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IS EUROPE AN OPTIMUM CURRENCY AREA?

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ABSTRACT

An optimum currency area is an economic unit composed of regions affected symmetrically by disturbances and between which labor and other factors of production flow freely. The symmetrical nature of disturbances and the high degree of factor mobility make it optimal to forsake nominal exchange rate changes as an instrument of adjustment and to reap the reduction in transactions costs associated with a common currency. This paper assesses labor mobility and the incidence of shocks in Europe by comparing them with comparable measures for Canada and the United States. Real exchange rates, a standard measure of the extent of assymetrical disturbances, remain considerably more variable in Europe than within the United States. Real securities prices, a measure of the incentive to reallocate productive capital across regions, appear considerably more variable between Paris and Dusseldorf than between Toronto and Montreal. A variety of measures suggests that labor mobility and the speed of labor market adjustment remain lower in Europe than in the United States. Thus, Europe remains further than the currency unions of North America from the ideal of an optimum currency area.

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I. Introduction

An optimum currency area (OCA) is an economic unit composed of regions affected symmetrically by disturbances and between which labor and other factors of production flow freely (Mundell, 1961). Insofar as regions within the OCA experience the same shocks, there is no obvious advantage to altering relative prices between them. Insofar as localized concentrations of unemployment nonetheless remain, the free mobility of labor from high- to low-unemployment regions can eliminate the problem. Hence it is optimal to dispense with one of the principal instruments -- changes in the exchange rate -- traditionally used to effect relative price adjustments, and to reap the benefits, in terms of convenience and efficiency, of a common currency.

The question of whether Europe is an optimum currency area is not one, unfortunately, that admits of a simple yes or no answer. Given the rapid progress of the 1992 program and the timeliness of the question, it is all the more unfortunate that the OCA literature does not provide a formal test through whose application the hypothesis can be accepted or rejected. Whatever evidence is considered, some standard of comparison is required.

A number of authors have used other continental economies already possessing a common currency and a free internal market as precisely such a standard. In Eichengreen (1990a) I analyzed balance of payments adjustment and regional labor market dynamics within the United States. Boltho (1989) compared regional income and growth rate disparities within the U.S. and the EC. Poloz (1990) contrasted the variability of relative prices across Canadian regions and the variability of real exchange rates across four European countries.

This paper presents further variations on this theme. I ask whether Europe is (and is likely to remain) further than the United States and Canada from satisfying Mundell's (1961) criteria for an OCA: free mobility of labor within the area and stability of relative prices.

Previous comparisons along these lines have been surprisingly ambiguous. Poloz (1990) found that real exchange rates between Canadian provinces are actually more variable than real exchange rates between France, Italy, the U.K. and Germany. In Eichengreen (1990a), in contrast, I found evidence of faster labor-market adjustment between U.S. regions than between E.C. members, although the difference was not large.

The evidence presented in this paper is less ambiguous. It uniformly points to the conclusion that Europe is less of an optimum currency area than its North American counterparts. Arguing that real exchage rate variability among Canadian provinces, and for that matter among France, Italy, the U.K. and Germany, is a special case, I instead analyze real exchange rate variability among all E.C. members and among the principal regions of the United States. I find that real exchange rates within the E.C. have been more variable than real exchange rates within the U.S., typically by a factor of three to four. In a second approach to analyzing the extent to which disturbances affect regions symmetrically, I examine the comovement of securities prices on the Paris and Dusseldorf stock exchanges with the the prices of shares traded in Toronto and Montreal. Once again, the comparison points to the existence of a much higher correlation of shocks in North America than in Europe.

Finally, direct evidence points to significantly lower labor mobility within Europe than within the United States. Of course, with the removal

of legal restrictions in conjunction with the 1992 program, it is likely that labor mobility within Europe will increase significantly. It is important to bear in mind, however, that the absence of legal restrictions is necessary but not sufficient for high levels of labor mobility. I use a case study of the U.S. North and South, between which a high degree of labor mobility has not always prevailed, to shed light on factors that help break down persistent regional labor market segmentation.

Thus, the bulk of the evidence suggests that the establishment of a currency union in Europe will be associated with non-negligible regional problems. This makes it all the more essential to develop the political and economic institutions necessary for the smooth operation of a currency union. Sachs and Sala-i-Martin (1989) and Eichengreen (1990) have considered the role of fiscal federalism in the U.S. as a regional shock absorber. Whether the absence of comparable institutions in Europe is a serious challenge to the case for an OCA turns out to be a complicated question. I focus on this issue in the penultimate section of the paper, approaching it both abstractly and using a case study approach.

II. Relative Price Disturbances and Region-Specific Shocks

A. Real Exchange Rates

In the OCA literature it is argued that exchange rate changes may be desirable to facilitate adjustment between regions experiencing large changes in relative prices, assuming that wages and other nominally-denominated costs are slow to adapt. A rise in German productivity relative to French productivity or a shift demand from French to German goods will require a fall in French costs and prices relative to

German, or unemployment will result. Devaluation of the franc may circumvent that problem of coordination failure that impedes the adjustment of costs and thereby accelerate the transition to the new steady state.

Thus, the more variable real exchange rates, the stronger the case for exchange rate flexibility. Poloz (1990) recently showed that regional real exchange rates within Canada are more variable than national real exchange rates between France, the U.K., Italy and Germany. The implication is that Europe is every bit as much an OCA as Canada. Quebec nationalists aside, few observers question that Canada is an OCA. Hence, the inference runs, Europe must be one as well.

