A Reconsideration of the Cost of EMU

The Importance of External Shocks and Labour Mobility

DANIEL GROS

EUI WORKING PAPERS

EUROPEAN UNIVERSITY INSTITUTE

EUI Working Paper RSC No. 96/15

Gros: *A Reconsideration of the Cost of EMU*
The Importance of External Shocks
and Labour Mobility

The Robert Schuman Centre was set up by the High Council of the EUI in 1993 to carry out disciplinary and interdisciplinary research in the areas of European integration and public policy in Europe. While developing its own research projects, the Centre works in close relation with the four departments of the Institute and supports the specialized working groups organized by the researchers.

EUROPEAN UNIVERSITY INSTITUTE, FLORENCE

ROBERT SCHUMAN CENTRE

A Reconsideration of the Cost of EMU
The Importance of External Shocks and Labour Mobility

DANIEL GROS

Robert Schuman Centre

Programme in Economic Policy

The Working Papers series

The Schuman Centre's Programme in Economic Policy provides a framework for the presentation and development of ideas and research that can constitute the basis for informed policy-making in any area to which economic reasoning can make a contribution. No particular areas have been prioritized against others, nor is there any preference for "near-policy" treatments. Accordingly, the scope and style of papers in the series is varied.

Visitors invited to the Institute under the auspices of the Centre's Programme, as well as researchers at the Institute, are eligible to contribute.

A Reconsideration of the Cost of EMU

The Importance of External Shocks and Labour Mobility

Daniel GROS[*]

Abstract

The external shocks emphasized by the standard optimum currency area approach (i.e. shocks to exports and exchange rates) have surprisingly little influence on employment and unemployment in most member countries.

It is often argued that low labour mobility in Europe means high potential costs of EMU. However, this conclusion has to be modified on three accounts:

i) international labour mobility in Europe is of the same order of magnitude as inter-regional labour mobility within member countries.

ii) Higher labour mobility might also have an adverse impact because it makes regional concentration more likely, thus increasing the likelihood of asymmetric shocks.

iii) Inter-regional mobility within the US is high, but its role in the adjustment to shocks has been exaggerated in the literature.

The low degree of labour mobility in Europe is thus much less of an obstacle to EMU than is often argued.

I. Introduction

The EU is not a homogenous area. Germans and Danes are about three times richer than Greeks (at current exchange rates) and agriculture employs only about 2 % of the active population in the UK, but 14 % in Greece and 12 % in Ireland. At the regional level the spread between the extremes can be even larger. Do these large differences in wealth and economic structure across member countries, and regions inside them, mean that EMU is undesirable? This paper discusses this large issue by addressing two more specific questions:

i) What is the empirical relevance of asymmetric external shocks? The key question here is: do external shocks (i.e. shocks to exports and/or the exchange rate have a strong impact on (un)employment? This key issue has never been clearly addressed up to now.

ii) How important is labour mobility?

Is the general impression that labour mobility is extremely low in Europe justified? Is more labour mobility desirable for EMU (because it facilitates adjustment)? Or is it undesirable (because it favours concentration), hence leading to more shocks?
The regional dimension is often overlooked in discussions about EMU because it has to be assumed that the alternative to EMU is the continuing existence of national currencies, and not the introduction of regional currencies. However, most European regions are of a similar size as the average state of the US which are often compared to member countries.[1]

The paper starts in section II by analyzing directly the main reason why diversity matters in a monetary union: if asymmetric shocks are frequent and large the loss of the exchange rate as an adjustment instrument is costly. Does experience suggests that this will be the case? Section III then briefly discusses to what extent diversity in the EU comes from differences between countries or between regions. Section IV provides some new evidence on labour mobility in Europe. Section VI concludes.

2

II. Unemployment and Asymmetric Shocks

II. 1 The Optimum Currency Area Approach: Existing Empirical Literature.

The standard line of reasoning in support for exchange rate flexibility is the following: if a shock reduces the demand for the exports of a country a real depreciation is required to maintain full employment and external equilibrium. The required real depreciation could also be achieved by a reduction in nominal ('money') wages, but this takes time and can presumably be achieved only if there is a period of substantial unemployment. The proper exchange rate policy could thus reduce, and possibly even eliminate, the unemployment problems that arise from 'asymmetric shocks'.

The available studies on the potential importance of this effect do not attempt to test this line of reasoning directly. They usually analyze the degree to which various macroeconomic indicators, e.g. output, the real exchange rate, unemployment, etc., are correlated across countries. The implicit benchmark is the US in the sense that it is argued that if the economies of member countries show a similar degree of correlation among them as do states or regions inside the US EMU should not create particular problems.

Bayoumi and Eichengreen (1994), to give just one prominent example, compare the correlation of certain shocks to output among 8 regions within the US and among 11 member states within the EU. They distinguish between shocks that have transitory effects, which they assume to be demand shocks, and shocks that have permanent effects, which they assume to be supply shocks. The main finding is that the supply shocks, thus defined, are larger in magnitude and less correlated across regions in Europe than in the US whereas the opposite holds for demand (i.e. transitory) shocks. Moreover, they also confirm that the core of the EU (here D, F, BE, NL and DK) constitutes a homogenous sub-unit. Within this restricted group of countries, supply (i.e. permanent) shocks are of roughly the same magnitude and cohesion as in the US.

Another example of this approach can be found in De Grauwe and Vanhaverbeke (1993) who analyze the variability of real exchange rates across regions and countries. The finding that real exchange rates vary significantly more across countries than across regions within a country is difficult to interpret: Is it due to an excess volatility of exchange rates or are there large asymmetric shocks (policy or other) that provoke this exchange rate variability?

Most economists would agree that the main cause of short run variations in macroeconomic variables, such as output and employment, should be changes in monetary and fiscal policy.[2] The correlations in output found for the past thus reflect not only the working of 'intrinsic' factors like taste and technology, but also, and perhaps mainly, the extent to which monetary and fiscal policy have in the past (under different exchange rate regimes) tended to move together across countries. Hence the high correlations found for the core countries are probably an underestimate of the correlations that would result under EMU because monetary union by definition unifies monetary policy and might lead to more coordination in fiscal policy as well. It can also not be excluded that some of the countries that had lower correlations in the past would actually belong to the core once they also belong to EMU.

