate (the regional wage rate divided by the national average wage rate) and on the unemployment ratio (the regional

unemployment rate divided by the national unemployment rate). Both variables enter the equation with a one-year lag. The lagged dependent variable and regional dummies are also included. They use pooled data for nine regions in Great Britain for the period 1961-1982. Eichengreen (1993) uses the Pissarides-McMaster model to compare how migration responds to regional labour-market disiquilibria in Great Britain, Italy, and the United States. He finds that for Italy, the specification of the wage variable should be in levels and not in first difference.

In European Commission (2011), the net migration rate is based on total flows with the rest of the world while the explanatory variables (relative unemployment and wage) are defined by the difference between country i and the rest of the European Union (EU). Using a panel of 22 EU countries over the 1991-2009 period, the European Commission finds a significant relationship between net migration and the unemployment and wage difference: an increase of one percentage point in the unemployment rate difference leads to a decrease of 0.25 percentage point in the net migration rate (net inflows) and an increase of one percentage point in the real wage difference leads to an increase of 0.07 percentage point in the net migration rate. There is a bias in the specification used by the European Commission though, because emigrants from EU countries to the rest of the world are likely to take into account labour conditions in the rest of the world too, and not solely those in the EU. As a consequence, in our estimates, we also take into account flows within the EU and compare the results with those obtained from flows with the rest of the world.

Jauer et al. (2014) use data on working age population from the European Labour Force Survey (LFS) and regional data (Eurostat REGIO database). They measure mobility indirectly by the migration-induced population growth. Real wage is proxied by GDP per capita. They compare three groups of regions at NUTS-1 and NUTS-2 levels (Eurostat regional classification): a panel of EU27/EFTA countries, the Euro area and

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the United States, over the period 2006-2011. For the Euro area, the estimated coefficient on log relative unemployment rate is significant (-0.017) but that on log relative income is not (0.005). They conclude that up to 27% of an unemployment increase may be offset by a population change/migration.

Dao et al. (2014) also consider regional data for a sample of 21 European countries over the period 1998-2009. They estimate a sytem of panel vector autoregressive (VAR) equations following Blanchard and Katz (1992). Precisely, they estimate the dynamic effects of a 1 percent decrease in regional employment on regional relative unemployment rate, labour force participation rate, and net migration rate, the latter being treated as a residual. In the first year following the shock, out of 100 workers who lose their jobs, 10 are unemployed, 60 drop out of the labour force and the remaining 30 migrate out of the region. By comparison, in the United States, 20% of the the shock is absorbed by an increase in unemployment, 20% by a decrease in participation and 60% by migration.[4]

All in all, labour mobility in Europe seems to react to unemployment differentials but not to income differentials (at a regional level) or little to wage differentials (at a country level). Our work is close to that of the European Commission (2011), but we go further by using data on working age population instead of all ages. Our sample covers the crisis years, and we distinguish flows with the rest of the world from those within the EU.

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[4]In Blanchard and Katz (1992), over the period 1978-1990, the role of migration in the United States was also about 60%. However, extending the sample period until 2011, Dao et al. (2014) find that labour mobility has been more than halved since the mid 1980's. Furthermore, to control for endogeneity in state-specific labour demand shocks, they use an instrumental variable (IV) two-stage least squares (2SLS) identification with a state-specific industry share of employment (industry mix variable) as the prefered instrument. In doing so, they find that the role of migration is far lower (13% instead of 60%).
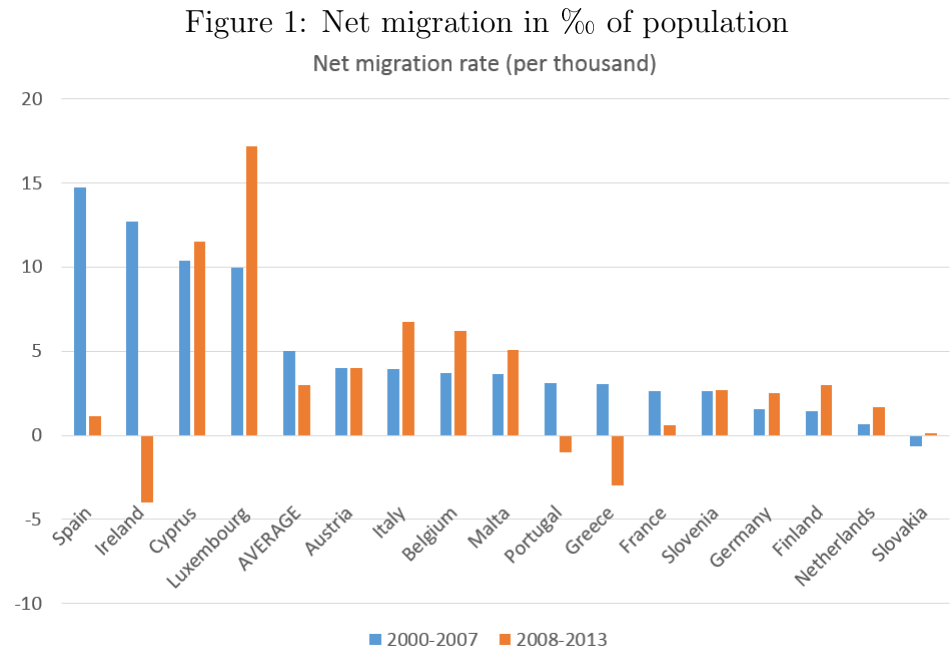
4 Migration flows in the Euro area