There are good reasons to argue, however, that the U.S. versus the EC is a more appropriate standard of comparison than Canada versus France, the U.K., Italy and Germany. Canadian provinces are highly specialized in production. Alberta and Saskatchewan specialize in primary commodities, Ontario in manufactured goods. It is not surprising that real exchange rates between them are highly variable. France and Germany are diversified economies. Both possess substantial manufacturing, agricultural and service sectors. It is not surprising that real exchange rates between them are relatively stable.

Moreover, any case on these grounds for a floating exchange rate for Alberta or Saskatchewan is undermined by the small size of provincial populations and the thinness of provincial financial markets. Models in the OCA literature balance the benefits of devaluation by a region suffering a deterioration in its terms of trade against the loss of liquidity services it suffers with an independent currency and a variable exchange rate. The loss of liquidity services is modeled as a decreasing

function of the size of the domestic economy and the depth of its financial markets. Even if Alberta has a more variable real exchange rate vis a vis Ontario than France has vis a vis Germany, such models do not suggest that it would be more desirable for Alberta than for France to maintain a flexible exchange rate.

It may be more illuminating, therefore, to compare the different regions of the United States with all 10 EC members. Population size and the average degree of sectoral diversification are more directly comparable. So are the depth and breadth of regional financial markets in the U.S. with national financial markets in Europe.

The results of such a comparison appear in Table 1. Regional consumer price indices are calculated by the Bureau of Labor Statistics for the North East, North Central, South and West of the United States. The resulting real exchange rates can be compared with relative CPIs within the EC, converted into DM by period average market exchange rates. For the 1970s, the standard deviations of European real exchange rates, on a quarterly basis, range from 5.4 to 14.0 per cent, averaging 8.9 per cent for the period. For the four U.S. regions, standard deviations for the same period range only from 2.0 to 2.7 per cent. For the 1980s, with the decline of of oil and commodity price shocks, the variability of U.S. regional real exchange rates fell to still lower levels, to the range of 1.3 to 1.5 per cent. The variability of intra-EC real exchange rates fell as well, to 1.0 to 9.6 per cent, but still averaged 5.7 per cent.

This comparison is likely to be biased by the variability of nominal exchange rates in Europe in the 1970s and 1980s. Edwards has shown for developing countries, as have Mussa (1986) and Eichengreen (1989) for

Table 1

Summary Statistics for Regional Real Exchange Rates

Other EC Members Against Germany

1971.1-1979.4, 1971.1=100

	Minimum	Maximum	Standard Deviation
Belgium/Germany	92.71	111.62	5.55
France/Germany	99.84	122.28	5.40
Greece/Germany	100.00	122.28	5.40
Ireland/Germany	100.00	138.39	10.75
Italy/Germany	100.00	145.40	14.02
Netherlands/Germany	88.76	104.31	4.62
Portugal/Germany	86.11	118.06	9.46
Spain/Germany	83.77	117.68	7.42
U.K./Germany	100.00	150.94	13.74

1980.1-1987.4, 1971.1=100

Belgium/Germany	92.99	108.29	4.88
France/Germany	97.75	122.15	3.64
Greece/Germany	105.07	133.54	9.57
Ireland/Germany	87.91	114.83	6.28
Italy/Germany	104.79	126.19	5.67
Netherlands/Germany	89.45	93.48	1.05
Portugal/Germany	89.60	114.87	5.95
Spain/Germany	78.48	95.22	4.62
U.K./Germany	82.40	116.04	9.22

Other U.S. Regions Against the U.S. North East

1973.12-1979.12, 1977.12=100

	Minimum	Maximum	Standard Deviation
North Central/North East	97.253	103.730	2.06
South/North East	96.016	102.653	2.02
West/North East	94.024	103.731	2.74

1980.1-1987.12, 1977.12=100

North Central/North East	98.926	104.835	1.54
South/North East	99.195	104.444	1.32
West/North East	100.805	106.174	1.30

Notes: U.S. data are computed as quarterly averages of monthly consumer prices. Consumer prices are gathered by the U.S. Bureau of Labor Statistics for roughly 100 countries in each of the 4 regions of the U.S.

Source: see text.

industrial countries, that the variability of real exchange rates increases with the variability of nominal rates. The exceptional variability of the sterling-DM real exchange rate in the 1980s is consistent with this presumption. If the U.K., Ireland, Portugal and Greece are excluded on the grounds that they were members of the European Monetary System for at most part of the period, the average variability of intra-EC real rates in the 1980s falls to 4 per cent.

Another way to think about this point is that real exchange rates between European countries in the 1970s and 1980s have been perturbed by both real and monetary disturbances; in the United States, in contrast, monetary disturbances are common to the nation as a whole and should not have an equally dramatic effect on real exchange rates between U.S. regions. The data for the 1970s and 1980s are best interpreted, therefore, as an upper bound on the U.S.-European differential that would obtain if Europe possessed a common currency.

B. Real Security Prices

A second comparison is based on regional stock price differentials. In theory, the prices of equities should reflect the present value of current and expected future profits. If shocks are asymmetrical, profits will rise in one region relative to the other. Hence the more closely real share prices move across regions, the more symmetrical the disturbances and the more rapid the reallocation of factors of production from regions experiencing negative shocks to regions experiencing positive ones.