A different way to search for asymmetric shocks looks at differences in economic structures, e.g. differences in the shares of output accounted for by different industries or the product composition of exports. The underlying hypothesis here is that countries that have different economic structures are likely to experience asymmetric shocks. Gros (1996) provides a number of indicators along this line and shows that they can give quite different results.

II. 2 A Direct Test of the OCA Approach.

However, all the studies mentioned so far look only at the potential for asymmetric shocks or measure co-movements in macroeconomic variables without showing how shocks lead to unemployment. The basic question that has not yet been addressed in the literature is: are the 'classic' asymmetric shocks, i.e. shocks to export demand actually an important determinant of unemployment? A subsidiary question would concern the role of exchange rate adjustments in containing unemployment generated by shocks to export.

The basic question to what extent variations in export demand affect unemployment could be addressed by building a large model which traces the impact of changes in export demand through the entire economy under various assumptions about the flexibility of wages and the exchange rate. An alternative, and much simpler approach, used here, is to determine 'only' the extent to which changes in exports have influenced unemployment in the past. The underlying hypothesis in this case is that export supply is rather stable so that one can equate actual changes (innovations) in export with changes in export demand.

4

a) Annual Data

The analysis reported more in detail in Jones and Gros (1995) is summarized in Table 1 which shows the results of causality tests using annual data. These tests measure the impact of (changes in) various measures of export performance on (changes in) national unemployment rates once the autonomous movements in unemployment have been taken into account by including the lagged (change in) the unemployment rate among the explanatory variables. (One has to use changes as the levels of both variables are clearly non-stationary.) A significant effect (of whatever sign) implies that one can reject at the 5% confidence level the hypothesis that exports do not influence unemployment. A negative sign in this table means that an increase in exports reduces unemployment, as one would expect.

(see Table 1)

This table reports basically the result from a fishing trip. The result is not interesting in the usual sense that there are some 'significant' relationships. On the contrary its interest lies in the absence of a strong and robust link between unemployment and (past changes in) exports. Each entry in this table shows a plus or minus sign if the variable listed at the head of the column turned out to have a significant influence on unemployment, for the particular country concerned. The first four columns report the results of tests of the hypothesis that (changes in) national unemployment rates are not affected by shocks to the following variables: i) Changes in exports in constant 1990 ecus, ii) changes in intra-European exports as percentage of GDP, iii) changes in total exports as percentage of GDP, and, iv) the contribution of exports to the growth in final uses. If there is no entry in cell one can not reject the null hypothesis of no relationship at the 95 % confidence level. A negative sign implies that one can reject the null hypothesis and that an increase in one of these proxies for export performance leads to a fall in unemployment (as one would expect). A positive sign implies the opposite and would be difficult to explain.

A glance at these four columns shows that the first and the last variables are the ones that have the largest numbers of entries. But even if one concentrates on the variables that perform 'best' it still remains true that for almost half of all member countries shocks to exports have in the past played no significant role in determining unemployment in the way one would expect from the OCA approach. This was found for a large country like France as for a small country like Denmark (where the sign is wrong), for a poor country like Spain and for a rich country like, again, Denmark or France.

For the other member countries shocks to exports had some influence on the evolution of unemployment. However, a closer look at the individual regression that could not be reported in this table because they would have taken too much space, shows that this influence was in all cases minor in the sense that shocks to export earnings could explain only a very small part of the fluctuations of unemployment rates over time. The three countries that showed the strongest influence of exports on unemployment were Austria, the Netherlands and Belgium, which are usually counted as part of the core EMU.

The strongest influence of exports on unemployment can be found in the case of Belgium. However, even in this case the standard deviation of the unemployment rate (after accounting for its own past) is 0.60 percentage points, introducing the best performing measure of exports perofrmance it drops to 0.48 percentage points, or by about 21 %. This means that for Belgium export shocks had a non-negligible but still rather small effect on unemployment. This is one of the strongest effect found in the entire sample. For the other countries the contribution of export shocks to unemployment was thus minor. In the case of Denmark the weak correlation that actually appeared in one case (if one uses the export to GDP ratio) has the wrong sign; i.e. increases in export demand are associated with increases in unemployment.

The last four columns use two different measures of unemployment performance: i) the difference between national and EU average unemployment rates (to correct for any EU business cycle), the last two columns, ii) the third and fourth last columns use the change in this variable because some tests indicate that the difference national minus EU average was not stationary. The measures for export performance used with these dependent variable was then also somewhat different as explained in the footnote to table 1. However, even a cursory glance at the last columns of this table shows that there are even fewer significant entries (and two positive signs) so that changing the dependent variable does not affect the conclusion that the impact of exports on unemployment is weak.[3]

b) Quarterly Data

The main problem with the annual data used so far is that the strongest correlation is contemporaneous. Could one obtain better results using quarterly data? In other words do quarterly data reveal a significant causal relationship between changes in export volumes and changes in the level of employment or unemployment? The quarterly data should at least yield a clearer pattern over time. The results presented below show that this was true in the sense that the

6

contemporaneous correlation was eliminated. However, in most other respects the results were similar to the ones obtained from annual data.

The first test involved looking at the link between employment in manufacturing (index 1990=100, as reported by the IMF) and export volumes (index 1990=100, also from the IMF) using data from 1960:1 to 1994:1. This was done again in changes since preliminary tests indicated that both variables were non-stationary. The main result can be stated briefly: a significant relationship between (changes in) export volumes and (changes in) employment appears for only five of the ten countries examined: the United States, Japan, Spain, France, and the Netherlands. The countries which failed to reveal a significant causal relationship were Germany, Denmark, Italy, Ireland, Portugal, Sweden, Finland and Austria.

As in the causality tests using annual data two equations were estimated for each of the ten countries. The first included (the change in) employment as dependent variable to be explained by a constant, four lags of the dependent variable, and three quarterly dummies. The second equation added eight lags of the change in export volumes to the right-hand side. Table 1a summarizes the regression statistics for both equations **only for those countries for which at least one coefficient on lagged export growth was significant**. All the other countries did not even show a single significant coefficient on exports. This result is even more surprising than the previous one concerning (economy-wide) unemployment since the manufacturing sector is usually equated with the tradables sector.

Table 1a: Change in <u>Employment</u> rates as a function of their own history and past changes in Export Volumes.