Labour mobility within Europe remains low compared with the United States, Canada or Australia (Heinz and Ward-Warmindeger, 2006 ; Eichengreen, 2014).

The net migration rate of a country is the difference between inflows (immigration) and outflows (emigration) expressed as a proportion of its population. During the recent crisis, migration in the Euro area (EA), taken as a whole, has halved: net migration amounted to 4% of total population on average between 2000 et 2007 and 2% between 2008 and 2013 (Figure 1). The picture is somethat different though if one looks at individual countries: some countries that were host countries before the crisis (positive net migration rate) have become origin countries (negative net migration rate). In particular, this is the case for Ireland (a migration-induced loss of population of 4% on average during 2008-2013 against a gain of 13% in the previous period), Greece (-3% against +3%) and Portugal (-1% against +3%). As for Spain, even if she did not record a net outflow over the period 2008-2013, there has still been a sharp decline of her net inflows (from 15% to 1%).

Note that emigrants from EA countries do not necessarily move to another country in the Euro area. For instance, inflows of Irish people in Australia were on average 1,600 per year before the crisis (2002-2008) and average 3,500 per year during the crisis (2009-2012), with a peak at 5,000 in 2012.[5]In any case, immigrants from outside the EU have outnumbered immigrants from the rest of the EU in most EA countries, even after the 2007 EU enlargement (Anderton et al., 2012). In Figure 1, one can notice that in Italy, the net migration rate increased from 4% to 7% of population between both periods. This is partly due to a sharp increase in inflows of asylum seekers.

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[5]Source: OECD International Migration Outlook Database.

Figure 1: Net migration in ‰ of population


Net migration rate (per thousand)

Note: migrants of all ages from all countries (world).
Source: Eurostat and own calculations.

Is there a correlation between net migration rates in the Euro area countries and unemployment rate differentials between them? In Figure 2, one can see that there seems to be what might be called a mirror effect. An increase in the relative unemployment rate goes along with a reduction of net migration rates, which implies an increase in outflows and / or a decrease in inflows.[6] This has been the case in countries hardest hit by the Euro crisis. There have even been net outflows of migrants in Greece (since 2008), Ireland (since 2009), Portugal (since 2011), Spain and Cyprus (since 2012). In contrast, there has been an increase in the share of net inflows of migrants as a percentage of population in some countries where the unemployment rate has relatively declined with regard to the Euro area: this is clearly perceptible in Germany, Austria and Luxembourg, but not in France.

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[6]For saving space, Figure 2 displays trends for a few selected countries. The remaining countries are displayed in an appendix.