I compare the differentials between averages of the prices of securities traded on two regional Canadian stock exchanges (Toronto and

Montreal) with differentials between Paris and Dusseldorf. Consistent with arguments presented in Section II.A above, it would have been preferable to conduct this analysis for the U.S. instead of Canada. Though there are stock exchanges in a number of different regions of the United States (the most prominent subsidiary exchanges including Chicago, San Francisco, Philadelpha and Boston), the shares of many of the same companies are bought and sold on each of them, contaminating their share-price indices with common observations (Berlin, 1990). The two Canadian exchanges, in contrast, have nonoverlapping listings, the Montreal index specializing in enterprises located in Quebec, the Toronto index listing firms headquartered elsewhere in Canada. If the dispersion of regional shocks is smaller within Canada, we would expect prices in Toronto and Montreal to move together more closely than prices in Paris and Dusseldorf.

Share price indices were gathered for the last Friday in each quarter from issues of the Financial Times. (The Commerzbank and Herstat Bank Index for Dusseldorf is used in lieu of other German share price indices because it is the only index provided by the Financial Times for the entire period.) Since stock prices are nominally denominated, they must be adjusted for international price and exchange rate differentials. Share prices in Toronto are deflated by the Toronto CPI, share prices in Montreal by the Montreal CPI. (Unpublished CPI data were provided by Statistics Canada.) For Europe I provide two versions of the calculations, one in which franc prices are deflated by the French CPI and German prices are deflated by the German CPI, and a second, which is more appropriate if purchasing power parity does not hold, in which real French securities prices are converted into DM by the nominal exchange rate.

Table 2
Summary Statistics for Real Share Price Indices
Canada and Europe
(1980.4 = 1.00)

Coefficient of Variation

	Toronto/Montreal	Paris/Dusseldorf	Paris/Dusseldorf (Exchange Rate Corrected)
1971.1 - 1987.4	.0451	.2314	.3421
1971.1 - 1979.4	.0305	.2851	.3901
1980.1 - 1987.4	.0350	.1435	.1841

Notes: Real share price indices are constructed as share price indices normalized by consumer price indices for the relevant region. Coefficient of variation is standard deviation divided by the mean. Constituent series are all normalized to 1980.4 = 1.

Source: see text.

This is not a test of the degree of capital mobility between regions. If we thought that perfect capital mobility equalized the return on baskets of securities traded on the exchanges (which might not be an appropriate assumption if the two baskets had different risk characteristics), we would expect holding period returns, or the rate of change of prices plus dividends, to be equal across exchanges. Price levels on different exchanges would move independently, reflecting changes in expected future profitability, so as to permit the preceding condition to obtain.

Table 2 displays the results for the last two decades and for the same subperiods considered Table 1. Share prices in Toronto and Montreal move much more closely together than share prices in Dusseldorf and Paris. Since the respective indices are deflated by domestic prices, inflation differentials do not account for the difference. Adjusting for exchange rate changes between France and Germany does not alter the finding. (The exchange rate adjustment increases the variability of the Paris/Dusseldorf ratio because the exchange rate is more variable than the ratio of real share prices and its covariance with the share price ratio is virtually zero.) There is strong evidence of convergence between Paris and Dusseldorf over time when the 1970s is compared with the 1980s. But even in the 1980s, the ratio of real share prices between Paris and Dusseldorf is five times as variable as the comparable ratio between Toronto and Montreal.

The strong implication of this analysis is that region-specific shocks are greater in Europe than in Canada. There are good reasons, however, to treat this comparison, like the previous one focusing on real exchange rates, with considerable caution. Firms headquartered in Quebec do

business in Ontario, just as firms headquartered in Ontario do business in Quebec. The same is true of firms headquartered in France and Germany, but the degree of interpenetration is likely to be greater at the moment in Canada than in Europe. European commodity prices will move more closely together as border taxes are eliminated, and interest rates and other financial determinants of share prices will move more closely together with the elimination of capital controls. Hence real share prices in different European markets are likely to move more closely together in the future than they do now. It is appropriate to assume that these results provide an upper bound on the North American-European differential.

II. Labor Mobility

A. The Argument and the Evidence

The more mobile factors of production within a region, the more likely that region is, ceteris paribus, to constitute an OCA. Consider again the mental experiment of a decline in labor productivity in France relative to Germany, or a shift in demand from the products of French firms to those of their German competitors. Assume that neither a decline in French labor costs nor a change in the nominal exchange rate is feasible. It is still possible for unemployment to be avoided if French labor can migrate freely to Germany, where a notional excess demand for labor exists.

Direct evidence on the extent of interregional labor mobility is hard to obtain. The one systematic comparison of which I am aware (OECD, 1986) concluded that mobility within the U.S. was two to three times as high as mobility within European states. Table 3 shows that in 1980, for example, 6.2 per cent of the U.S. population changed its county of residence, 3.3

per cent its state of residence. In contrast, 1.1 of Englishmen and Welshmen moved between regions, and 1.3 per cent of Germans moved between states. These comparisons must be treated cautiously in light of the very different definitions of regional units used in different countries. But the contrast seems to be too pronounced to be explicable on these grounds. Nor is it plausible that the difference reflects legal barriers to movement, since such barriers do not exist within European countries. Public policy (the council house problem in the UK, or the need to establish residence before qualifying for unemployment benefits, for example) may play a role, but the dominant explanation is that America's shared immigrant past, in contrast to the tradition of ties to one's locality in Europe, continues to influence behavior.