Country	Adj Rsq first eq.	Adj Rsq second eq.	Significant Coefficient on Change in Export Vol.			
			lag	point estim.	s.e.	F-test on all 8 lags
US	0.60	0.64	T-8	-0.018	0.006	2.77*
Japan	0.72	0.72	T-2	-0.014	0.007	1.02
Spain	0.33	0.32	T-8	0.015	0.006	1.13
France	0.51	0.53	T-5	-0.041	0.021	1.33**
NL	0.25	0.27	T-2	0.038	0.019	1.61*

* significant at the 1 percent threshold; ** significant at the 25 percent threshold.
Data source: IMF, International Finance Statistics.

The results in Table 1a are striking for two reasons. The first is that even for the countries selected for the greatest influence of exports the adjusted R-squared increases only marginally with the introduction of lagged changes in export volumes among the explanatory variables. Thus, it would seem that the "other factors" which affect changes in employment rates, beyond the autoregressive element coming from the past, are collectively far more important than shocks to exports.

Second, the coefficients on past export performance -- more often than not -- take the wrong sign. The correlation between past changes in export volumes and present changes in employment levels should be positive -- and increase in past exports should give rise to an increase in present employment. However, in three of the five cases one finds the reverse: an increase in past exports leads to a decrease in present employment.

For those countries not included in Table 1a (Germany, Denmark, Italy, Ireland and Portugal) the adjusted R-squared fell when the eight lags of export changes were introduced and so that the F-statistic should be below 1. Hence we did not bother to report the details of these regressions.

The same approach was repeated using a (much shorter) series of quarterly unemployment data (reported by the European Commission) as the dependent variable and five lags of export performance. Five lags were sufficient since in no case was a lag beyond 5 significant when this dependent variable was used.

This time, however, only nine European countries for which data was easily available were considered: Belgium-Luxembourg, Denmark, Germany, France, Ireland, Italy, Spain, Portugal and the United Kingdom. Only two of the countries revealed statistically significant relationship: France and Portugal. The summary statistics are reported in Table 1b.

Table 1b: Change in Unemployment rates as a function of their own history and past changes in Export Volumes (1983:1 to 1993:4).

Country	Adj Rsq first eq.	Adj Rsq second eq.	Significant Coefficient on Change in Export Vol.			
			lag	point estimate	s.e.	F-test on all 5 lags
France	0.93	0.94	T-3	0.023	0.010	1.13
Portugal	0.44	0.61	T-4	0.042	0.015	1.58**

* significant at the 1 percent threshold; ** significant at the 25 percent threshold.
Data source: IMF, International Finance Statistics; CEC, Eurostat.

As with the preceding analysis, the sign to the coefficients we find are not what one would expect. A past increase in export volumes is associated with a present increase in unemployment. Moreover -- with the exception of Portugal, for which we had only 26 observations -- the increased explanatory power generated by adding lags of export performance is very small. As with Table 1a, the seven countries not included in Table 1b (Belgium-Luxembourg, Denmark, Germany, Ireland, Italy, Spain and the United Kingdom) had F-statistics equal to or below 1 (for the test of significance of lagged exports).

All in all these results thus suggest that for most member states shocks to exports have not been a major factor in determining the evolution of unemployment (and employment) in the past. It is always very difficult to prove that a certain relationship does not exist, but given the similarity of the results

using a number of different indicators of export demand this finding is rather robust. Moreover, there is little reason to believe that this will change in the future. Hence there is little reason to believe that shocks to the demand for exports will lead to significant unemployment problems in member countries under EMU. Poorer member states are not threatened more than richer ones. On the contrary, the two countries for which the potential problems are most severe are Belgium and the Netherlands, both of which are usually considered members of the rich core.

II. 3 Robustness: The Influence of the Exchange Rate.

The absence of a robust relationship between export earnings could be explained away in a number of ways. A first objection would be that actual export shocks are determined by shocks to supply as well as demand. However, it is difficult to see why export supply should be subject to large shocks that act within one year or one quarter. The capital stock and even labour inputs move only slowly and technology does not make jumps. By contrast it is much easier to imagine reasons why export demand should be unstable: the business cycle abroad can move rapidly or tastes can change suddenly. Moreover, a shock to export supply might lead mainly to a change in the quantity of exports and less in unemployment.

Another argument could be that the absence of a clear relationship between unemployment and export shocks is due to a consistent policy that on average offsets the impact of export shocks by using optimally some policy instrument, for example the exchange rate (or fiscal policy, see below).

In principle this last point could be taken into account although, the degree to which the exchange rate was used as an adjustment instrument varied enormously over the last 30 years. (The degree of wage flexibility might also have varied considerably, but it is difficult to find any succinct measure of this latter variable. This aspect was therefore not used in the empirical analysis.) However, the crude tests on the annual data reported below that this factor cannot have been responsible for the results so far.

Exchange rate adjustments should thus be incorporated in the analysis because otherwise one could argue that the absence of an effect of export shocks on unemployment is be due to the fact that during part of the period used in this investigation (1963 - 1993) exchange rates were flexible. One way to test this conjecture is to add (changes in) the real exchange rate among the determinants

© The Author(s). European University Institute. Digitised version produced by the EUI Library in 2020. Available Open Access on Cadmus, European University Institute Research Repository.

of unemployment. Table 2 reports the results with annual data obtained using a similar approach as the one used to measure the importance of shocks to exports: the change of the real exchange rate is included among the variables explaining changes in unemployment. A general result is that innovations in the (real) exchange rate have also not had a noticeable impact on unemployment. The real exchange rate has a significant impact on unemployment (once one takes into account past unemployment) only for the UK and Germany.

(see Table 2)

These results were obtained by just adding actual changes in the real exchange rate as one of the determinants of unemployment. The use of actual exchange rate changes implies that one does not measure only the relevance of the exchange rate as a policy instrument. Under floating rates, exchange rates determinants by many factors and do not always move in the direction wanted by policy makers. The fluctuations of the Italian lire starting in 1992 are only the most recent example. The results reported in table 2 thus indicate that in general exchange rates are not a major policy instrument that has had in the past a major impact on unemployment.

One result that is consistent across countries is thus that the exchange rate has had very little impact on unemployment in the past. The argument that the exchange rate instrument was used up to now to offset shocks to export demand that would otherwise have resulted in unemployment is thus not supported by the experience.

The small influence of exchange rates on unemployment is understandable if one takes into account that the ratio of exports to GDP in the larger countries is around 25 to 30 % and that the price elasticity of exports is about one half. These two numbers imply that a 10 depreciation (in real terms) increases GDP by between 1.25 to 1.5 %. Further more one has to take into account 'Okuns law' which says that one needs around 3 % growth in real income to reduce unemployment by one percentage point. The reduction in unemployment that could be achieved by a 10 % devaluation is only 0.4 to 0.5 percentage points.