Figure 2: Net migration rate (‰) and unemployment rate differential in selected Euro area countries (1993-2013)
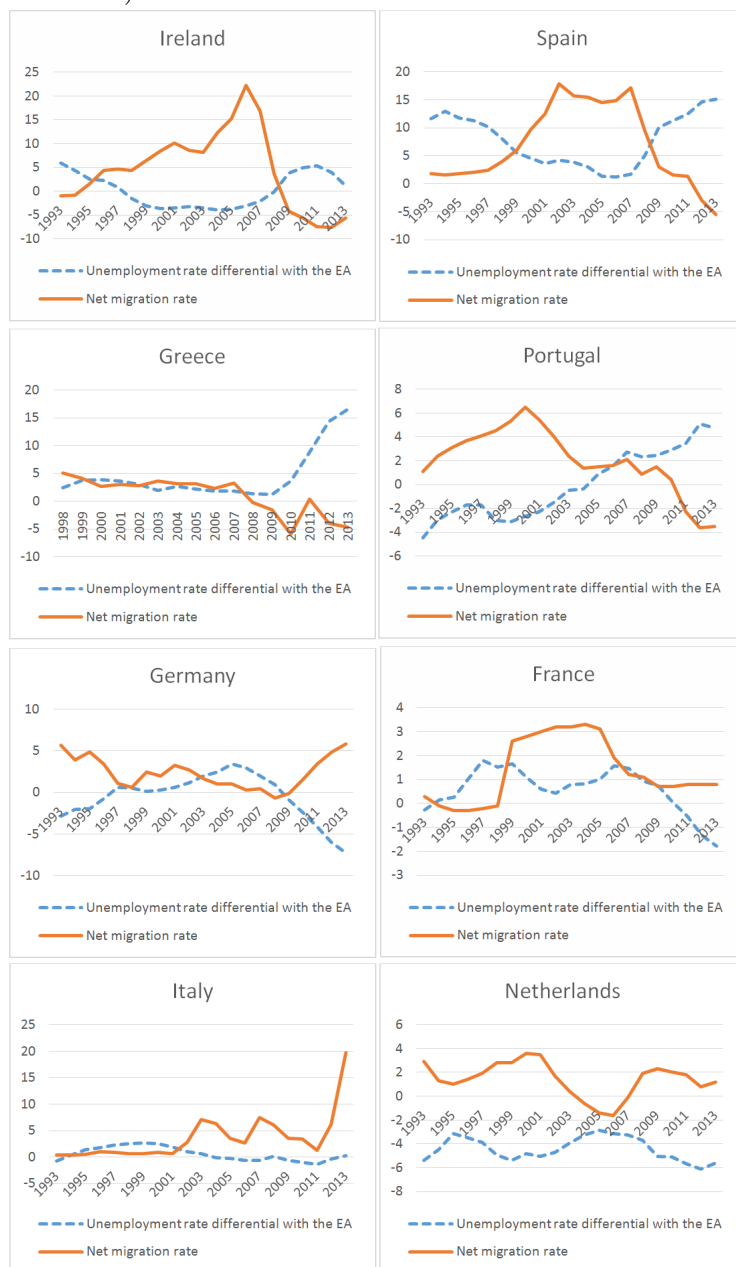
Note : the net migration rate is defined as in Figure 1. Unemployment rate differential for each country is measured by the difference between country i's unemployment rate and the average unemployment rate of the remaining 15 EA countries. Source : Eurostat and own calculations.

Admittedly, the decision to migrate does not depend only on relative unemployment. Italy is the main point of entry by sea to the EU for foreign migrants and refugees, so that the net migration rate has increased much recently despite an unemployment rate close to the average of the EA.

Following the method by Pissarides and McMaster (1990), we regress the net migration rate on its own lagged, the relative unemployment rate and the relative wage growth rate:

$$m_{it} = \alpha_0 + \alpha_1 m_{it-1} + \alpha_2 \left(\frac{u_i}{u_{EA}}\right)_{t-1} + \alpha_3 \Delta ln \left(\frac{w_i}{w_{EA}}\right)_{t-1}$$

where m_{it} denotes the net migration rate (inflows minus outflows) of country i with the rest of the Euro area at time t, u_i/u_{EA} is the ratio of the unemployment rate of country i to the average unemployment rate of other EA countries, and $\Delta ln (w_i/w_{EA})$ is the real wage growth differential between country i and the rest of the Euro area.[7]

Our regression analysis is carried out for sixteen countries of the Euro area. We use the data of the European Labour Force Survey for migration, Eurostat for the unemployment rate, and the AMECO database of the European Commission for the real wage. For each country, we compute net migration rate using migration flows with the EU-27. We also consider flows with the rest of the world for checking purposes. Contrary to Pissarides and McMaster (1990) and the European Commission (2011), where migration of people of all ages is analysed, we consider both working age population (15-64 years old) and active foreign population. However, due to a lack of data, choosing these kinds of flows with the EU restricts our sample period to 2007-2013 (or 2007-2014). The real wage variable is computed by deflating nominal compensation per employee with consumer price indices. We use ordinary least squares for the estimates.[8]

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[7]We also did the regressions with unemployment rate differentials measured as a difference $(u_i - u_{EA})$. Results were similar and are available upon request.