The problem with this evidence is that relatively low levels of labor mobility within Europe may reflect a lesser incentive to move rather than a lower level of intrinsic mobility. At the international level, less labor may move between European countries not only because of border controls but also because adjustment can take place along a number of other margins (by changing nominal exchange rates, for example). At the national level, less labor mobility may occur within European countries not because Europeans are less mobile intrinsically but because a lower incidence of asymmetric regional shocks. To address this possibility, a number of authors have considered the behavior of variables that contain information about the incentive for migation. Boltho (1989), for example, examined evidence on regional income differentials in the U.S., in the EC, and within various European countries. For 1983, the coefficient of variation of per capita incomes was 0.25 for 12 EC members, but only 0.10 for 9 U.S. census

Table 3

GEOGRAPHIC MOBILITY -- PROPORTION OF POPULATION WHO CHANGED REGION OF RESIDENCE
(Percentage)

Country	Regional units (number of regions)	Reference population	Multi-year period data 1965-70	1970-75	1975-80	1970	1975	1980	1981	1982	1983
Australia	Inter-states(8)	Pop. 15 yrs+				1.7	1.9(c)	1.8	1.8	1.1	1.1
	Inter-states	Labor force(a)				5.6(b)	5.0(c)				4.9
	Inter-states	Labor force(a)				21.6(b)	18.7(c)				17.6
Canada	Inter-provinces(12)	Total population	4.3	4.3	5.1	1.9	1.9	1.8	1.9		
	Inter-provinces	Labor force			6.0						
	Intra-provinces	Total population	14.0	16.5	15.1						
		Labor force			16.7						
United States	Inter-states(51)	Total population	8.6		9.7	3.4		3.3			
	Inter-counties	Total population	17.1		19.5	6.5		6.2			
Japan	Inter-prefectures(47)	Total population			7.7	3.6		2.6			
	Intra-prefectures	Total population			24.1	3.7		6.9			
England and Wales	Inter-regions(8)	Total population				1.5		1.1			
Finland	Inter-counties(12)	Total population				2.5	1.7(c)			1.5	
	Inter-communes	Total population				5.8	4.4(c)	4.1	4.0	3.9	
France	Inter-regions(21)	Total population	6.5(d)	8.7(e)	7.9(f)						
	Inter-regions	Labor force	6.4(d)	8.9(e)	8.3(f)						
Germany	Inter-Länder(11)	Total population				1.8	1.3	1.3	1.3		
Norway	Inter-counties(19)	Total population				3.0	2.5	2.3	2.2	2.1	2.0

Table 3 (continued)

GEOGRAPHIC MOBILITY -- PROPORTION OF POPULATION WHO CHANGED REGION OF RESIDENCE
(Percentage)

Country	Regional units (number of regions)	Reference population	Multi-year period data 1965-70	1970-75	1975-80	1970	1975	1980	1981	1982	1983
Sweden	Inter-counties(24)	Total population				2.4(g)	2.4	2.1	1.7	1.7	1.7
	Inter-communes	Total population				4.8(g)	4.7	4.0	3.5	3.5	3.5
Switzerland	Inter-cantons(26)	Total population	7.6	6.3							

a) Employed population at the time of the survey who changed jobs during the previous year and changed usual residence when changing jobs.
b) 1972
c) 1976
d) 1962-68
e) 1968-75
f) 1975-82
g) 1973

Source: OECD (1986)

regions. This would appear at first glance to be strong evidence of the effects of greater factor mobility within the U.S. When the same statistic is calculated for only 9 EC members (excluding Greece, Portugal and Spain), however, it falls to 0.16. Still, a noticable differential remains.

It is not obvious, however, whether this evidence for 1983 reflects legal barriers to migration between EC countries or cultural impediments. Here evidence on inequality within European countries is useful. The standard deviation of per capita incomes in 1983 was 0.21 for 31 regions of Germany, 0.25 for 20 regions of Italy, 0.21 for 19 regions of Spain, but only 0.16 for 48 U.S. states, as if factor mobility was greater in the U.S. than within any of these European countries. On the other hand, the comparable measures for 21 regions of France and 35 regions of the UK were only 0.15 and 0.12, respectively. (So much for the council house explanation.) The argument that the less footloose nature of Europeans leads to greater income inequality in Europe does not appear to apply uniformly.

The problem with such evidence is that simple tabulations still do not distinguish the disturbances from the response. Interregional income differentials reflect both the extent of asymmetrical shocks affecting incomes in different regions differently, and the elasticity of factor flows with respect to regional income differentials. Tabulations of migration rates reflect changes over time or across locations in the shocks that provide the incentive to migrate as well as the speed of the migratory response. Disentangling the impulse from the response requires a model. In Eichengreen (1990a) I therefore estimated time-series models of regional unemployment differentials for both Europe and the United States.