II. 4 Other Types of Shocks

This study has concentrated shocks to exports. What about other shocks? Any type of shock could have an effect on the exchange rate. Policy shocks, e.g. changes in fiscal or other economic policies affect overall demand and thus also the exchange rate as could be observed in the case of the US dollar during the 1980s. However, policy shocks are not unavoidable and it is not always clear that in this case an exchange rate adjustment is a desirable consequence from a global point of view.

Imagine the case of a country which experiences a sudden fall in domestic demand because households suddenly save more. A depreciation would shift demand towards domestic goods and increase exports, thus reducing the unemployment that would otherwise result from the drop in demand. However, the 'gain' in demand of the country experiencing the shock would come at the expense of the rest of the world. The country that depreciates would only export its unemployment problems. From a global point of view little would be gained from exchange rate flexibility in this case.

This argument that at the global level the effects of exchange rate changes on demand net out to zero does not apply to shocks that affect trade directly. If demand shifts from one country to another an exchange rate adjustment is required from the point of view of both. Hence fluctuations in exports are the main source of shocks that should be taken into account to ascertain the importance of exchange rate flexibility from a global point of view. Other legitimate sources of shocks would be external shocks (like an oil price change) that have differential effects because of differences in the importance of energy.

It is difficult to imagine in concrete terms economy-wide shocks that are driven by sudden changes technology or tastes. While there might be sudden changes at the sectoral level experience indicates that these fundamental determinants of the economy tend to change slowly at the aggregate level, which should give prices and wages enough time to adjust to maintain equilibrium. For example, the rise in the importance of the automobile industry or the decline of railways took decades. These secular changes caused certainly severe adjustment problems, but the argument that adjustments in the real exchange rate can be achieved quicker through changes in the nominal exchange rate loses its significance for trends that work over a decade or more.

12

III. Regions versus countries

The existence of nation states in the EU has to be taken as given. But from an economic point of view it is not a foregone conclusion that countries are the best economic units and that asymmetric shocks can also hit regions within a large country. A number of papers have shown that there is indeed a surprising amount of diversity across regions within member countries. De Grauwe and Vanhaverbeeke (1993), for example, analyze the traditional optimum currency area issues of labour mobility and asymmetric shocks at the regional level. They find that asymmetric shocks are even more important and persistent at the regional level than at the national level. However, they also confirm that labour mobility is much larger within than across countries. This suggests that labour mobility can be an adjustment mechanism within, but not across countries.

But this seemingly clear result has to be nuanced if one analyses the European labour market at the regional level more thoroughly, as done by Decressin and Fatàs (1994) (following the methodology pioneered by Blanchard and Katz (1992) for the US). These studies show that the regional experience is more diverse in the EU than in the US. In Europe only 20 % of the variations in employment by region is due to the overall European component whereas the corresponding part of the national component for the US is 60 %. In Europe the regional or idiosyncratic component is responsible for 50 % of variations in regional employment even after allowing for factors that operate at the country level. The regional dimension is thus in a sense more important than the national dimension for employment creation in Europe.

The main other findings relate to the nature of the shocks affecting employment and unemployment. The US and the EU are similar in that shocks to regional unemployment rates are typically permanent and shocks to relative (relative to the US or EU average) regional unemployment rates are typically transitory. In both cases the idiosyncratic shocks are thus mostly transitory.

The differences between the US and the EU lie in the adjustment mechanism. In the US adjustment to an (un)employment shock is through migration whereas in the EU the participation rate adjusts.

With respect to regions one can again ask whether poorer regions show a systematically different behaviour. The results in Table 4 indicate that there is no systematic relationship between income per capita and the degree to which employment growth in a region is related to the European average. For the unemployment rate an even stronger result emerges: unemployment in rich

© The Author(s). European University Institute. Digitised version produced by the EUI Library in 2020. Available Open Access on Cadmus, European University Institute Research Repository.

regions reacts less to the European average than poor ones. This result comes from a cross-section regression that uses the results of Decressin and Fatas (1994) who report, for the 50 regions they consider, the coefficient of a times series regression which links unemployment in each region on the average European unemployment rate. The 50 coefficients found this way can then be related in a cross section regression to income per capita which yields a <u>negative</u> coefficient that is different from zero with a probability of over 99 %. The unemployment rate in richer regions is thus more likely to be negatively correlated with the European average than that of poorer ones. There is thus no evidence that poorer regions are more exposed to business cycle fluctuations than richer ones. Given that it is commonly assumed that it is better for an EMU if the component regions move together over the business cycle this implies that, on average, poorer regions will fit better into EMU than the richer ones.

Table 4

Regional labour market performance: rich and poor

	Independent variable: $(GDP/CAP)_i$ at market exchange rates	Independent variable: $(GDP/CAP)_i$ at Purchasing Power Stand.
Dependent variable: β_i (Employment)	$\beta_i = 0.98 + 0.97*GDP$ (2.53) (0.25) S.e.= 0.78 R^2 =-0.02	$\beta_i = 0.94 + 1.37*GDP$ (2.06) (0.3) S.e.= 0.78 R^2=-0.02
Dependent variable: δ_i (Unemplmt.)	$\delta_i = 2.03 - 9.8*GDP$ (6.94) (-3.37) S.e.= 0.59 R^2=0.17	$\delta_i = 2.2 - 11.6*GDP$ (6.33) (-3.3) S.e. = 0.59 R^2=0.17

Source: Own elaboration based on data from Decressin and Fatas (1994), page 20/21, table 1A which contains the regression coefficients from (<u>inter alia</u>) the following regressions: $\Delta log(N_{it})=\alpha_{1i}+\beta_i\Delta log(N_{et})+error$ (growth rate of employment in region i as a function of growth of employment in the EU) and $U_{it}=\alpha_{2i}+\delta_i U_{et}$ (the unemployment rate in region i as a function of the European unemployment rate).
Note: In all cases GDP coefficient was multiplied by 1000 for better presentation.

14

Further material on the importance of the regional dimension is provided by De Nardis et al. (1994) who analyzes the structure of employment by industry in each region and performs a cluster analysis in order to find out what regions have a similar economic structure. They find that most regions belong to one of 5 groups with a specific specialization (agriculture, heavy industry, etc.). However, countries do not seem to specialize, all large countries have regions in several groups and even some of the smaller countries have regions in more than one group. Hence it appears that most countries have a diversified basket of different regions.