[8]We tried various regression methods. For choosing between the fixed effects model and the random effects model, the Hausman test was run. The fixed effects model was valid, but the matrix was not

Results with migrants of working age population in the EU-27 are reported in Table 1. As a comparison, results with migrants of all ages from all countries are also displayed. We find that unemployment significantly affects workers migration decisions in the EU. The estimated coefficient (-1.62) has the expected sign and is significant.[9] The more unemployment increases, and the more people leave the country, or the fewer people move in the country. Wage differential does not significantly impact net migration. The coefficient of lagged migration reveals some persistence. When migration flows concern each EA country with the rest of the world, the migration response to unemployment differentials is lower (-0.21) and close to the estimates by the European Commission (2011). However, contrary to what the European Commission (2011) found, the response of these net migration flows with the rest of the world to wage differentials is not significant (and has the wrong sign). Finally, the impact of unemployment rate differentials is even stronger if one considers foreign active migrants, be it with the EU or the rest of the world (Table 2).

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positive definite. Moreover, given our sample, there are no time fixed effects. We finally chose the ordinary least squares estimation after running the Breusch-Pagan test.

[9]A regression over the period 2008-2013 instead of 2007-2013 gives a significant estimated coefficient of -1.67.

Table 1: Migrations equations for 16 Euro area countries - Working age population

Dependent variable	(1) Net migration rate Flows with the world	(2) Net migration rate Flows with the EU-27
Lagged migration	0.28***	0.47***
	(0.07)	(0.08)
Unemployment differential	-0.22***	-1.62**
	(0.07)	(0.63)
Wage growth differential	-0.01	0.01
	(0.03)	(0.21)
Constant	0.33***	2.04***
	(0.07)	(0.70)
Observations	210	96
Sample period	1998-2013	2007-2013
Migration data	all ages	working age
R-squared	0.15	0.33

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2: Migrations equations for 16 Euro area countries - Foreign active population

Dependent variable	(1) Net migration rate Flows with the world	(2) Net migration rate Flows with the EU-27
Lagged migration	0.28***	0.49***
	(0.09)	(0.08)
Unemployment differential	-7.09***	-2.97**
	(1.98)	(1.31)
Wage growth differential	3.33	2.26
	(33.8)	(22.5)
Constant	8.62***	3.71***
	(2.17)	(1.42)
Observations	112	110
Sample period	2007-2014	2007-2014
Migration data	foreign active population	foreign active population
R-squared	0.26	0.37

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

5 Conclusion

The reaction of migration flows in EA countries to unemployment differentials in the Euro area has significantly been strong during the late few years, and far stronger than what was estimated by the European Commission (2011). This conclusion applies to migration flows with the EU either for migrants of working age or for foreign active migrants. We did not find any evidence of a response of migration flows to wage differentials in either case (with the EU/rest of the world).