I examined the speed with which unemployment in various EC countries, when perturbed, converged to its long-run equilibrium relationship to EC-wide unemployment, and compared that with the speed which which regional unemployment rates in the U.S. converged to the national average. (No assumption was imposed about the nature of the long-run equilibrium relationship.) The results suggest that regional unemployment rates adjust to one another about 20 per cent more rapidly in the United States than national unemployment rates adjust to one another within the EC. While this conclusion points in the same direction as the evidence cited above, it is still surprisingly weak evidence of slow adjustment in Europe.

Thus, it appears that greater labor mobility leads to faster adjustment to regional shocks in the U.S. than in Europe. But the differential is surprisingly small. A possible interpretation is that the mobility of other factors of production, such as capital, substitutes for labor mobility.

B. Breaking Down Barriers to Labor Mobility: An Historical Interlude

A presumption in this discussion, as in much current policy analysis, is that, with the removal of legal restrictions, labor mobility within Europe is sure to increase. By how much is a matter for debate. The absence of legal restrictions is necessary but not sufficient for labor to move freely between regions. The historical experience of the U.S. South, documented by Wright (1986), from whose analysis my discussion is drawn, illustrates the point and identifies factors that help to overcome a legacy of regional labor-market segmentation.

The origins of a separate Southern labor market are not difficult to

understand. Slavery was only the most visible manifestation of the social, cultural, political and economic institutions that differentiated South from North in the United States. After the Civil War, race relations continued to take on very different forms in the American South and North. Southern labor was provided with significantly lower levels of education than its Northern counterpart.

The result was a strikingly low level of labor mobility between the U.S. North and South in the 75 years from the American Civil War to the second world war. For fully three quarters of a century, farm wage rates without board, a good proxy for the wages of unskilled labor, in states like Mississippi and North Carolina averaged only half their equivalent in states like Ohio and Iowa.

It is important to note what does not explain these differentials. Low Southern wages were not due to the absence of a properly functioning regional labor market. Wage rates for unskilled workers in different Southern states converged steadily over the period. Wage differentials within the South were never significantly larger than wage differentials within the North. Nor do low Southern wages appear to have been due to racial discrimination. Though there is ample evidence of firm-level and occupational segregation, competitive pressures drove the wages of black and white farm laborers to equality. Given the size of the agricultural sector, this dictated the wages that industrial employers could pay for unskilled labor. If they attempted to pay less, workers would simply return to agriculture. Hence the competitiveness of the unskilled agricultural labor market equalized wages for unskilled black and white workers in industry.

Low Southern wages are sufficient to explain why neither Northerners nor Europeans migrated to the South. What then prevented low-paid Southern workers from migrating to the North? In part, the region's history of labor market segmentation perpetuated itself. The information and reception migrants require is provided typically by family or neighbors who made the trip in years past. Southerners lacked transplanted relatives and friends in the North to extend these services. In contrast, European migrants followed their relatives and former neighbors to ports of entry like New York and then to cities in the Middle and Far West. When additional employment opportunities appeared in the North, these were filled not by Southerners but by European immigrants. Wright concludes that the Northern labor market was more integrated with that of Europe than with that of the South.

One would think nonetheless that a few hearty souls would have somehow travelled north, paving the way for others. Additional factors must have contributed, therefore, to the isolation of the Southern labor market. Those additional factors, Wright suggests, were political as well as economic. Large Southern employers and landowners discouraged Northern labor recruiters who might have wished to appropriate their low-wage labor. These same individuals discouraged the provision of education on the grounds that educated workers were more likely to emigrate than others. Since literacy and numeracy enhance mobility, the existence of a substantial wage gap meant that that the South would have been unable to appropriate the benefits of additional educational spending. Agriculture and low wage industries such as textiles and timber benefitted from the elastic supply of low wage labor, and the disproportionate political power

of large landowners and industrialists prevented institutions and markets from responding so as to arbitrage the wage gap between North and South.

If Southern labor failed to move out so as to eliminate interregional wage differentials, why did Northern capital fail to move in to take advantage of cheap Southern labor? To some extent it did, as Wright shows. But Northern capital had to hurdle three barriers. First, capital and labor mobility were complementary, so barriers to one also posed barriers to the other. The difficulties of effectively monitoring investment from afar meant that capital tended to migrate across states only when its owners accompanied it or followed quickly. Hence obstacles to the inmigration of persons also impeded the inmigration of capital. Second, the predominance of unskilled, relatively uneducated labor in the South dictated the adoption of technologies and production processes very different from those appropriate to skilled labor in the North; Northern investors had little prior opportunity to acquire familiarity with Southern methods. Finally, wealthy Southerners discouraged outside investment, which threatened to drive down the rate of return on their own capital and undermine their political control.

What was responsible ultimately for breaking down the barriers between Southern and Northern labor markets? Wright points to simultaneous supply and demand shocks in the 1940s. On the demand side, World War II created new employment opportunities in the North and West. That the demand for labor rose in the North during wartime meant that, for once, the supply of immigrants from Europe was relatively inelastic. But similar opportunities for Southerners had opened up in the North during War War I without permanently eliminating regional labor market segmentation. Wright

suggests that World War II had more profound effects because its demand-side shock reinforced equally profound supply-side disturbances. The NIRA had reduced labor hours and established minimum wages that were binding for much of Southern industry. The Fair Labor Standards Act of 1938 made wage minima permanent. Federal incentives for agricultural mechanization further reduced opportunities for farm employment for unskilled labor. Unskilled blacks priced out of employment naturally began to seek opportunities elsewhere. The result was massive outmigration by unskilled workers once employment opportunities opened up in the North.