IV. EMU and labour mobility

Concentration of industry and hence pronounced core periphery patterns are more likely to emerge when labour mobility is high. But since most studies concur that labour mobility is low in Europe (not only across countries, but also across regions within countries; always compared to the US) there should be less concentration in Europe than in the US.

Some authors have used this line of thought to arrive at a sort of catch 22: As long as labour mobility is low in Europe EMU is costly because labour mobility is needed to offset asymmetric shocks. However, so the argument goes; if labour mobility were to increase (possibly because EMU comes anyway) concentration would increase and hence the likelihood of asymmetric shocks would also increase, again making EMU costly. The suggested conclusion is that heads EMU is impossible and tails it is not desirable. The proper conclusion would seem to be that labour mobility is perhaps less crucial for EMU than previously thought: Although labour mobility allows for a quicker adjustment to shocks it also favours concentration of industry and hence increases the potential for asymmetric shocks.

However, since labour mobility is usually assumed to be important it is still useful to take a look at the data which does not always yields the results that are commonly expected.

i. Inter-national versus inter-regional mobility

It is a commonly accepted proposition that labour mobility in Europe is very low in absolute terms and compared to the US. A corollary is that the potential costs of EMU should be high. The degree of labour mobility in Europe has, however, never been documented carefully because of the absence of reliable statistical

Digitised version produced by the EUI Library in 2020. Available Open Access on Cadmus, European University Institute Research Repository.

© The Author(s). European University Institute.

material. This is now changing.[4] However, the data now available do not confirm the widely held notion of low international labour mobility.

In 1992 almost 2.2 million immigrants came to the member states of the EU (equivalent to about 0.7 % of population). And it appears (these data are less reliable) that emigration was more than 1 million lower than immigration. This can be compared to the US where the average net immigration was about 800 thousand on average per annum during 1986-91 (about O,4% of population), lower than that of the EU in 1992.

If one wants to judge whether the observed level of migration in the EU indicates a degree of labour mobility that is so low that asymmetric shocks in an EMU will lead to serious problems inter-regional migration within member states provides a useful reference point.[5] Table 3 therefore shows the most recent available data on immigration from the rest of the world as a percentage of the overall population and the percentage of the population that moved between regions within the country. Given that the data or emigration is much more partial only the data on immigration will be discussed below.[6]

Table 3 shows that the total number of immigrants arriving in EU countries, about 2.3 million is below the number of inter-regional migrants, about 3.1 million. However, the orders of magnitude are similar. Inter-national migration amounts to more than 2/3 of inter-regional migration. One can also compare the (unweighed) averages of the populations that move across national and regional borders. Inter-regional migration amounted on average to 0.89 % of population whereas inter-national migration was equal to 0.67 %, again more than 2/3 of the intra-national level.

Hence it appears that contrary to what economists have so far assumed inter-regional and inter-national migration are of a similar order of magnitude in Europe. What conclusions can one draw from this? While one should not presume automatically that inter-regional migration within member states is sufficient to make them optimum currency areas one can at least conclude that - for a given importance of asymmetric shocks- a monetary union for the EU should not create more problems than the monetary unions coinciding with existing nation states create at the regional level; provided one can assume that international migrants are flexible in the choice of their country of destination.

Table 3: Migration in Europe

	% of population			In thousands	
	Immigration	Emigration	Inter-regional migration	Im-migration	Inter-regional
Average	0.67		0.89	2356.7	3131.107

♦ Source: Eurostat
♦ N.B.: Immigration into SW, SF, L, IRL, GR, DK (all the countries for which no data on inter-regional migration is available) was to equal 186.9 thousands.

----

ii) Can labour mobility be a substitute for real wage adjustments?

The usual line of reasoning is quite simple: In EMU unemployment will arise if an external shock hits a given country or region because nominal wages usually do not adjust quickly enough to re-establish equilibrium on the labour market. It is then argued that if all the unemployed left (and go the country/regions which experience the mirror image, or positive side of the same shock) there would be no problem. However, this argument is too simple since it neglects the fact that those who leave also reduce the demand for domestic products. Emigration of the unemployed shifts the demand for labour again downwards, which implies that at the (by assumption) fixed nominal wage there will be a second round of unemployment.

A simple graph can illustrate this idea quite easily. Figure represents the usual model of the labour market: labour supply is fixed at N^s (e.g. a constant share of the total population) and labour demand, N^d, is the usual function of the real wage (on the vertical axis). Initially equilibrium is attained at the full employment level N^s. An external demand shock is assumed to shift the labour demand schedule to the left. If real wages cannot adjust labour demand drops to N' and there is unemployment equal to N^s - N'.

Apparently the unemployment problem could be solved if the unemployed emigrated until N^s drops to N'. However, this reasoning neglects that the labour demand curve depends not only on the real wage rate, but also on the level of overall demand. Since the unemployed receive in reality unemployment benefits which allow them to maintain their spending close that of the employed they also contribute to domestic demand as long as they stay at home. If they

17

emigrate the domestic demand curve for labour will again shift to the left, thus aggravating the fall in employment that occurred in the first round. At the given wage rate this leads to more unemployment and hence more emigration; etc.. This circle will not continue forever since one the induced shift in labour demand should be smaller than the original one.

By how much should the demand for labour curve move down if the unemployed leave? Should it move at all? With the assumption of fixed nominal wages one is in a keynesian environment and a lot will depend on other parts of the model, especially the consumption function (including the way in which the government budget constraint is taken into account) and the proportion of consumption that goes on domestic, perhaps non-tradable goods.

While the strength of the effect is not clear it should be clear that labour mobility can magnify the impact of external disturbances on output.

iii) The contribution to labor mobility to adjustment

It is apparent that people move much more often in the US than in Europe. However, what matters in the context of discussions about EMU is the extent to which net movements react to local unemployment. It is surprising to note how little hard evidence exists on this point. The most widely cited study is Eichengreen (1993) who compares the reaction of inter-regional migration to local unemployment and wages in the US, UK and Italy. He finds that net immigration to any of the 9 Census regions reacts indeed to unemployment in the previous period, however, the effect is rather imprecisely estimated since the t-statistic is only 1.92.[7] The point estimate (-0.37) implies that net immigration would fall only by 0.0825 (percentage points) if the average unemployment for the US is 8 % and if it increases in any region from this level to 10 %. If migrants have the same family composition and activity rates as the local population the change in migration would thus be equivalent to 1/25th of the increase in unemployment.[8]

Blanchard and Katz (1992) report a much stronger reaction of migration to unemployment. They estimate that a negative shock to employment in any 'average' US state is offset within one period by about 60 % through migration. The problem with their approach is, however, that they do not use any data on migration, instead they calculate implicit migration effects from their data on employment, unemployment and participation rates.