Labour mobility in Euro area countries has increased but remains limited. Labour mobility, not surprisingly, is not likely to be an option when all countries are faced with a common severe shock at the same time. Unemployed people have little incentive to migrate, but they ultimately may choose to move to places abroad where labour market prospects are less bad. In other respect, unemployment differentials may persist across countries over time if industrial structure differs greatly across countries. Our work tells how labour mobility responds to economic disparities across Euro area member countries. However, it does not tell to what extent migration helps correcting regional disiquilibria. The next step of our research work is to examine this latter aspect.
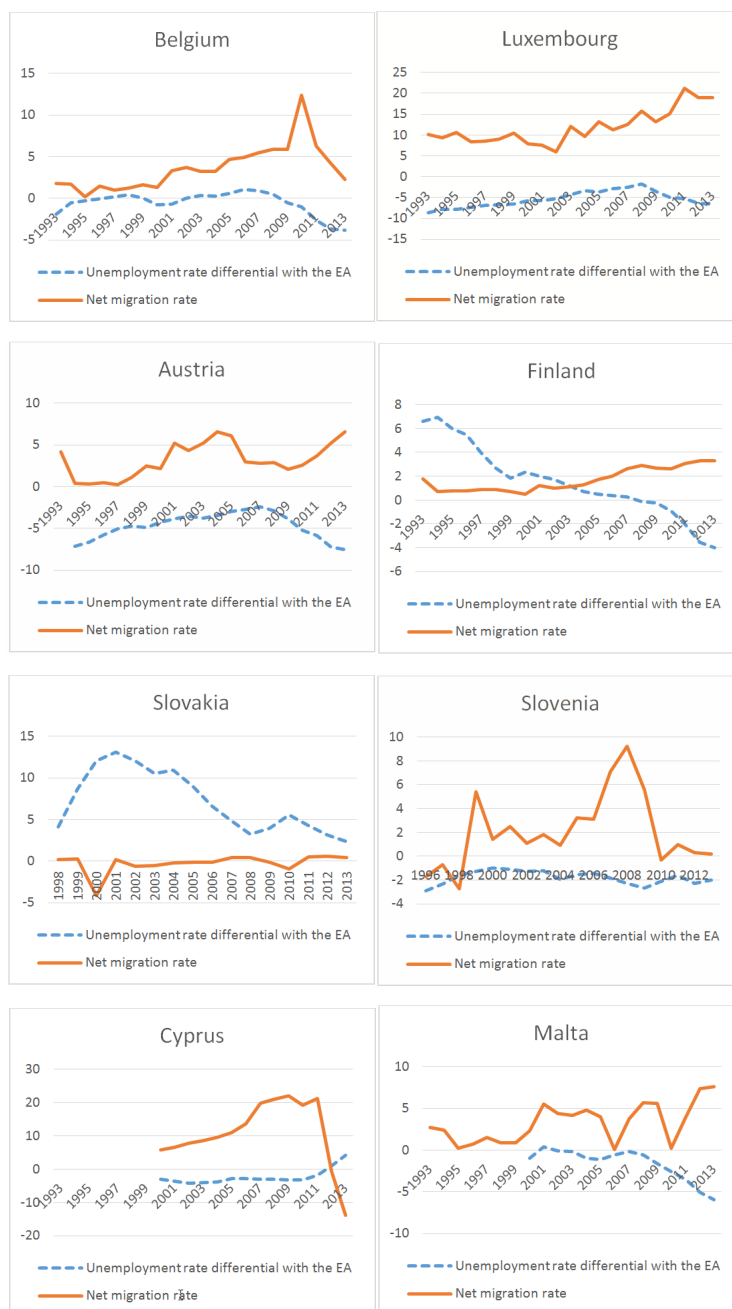
References

[1] Anderton R. et al (2012), "Euro Area Labour Markets and the Crisis", Task Force of the Monetary Policy Committee of the European System of Central Banks, ECB Occasional Paper No. 138, October.

[2] Blanchard O. and L. Katz (1992), "Regional Evolutions", Brookings Papers on Economic Activity, No. 1, 1-75.

[3] Dao M., D. Furceri and P. Loungani (2014), "Regional Labor Market Adjustments in the United States and Europe", IMF Working Paper No14/26, February.

[4] Eichengreen Barry (1990), "One money for Europe? Lessons from the US currency union", Economic Policy, Vol.10. April, 117-87.

[5] Eichengreen B. (1993), "Labor Markets and European Monetary Unification," in P. Masson and M. Taylor (Eds.), Policy Issues in the Operation of Currency Unions, Cambridge and New York, Cambridge University Press, 130-162.

[6] Eichengreen B. (2014), "The eurozone crisis: the theory of optimum currency areas bites back", Notenstein Academy White Paper Series.

[7] European Commission (2011), "Labour Market Developments in Europe 2011", European Economy 2/2011.

[8] European Commission (2013), "Labour Market Developments in Europe 2013", European Economy 6/2013.

[9] Farhi E. and I. Werning (2014), "Labor mobility within currency unions", NBER Working Paper No. 20105, May.

[10] Gibson H. D., T. Palivos and G. S. Tavlas (2014) "The Crisis in the Euro Area: An Analytic Overview", Journal of Macroeconomics, 39, 233-239.

[11] Heinz F.F. and M. Ward-Warmedinger (2006), "Cross-border labour mobility within an enlarged EU", ECB Occasional Paper No. 52, October.

[12] Jauer J., T. Liebig, J. Martin and P. Puhani (2014), "Migration as an adjustment mechanism in the crisis? A comparison of Europe and the United States", OECD Social, Employment and Migration Working Papers, No. 155.

[13] Kenen P. (1969), "The theory of optimum currency areas: an eclectic view", in R.A. Mundell and A.K. Swoboda (Eds.), Monetary Problems of the International Economy, Chicago University Press, 41-60.

[14] Mundell R. (1961), "A Theory of Optimum Currency Areas", American Economic Review, Vol.51, No. 4, September, 657-65.

[15] Pissarides C. and I. McMaster (1990), "Regional Migration, Wage and Unemployment: Empirical Evidence and Implications for Policy", Oxford Economic Papers, 42, No. 4, October, 812-831.

Appendix. Net migration rate and unemployment differential in other euro area countries

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