What are the implications of this tale for labor mobility in Europe? A first implication is that the removal of legal restrictions does not automatically produce an integrated labor market. Regional labor market segmentation can be remarkably persistent, especially if distinctive cultural and social factors are embedded in a political system that vests power in individuals with an interest in the maintenance of segmentation. A second implication is that investment in education is important for promoting interregional mobility. A third implication is that breaking down barriers to worker mobility requires policies targeted at both the demand and supply sides of the labor market.

III. Regional Self-Insurance

A. The Argument and the Evidence

A popular explanation for the tolerance in currency areas like the U.S. and Canada of region-specific shocks is that their federal fiscal systems provide regional insurance. If incomes in a U.S. state decline by $1, federal tax payments by residents of that state decline by 30 cents,

while transfers from Washington, D.C., mostly in the form of federally-funded unemployment insurance benefits, rise by 10 cents (Sachs and Sala-i-Martin, 1989). The impact of regional shocks on inter-regional income differentials is thereby attenuated. Insofar as the locus of regional shocks shifts over time, all regions are rendered better off by risk sharing achieved via the federal fiscal system (Eichengreen, 1990b).

It is important to be clear on the nature of this argument. It is not that fiscal federalism is a necessary prerequisite for monetary unification. Historically, most federal unions established common currencies before adopting extensive systems of fiscal federalism. The United States and Canada are two obvious cases in point. The argument rather is that monetary union accompanied by fiscal federalism is likely to operate more smoothly than monetary union without it, insofar as regional problems that otherwise might arise are mitigated by interregional transfers.

Interregional transfers accomplished through federal taxes and expenditures are justifiable only if insurance cannot be provided by the market. In principle, a lumberjack or an aerospace worker in Washington state should be able to write a contract selling part of his expected labor income to an auto worker in Michigan or to an investment banker in New York City. In practice, problems of moral hazard and adverse selection prevent such diversification of human capital portfolios. Alternatively, individuals should be able to diversify away regional risk by purchasing financial assets, the returns on which are imperfectly correlated with their income streams. Most individuals seem to do so only to a limited extent, a fact for which there are two plausible explanations. The first

one is liquidity constraints: for most workers, financial wealth is a small share of undiversifiable, largely illiquid human capital. The second one is that much of the financial wealth workers possess may be tied up in their homes, the epitome of an indivisible, regional-specific asset. The large literature on state and local public finance is predicated in part on the presumption that there are intrinsic reasons why markets fail to resolve the problem, creating a role for government intervention.

But it does not follow that intervention can only occur at the federal level. Because they possess powers of taxation, state governments can compel their residents to participate in the regional insurance scheme, solving the adverse selection problem. States can borrow on the OCA-wide capital market when regional incomes decline and repay when incomes rise. This would seem to be a perfectly adequate substitute for a system of fiscal federalism.

The capacity to borrow of members of a currency area may be limited, however. The debt they can incur today is limited by the present value of the taxes they can collect tomorrow (taxes which will be used to service the accumulated debt). This is evident in the experience of U.S. states, which are forced to pay sharply rising interest rates as they continue to borrow. Given the high mobility of factors of production within the U.S., individual states cannot credibly promise to raise future taxes significantly above those prevailing elsewhere in the currency and customs union, since footloose factors of production will flee to lower tax jurisdictions. Moreover, problems of moral hazard remain. States that borrow on the OCA-wide capital market have an incentive to default when the time comes to repay the loans. As Bulow and Rogoff (1989) have noted,

reputational considerations may not help. Hence states that run budget deficits are likely to face sharply rising supply curves of external funds. As the costs of fiscal self-insurance rise, state governments may find themselves rationed out of the capital market. These factors are likely to be particularly important for EC members already burdened by high levels of public debt. Belgium, Ireland and Italy all possess public debts that approach or exceed 100 per cent of GNP. These are large debts by Latin American standards. In a recession, when the budget deficit grows and GNP shrinks, this debt-to-income ratio may rise dramatically, exacerbating difficulties of borrowing.

These, then, are the grounds for institutionalizing interregional transfers at the federal level. Table 4 summarizes the extent of fiscal transfers among governments in the United States. Clearly there does not exist the possibility of fiscal federalism on this scale in Europe, where the Community budget is on the order of 1 or 2 per cent of GNP.

Skeptics counter that factor mobility is lower in Europe than in the United States. Hence members of the EC have more latitude to vary future taxes relative to those prevailing elsewhere in the currency union. As noted above, this may be a mixed blessing: while it enhances a country's capacity to borrow, it also increases the need to borrow in a recession.

A second counterargument to the case for fiscal federalism is that fiscal transfers into a depressed region from elsewhere in the federal system discourage factors of production from moving out - that is, from reallocating themselves to other areas where their productivity is higher. This is not an argument against fiscal transfers, however, but a caution against transfers so generous as to seriously distort economic incentives.