18

Blanchard and Katz (1992) (henceforth BK) argue that migration must account for most of the adjustment to shocks to employment in the US since they find that a 1 % shock to employment in a given state is followed typically by a 0.3 % increase the unemployed and a very small (0.05) decrease in labour force participation. According to BK migration must account for the difference, i.e. 0.65 % of the total adjustment. This interpretation implies that if General Motors fires 100 workers 65 of them leave the region within one year. This is difficult to believe even for the US.

However, the BK approach seems to have internal difficulties which become apparent once one applies the same methodology to a European country. As an illustrative example I replicated the BK methodology using data from Germany (relative to the EU) average. The tri-variate system (percentage change in employment, employment rate and participation rate, all Germany relative to US) seems to work well. It yields a sort of 'Okun coefficient' of about 0.33, similar to the one found by BK for the average US state. Moreover, and this is crucial, the reaction of the labour force participation rate to employment shocks is larger than in the US, but still moderate: a fall in employment of 1 % leads to a fall in participation of 0.39 % in the first year. The 'implicit' migration would thus be for Germany 0.28 (the result of 1 - 0.33 -0.39). This is still too high to be believable. The dynamics of the system implies that after 3 years, the loss of employment has increased to 2 %, unemployment has increased only to 0.42 % (its peak) and labour force participation has fallen by a cumulative 1.2 %, meaning that 38 % of the number initially fired should have emigrated in the meantime.

V. Conclusions

Is EMU desirable despite the heterogeneity of the EU? This note argues that differences in income should not be an obstacle to EMU.

The basic reason is that differences in income levels are not, per se, an obstacle for EMU. Poorer countries benefit potentially as much from EMU as richer ones from the gains in transactions costs. However, poorer countries usually also have a different industrial structure, which in turn might imply that they are more likely to experience asymmetric shocks. But if one looks at the experience of EU member countries there is little evidence that poorer member countries have had in the past a stronger need for exchange rate adjustments than the richer ones. Hence there is no evidence that poorer countries should benefit less from EMU or that poorer countries, once inside, will create more problems for the smooth

operation of the Union. Nor is there evidence that poorer regions would create more problems for the management of EMU than richer ones.

The main empirical finding of this paper is that unemployment problems in the past have had little to do with external shocks and exchange rates. Hence it is not likely that the lack of exchange rate adjustments under EMU will lead to major problems in this area. The standard argument that EMU will lead to more unemployment because symmetric shocks could no longer be offset through exchange rate changes has been exaggerated.

International labour movements in the EU (especially immigration from third countries) have now increased to a point were they are of a comparable order of magnitude as inter-regional migration within member countries. EMU should thus not be more difficult to manage than the existing Monetary Unions in Europe that member state represent.

DG/CEPS/28 February 1996

20

References

Bayoumi, Tamin and Barry Eichengreen (1994), 'Shocking Aspects of European Monetary Integration' in F. Giavazzi and F. Torres (eds) Adjustment and Growth in the European Monetary Union, Centre for Economic Policy Research (CEPR), Cambridge University Press.

Bayoumi, Tamin and Eswar Prasad (1995), 'Currency Unions, Economic Fluctuations and Adjustment: Some Empirical Evidence, CEPR Discussion Paper No. 1172, May.

Bini-Smaghi, Lorenzo and Silvia Vori (1993), 'Rating the EC as an optimal currency area: is it worse than the US?', Banca d'Italia Discussion Paper, no. 1987, Banca d'Italia, January.

Blanchard, Olivier and Lawrence Katz (1992), 'Regional Evolutions', Brookings Papers on Economic Activity I: 1992, pp. 1 -75.

Boltho, Andrea (1994), 'A comparison of regional differentials in the European Community and the United States', chapter 4 in Improving Economic and Social Cohesion in the European Community, edited by Jorgen Mortensen, St. Martin's Press, New York.

Decressin, Jörg and Antonio Fatàs (1994), 'Regional Labour Market Dynamics in Europe', CEPR Discussion Paper No. 1085.

De Grauwe, Paul and Wim Vanhaverbeke (1993), 'Is Europe an optimum currency area?: evidence from regional data', chapter 5 in Policy issues in the operation of currency unions, edited by Paul R. Masson and Mark P. Taylor, Cambridge University Press.

De Nardis, Sergio, Alessandro Goglio and Marco Malgarini (1994), 'Regional Specialization and Shocks in Europe', manuscript, Centro Studi Confindustria, september.

Eichengreen, Barry (1993), 'Labour markets and European monetary unification', chapter 6 in Policy issues in the operation of currency unions, edited by Paul R. Masson and Mark P. Taylor, Cambridge University Press.

Faini, Riccardo (1994), 'Trade Unions, Fiscal Policy and Regional Development', pages 179 to 202 in The Location of Economic Activity: New Theories and Evidence, CEPR Conference Report (Vigo, 17/19 December 1993).

Gros, Daniel and Erik Jones (1995), manuscript, Centre for European Policy Studies (CEPS), february.

Gros, Daniel and Guy Vandille (1995), 'European Trade Structures', manuscript, Centre for European Policy Studies (CEPS), february.

Gros, Daniel (1996), 'Towards Economic and Monetary Union: Problems and Prospects', CEPS Paper 65, January.

Endnotes

1. The average US state has a population of 4.8 million (and the std of state population is 5.2 million), average and std of population of Eurostat regions, how many above US average?

2. This makes the finding that temporary shocks tend to be less symmetric in the US than in Europe difficult to interpret.

3. In the case of Spain the notation -/+ means an increase in real exports first reduces unemployment and then increases it, with the net effect equal to zero. However, these cases of a significant wrong sign should be discounted - along with some of the weaker coefficients of the right sign. Given the number of regressions that are behind table (11 countries using 8 proxies for export demand) it is surprising that there are not more cases of spurious correlation.

4. See 'Statistics in Focus' 1995, 3 of Eurostat that concentrates on international migration concerning EU member states.