Table 4

U.S. INTER-GOVERNMENTAL REVENUE AS PERCENTAGE OF RECIPIENTS' EXPENDITURES

Year	State Receipts from Federal Government as Percentage of State Expenditures	Local Receipts from Federal and State Governments as Percentage of Local Expenditures
1902	1.6	5.8
1922	7.4	7.1
1932	8.0	12.8
1942	16.6	25.4
1958	18.3	24.9
1964	21.2	27.0
1967	23.2	30.3
1972	24.5	33.5
1974	23.9	39.0
1976	23.2	38.4
1978	24.6	39.8
1980	24.0	39.3
1982	21.3	37.2
1984	21.7	35.3
1986	21.8	34.4
1987	20.9	33.7

Source: Break (1967), p. 5, for 1902 - 1964.
Advisory Committee on Intergovernmental Relations, Significant Features of Fiscal Federalism 1989, vol. 1, for 1967-1987.

Here the optimal adjustment assistance literature, in which the marginal utility households derive from income transfers is balanced against the marginal costs of discouraging adjustment, provides guidance on how to structure a tax and transfer program.

A final counterargument (the idea for which I owe to Jacques Melitz) is that fiscal federalism, like any form of insurance, creates still other problems of moral hazard which are likely to manifest themselves in labor militancy. Consider the following example. National labor unions seeking to maximize the wage bill set the level of real wages, subject to which firms then choose the level of employment. Assume that there exist transfers from employed workers to their unemployed brethren (unemployment insurance benefits, for example). In general, the union will set wages that are above market-clearing, socially-efficient levels. If the union is region specific (a French union within a single European market, for example), and if the cost of financing unemployment benefits is shifted from French taxpayers to the EC as a whole, the French union has an incentive, ceteris paribus, to raise the wage it sets, creating more socially inefficient unemployment. The same holds, ceteris paribus, for unions in other countries. Not only does the provision of insurance thereby encourage the outcome, unemployment, whose effects it is designed to mitigate, but the magnitude of the distortion increases with the extent of fiscal federalism.

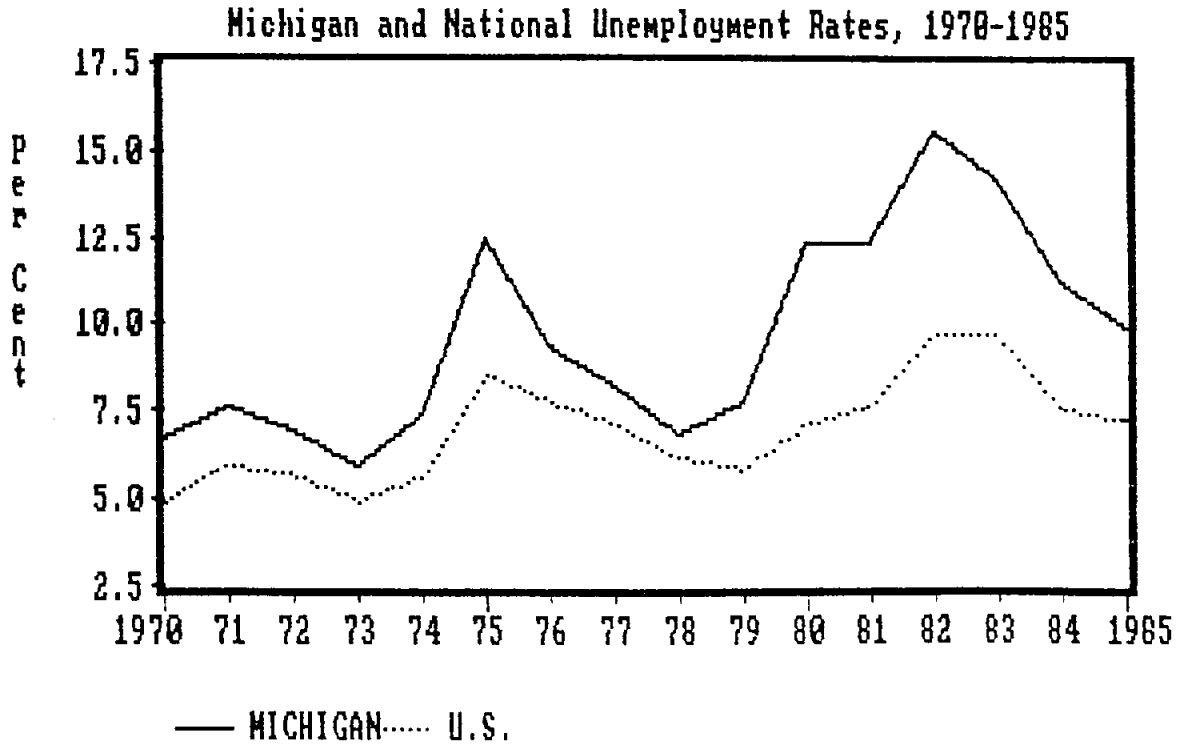
In the United States, a variety of incentive mechanisms built into the administration of unemployment insurance minimize these forms of moral hazard (Rejda, 1984). Each state administers its own unemployment insurance trust fund. In addition, states pay a fraction of the payroll

taxes levied to finance the program into a Federal Unemployment Trust Fund, which is administered by the secretary of the Treasury. States whose own trust funds that move into deficit are able to borrow from this federal fund. Significantly, however, states must pay interest on the monies they borrow from the federal trust fund. Except insofar as those interest rates are set below market levels, states are unable to shift the burden of financing their unemployment programs. Proposals for federal reinsurance of state unemployment insurance programs have been mooted in recent years; under these proposals states would pay unemployment-insurance-related payroll taxes into a federal trust fund in proportion to the value of state payrolls but draw from that fund in proportion to the level of state unemployment. Such a program might well reintroduce the moral hazard problems of which some observers warn.