5. The most recent available data on this is for 1990 - 1992, but it appears that inter-regional migration within member states has been rather stable over the last decade.

6. For inter-regional movements within member states emigrants equal immigrants by assumption. One should also keep in mind that the national definitions of what constitutes an immigrant (or migrant) vary greatly.

7. However, the constant term in his equation is rather precisely estimated (t-statistic of 5.76) and indicates that immigration amounts each year to about 1.1 % of the population of the region if the region has the same wage rate and unemployment rate as the average for the entire US. The constant term is about 10 times higher for the US than for the UK.

8. Bayoumi and Prasad (1995) analyse the behaviour of sectoral employment in some member states and US regions. They find that most of the shocks to employment are industry specific and both the US and European countries, but they chose to interpret the same result differently: for the US this result is taken to indicate a high degree of labor mobility because wages are also mostly affected by industry specific shocks whereas in Europe this result is taken as an indication of low labor mobility beause shocks to wages are mostly country specific.

Table 1

Summary results for unemployment as a function of export performance

Dep. Var.	Changes in unemployments levels				Changes in Unemployment Differences		Unemployment Differences	
Ind. Var.	*csc	*eec	*etc	*ne	*nd	*tdc	*nd	*td
be	−		−	−	−		−	
dk		+	+					
wd	−			−				
gr	−							
es						+		− −
fr								
ir				−				
it						+		
nl	−			−			−	
po	−			−	−	−	−	−
uk	−			−				

Symbol indicates sign of signficant coefficient

Key to independent variable list.	
*csc	Change in constant ECU exports
*eec	Change in intra-European exports as percentage GDP
*etc	Change in total exports as percentage GDP
*ne	Export contribution to the growth in final uses
*nd	Export contribution to the growth in final uses. difference with European avg.
*tdc	Change in difference with European avg. of total exports as percentage GDP
*td	Total exports as percentage GDP, difference with European avg.
Data source: European Commussion.	

Table 2: Change in unemployment as a funtion of of its own history, the change in real exports and the change in real effective exchange rates

Country	Constant	Change in unemployment		Change in real exports (ECU 19..)		Change in real effective exchange rates	
		first lag	second lag		first lag		first lag
Belgium	0.6 (0.19)	0.91 (0.18)	−0.40 (0.16)	−0.08 (0.02)			
Denmark							
Germany (West)		0.70 (0.19)		−0.05 (0.02)	0.05 (0.02)	−0.03 (0.019)	
Greece		0.86 (0.22)	−0.42 (0.2)	−0.03 (0.02)			
Spain		0.85 (0.23)					
France	0.44 (0.23)						
Ireland	1.25 (0.6)	0.57 (0.19)			−0.08 (0.05)		
Italiey							
Netherlands	0.79 (0.34)	0.63 (0.21)		−0.14 (0.04)			
Portugal	0.52 (0.24)	0.44 (0.21)			−0.05 (0.02)		
UK		0.74 (0.18)			0.13 (0.05)		0.09 (0.03)

N.b.: The table resumes results from regressions on annual data (1963–1993), only significant coefficients at 5% level above the critical t–value of 1.71 are reported. The empty boxes indicate that the corresponding coefficient is not significant.
Standard errors in parentheses.
Data Source: European Commission

Figure 1
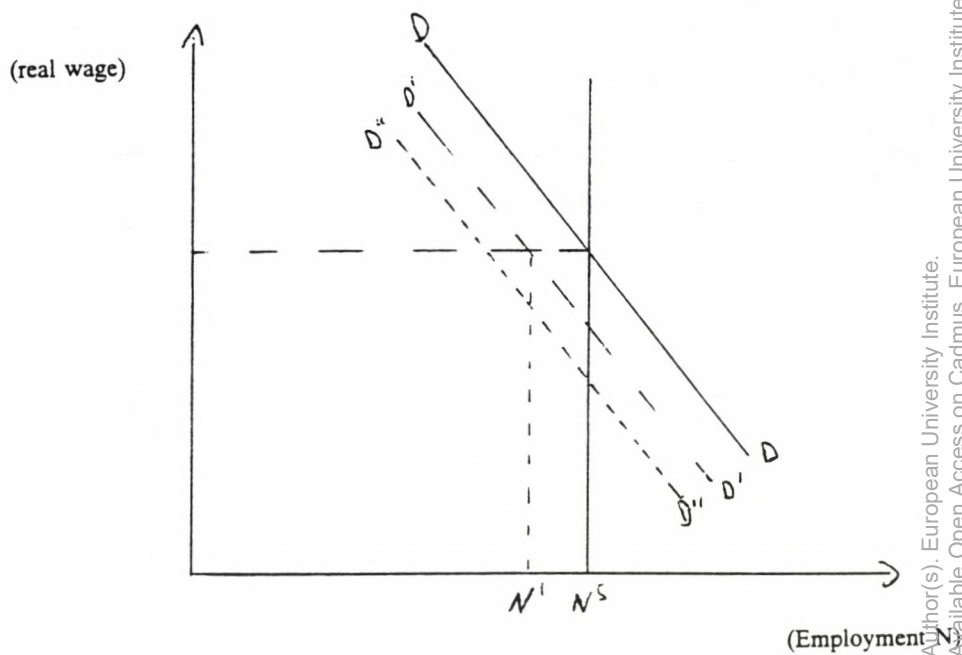
EUI
WORKING
PAPERS

EUI Working Papers are published and distributed by the
European University Institute, Florence

Copies can be obtained free of charge
– depending on the availability of stocks – from:

The Publications Officer
European University Institute
Badia Fiesolana
I-50016 San Domenico di Fiesole (FI)
Italy

Please use order form overleaf

Publications of the European University Institute

To   **The Publications Officer**
                European University Institute
                Badia Fiesolana
                I-50016 San Domenico di Fiesole (FI) – Italy
                Telefax No: +39/55/4685 636
                E-mail: publish@datacomm.iue.it

From   Name . . . .
                Address. . . . .
                . . . .
                . . . .
                . . . .
                . . . .

❒ Please send me a complete list of EUI Working Papers
❒ Please send me a complete list of EUI book publications
❒ Please send me the EUI brochure Academic Year 1996/97

Please send me the following EUI Working Paper(s):

No, Author   . . . .
Title: . . . .
No, Author   . . . .
Title: . . . .
No, Author   . . . .
Title: . . . .
No, Author   . . . .
Title: . . . .

Date   . . . .

              Signature   . . . .

Working Papers of the Robert Schuman Centre

*out of print

RSC No. 94/19
Andrea BOSCO
A 'Federator' for Europe: Altiero Spinelli
and the Constituent Role of the European
Parliament

RSC No. 94/20
Johnny LAURSEN
Blueprints of Nordic Integration. Dynamics
and Institutions in Nordic Cooperation,
1945-72

✳ ✳ ✳

RSC No. 95/1
Giandomenico MAJONE
Mutual Trust, Credible Commitments and
the Evolution of Rules for a Single
European Market

RSC No. 95/2
Ute COLLIER
Electricity Privatisation and Environmental
Policy in the UK: Some Lessons for the
Rest of Europe

RSC No. 95/3
Giuliana GEMELLI
American Influence on European
Management Education: The Role of the
Ford Foundation

RSC No. 95/4
Renaud DEHOUSSE
Institutional Reform in the European
Community: Are there Alternatives to the
Majoritarian Avenue?

RSC No. 95/5
Vivien A. SCHMIDT
The New World Order, Incorporated:
The Rise of Business and the Decline of the
Nation-State

RSC No. 95/6
Liesbet HOOGHE
Subnational Mobilisation in the European
Union

RSC No. 95/7
Gary MARKS/Liesbet HOOGHE/Kermit
BLANK
European Integration and the State

RSC No. 95/8
Sonia LUCARELLI
The International Community and the
Yugoslav Crisis: A Chronology of Events *

RSC No. 95/9
A Constitution for the European Union?
*Proceedings of a Conference, 12-13 May
1994, Organized by the Robert Schuman
Centre with the Patronage of the European
Parliament*

RSC No. 95/10
Martin RHODES
'Subversive Liberalism': Market Integration,
Globalisation and the European Welfare
State

RSC No. 95/11
Joseph H.H. WEILER/ Ulrich HALTERN/
Franz MAYER
European Democracy and its Critique -
Five Uneasy Pieces

RSC No. 95/12
Richard ROSE/Christian HAERPFER
Democracy and Enlarging the European
Union Eastward

RSC No. 95/13
Donatella DELLA PORTA
Social Movements and the State: Thoughts
on the Policing of Protest

RSC No. 95/14
Patrick A. MC CARTHY/Aris
ALEXOPOULOS
Theory Synthesis in IR - Problems &
Possibilities

RSC No. 95/15
Denise R. OSBORN
Crime and the UK Economy

RSC No. 95/16
Jérôme HENRY/Jens WEIDMANN
The French-German Interest Rate
Differential since German Unification:
The Impact of the 1992-1993 EMS Crises

RSC No. 95/17
Giorgia GIOVANNETTI/Ramon
MARIMON
A Monetary Union for a Heterogeneous
Europe

RSC No. 95/18
Bernhard WINKLER
Towards a Strategic View on EMU -
A Critical Survey

*out of print

RSC No. 95/19
Joseph H.H. WEILER
The State "über alles"
Demos, Telos and the German Maastricht
Decision

RSC No. 95/20
Marc E. SMYRL
From Regional Policy Communities to
European Networks: Inter-regional
Divergence in the Implementation of EC
Regional Policy in France

RSC No. 95/21
Claus-Dieter EHLERMANN
Increased Differentiation or Stronger
Uniformity

RSC No. 95/22
Emile NOËL
La conférence intergouvernementale de 1996
Vers un nouvel ordre institutionnel

RSC No. 95/23
Jo SHAW
European Union Legal Studies in Crisis?
Towards a New Dynamic

RSC No. 95/24
Hervé BRIBOSIA
The European Court and National Courts -
Doctrine and Jurisprudence: Legal Change
in its Social Context
Report on Belgium

RSC No. 95/25
Juliane KOKOTT
The European Court and National Courts -
Doctrine and Jurisprudence: Legal Change
in its Social Context
Report on Germany

RSC No. 95/26
Monica CLAES/Bruno DE WITTE
The European Court and National Courts -
Doctrine and Jurisprudence: Legal Change
in its Social Context
Report on the Netherlands

RSC No. 95/27
Karen ALTER
The European Court and National Courts -
Doctrine and Jurisprudence: Legal Change
in its Social Context
*Explaining National Court Acceptance of
European Court Jurisprudence: A Critical
Evaluation of Theories of Legal Integration*

RSC No. 95/28
Jens PLÖTNER
The European Court and National Courts -
Doctrine and Jurisprudence: Legal Change
in its Social Context
Report on France

RSC No. 95/29
P.P. CRAIG
The European Court and National Courts -
Doctrine and Jurisprudence: Legal Change
in its Social Context
Report on the United Kingdom

RSC No. 95/30
Francesco P. RUGGERI LADERCHI
The European Court and National Courts -
Doctrine and Jurisprudence: Legal Change
in its Social Context
Report on Italy

RSC No. 95/31
Henri ETIENNE
The European Court and National Courts -
Doctrine and Jurisprudence: Legal Change
in its Social Context
Report on Luxembourg

RSC No. 95/32
Philippe A. WEBER-PANARIELLO
The Integration of Matters of Justice and
Home Affairs into Title VI of the Treaty on
European Union: A Step Towards more
Democracy?

RSC No. 95/33
Debra MATTER
Data, Information, Evidence and Rhetoric in
the Environmental Policy Process:
The Case of Solid Waste Management

RSC No. 95/34
Michael J. ARTIS
Currency Substitution in European Financial
Markets

RSC No. 95/35
Christopher TAYLOR
Exchange Rate Arrangements for a Multi-
Speed Europe

RSC No. 95/36
Iver B. NEUMANN
Collective Identity Formation: Self and
Other in International Relations

*out of print

RSC No. 96/13
Riccardo MARSELLI/Marco VANNINI
Estimating the Economic Model of Crime in
the Presence of Organised Crime: Evidence
from Italy

RSC No. 96/14
Paul DE GRAUWE
The Economics of Convergence Towards
Monetary Union in Europe

RSC No. 96/15
Daniel GROS
A Reconsideration of the Cost of EMU
The Importance of External Shocks and
Labour Mobility

RSC No. 96/16
Pierre LASCOUMES/Jérôme VALLUY
Les activités publiques conventionnelles
(APC): un nouvel instrument de politique
publique? L'exemple de la protection de
l'environnement industriel

*out of print