B. Fiscal Federalism in Practice: An Historical Interlude

To illustrate the importance of the mechanisms described above in adjustment to regional shocks in the United States, I consider the case of Michigan's adjustment to a region-specific shock at the end of the 1970s. Michigan is the most cyclically-sensitive state economy in the U.S. (Bretzfelder, 1973). When America sneezes, the popular saying goes, Michigan catches pneumonia. The case of pneumonia I consider here is the recession that followed the 1979 oil shock. Unemployment rose nationwide following the oil shock and the adoption of disinflationary policies, but as Figure 1 makes clear it rose especially dramatically in Michigan. At its peak in 1982, the differential between unemployment in Michigan and the national average approached six percentage points. The rise in energy

Figure 1


Michigan and National Unemployment Rates, 1970-1985
Per Cent
17.5
15.0
12.5
10.0
7.5
5.0
2.5
1970 71 72 73 74 75 76 77 78 79 80 81 82 83 84 1985
MICHIGAN
U.S.

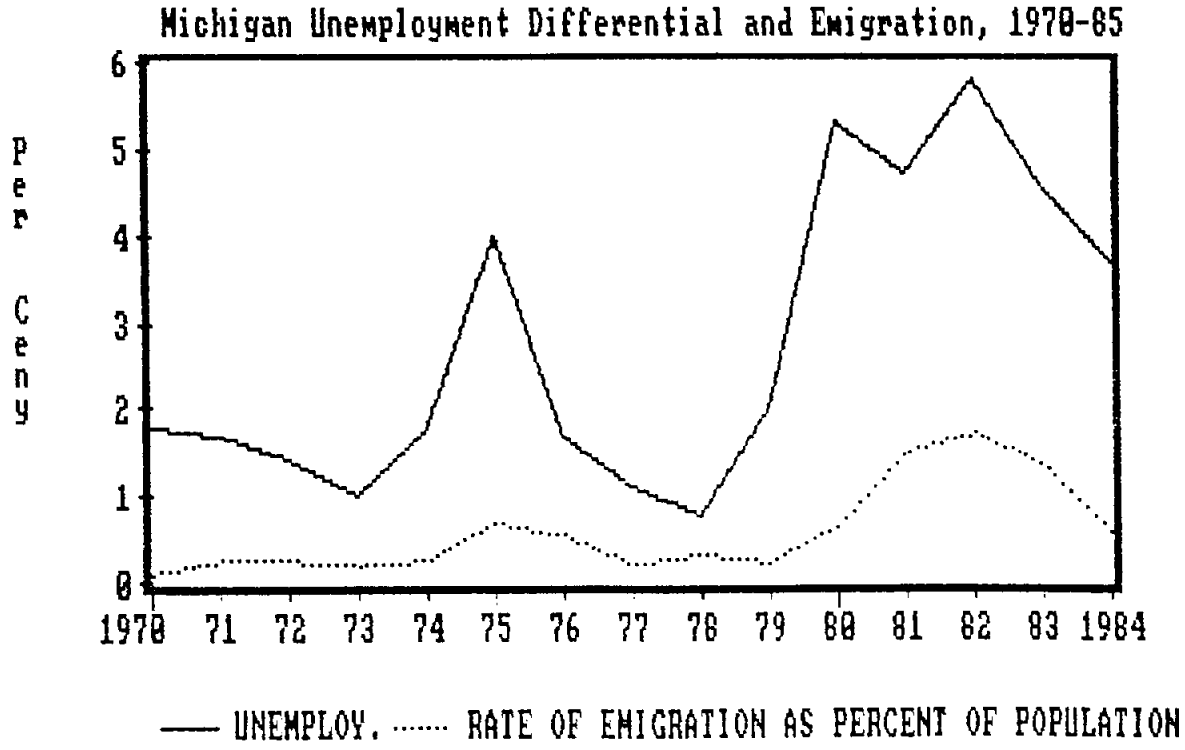
prices had a disprortionate impact on production costs in cold-winter states heavily reliant on space heating. It depressed the demand for motor vehicles as consumers substituted toward more fuel-efficient Japanese imports. Rising interest rates on consumer installment loans and lagging incomes reinforced the slump in the automobile industry.

Figure 2 displays one mechanism by which Michigan adjusted to this shock, namely outward labor mobility. The differential between the Michigan and national unemployment rates is compared with the rate of emigration from Michigan. The two lines in the figure must be compared cautiously, since their numerators differ. (Persons unemployed are expressed as a percentage of the labor force, while emigration is expressed as a percentage of state population.) Nonetheless, the figure shows that interregional labor mobility was one significant form of regional adjustment.

Figure 3 shows the swing in the state budget balance and in net federal transfers to Michigan. Since the state is bound by its constitution to run a balanced budget, the government accumulates a reserve in its Budget Stabilization Fund in good times in order to incur expenses in excess of current revenues in slumps without showing a deficit on its books. It is not the level of the state deficit or surplus that is relevant but the swing between peak and trough.

The series shown is total state revenues including those transfered to local governments minus state government expenditures. (Were transfers to local government netted out and revenues for which the state government is final receipient used instead, the line would shift down but its contours would remain the same.) At its peak, the state deficit measured on this

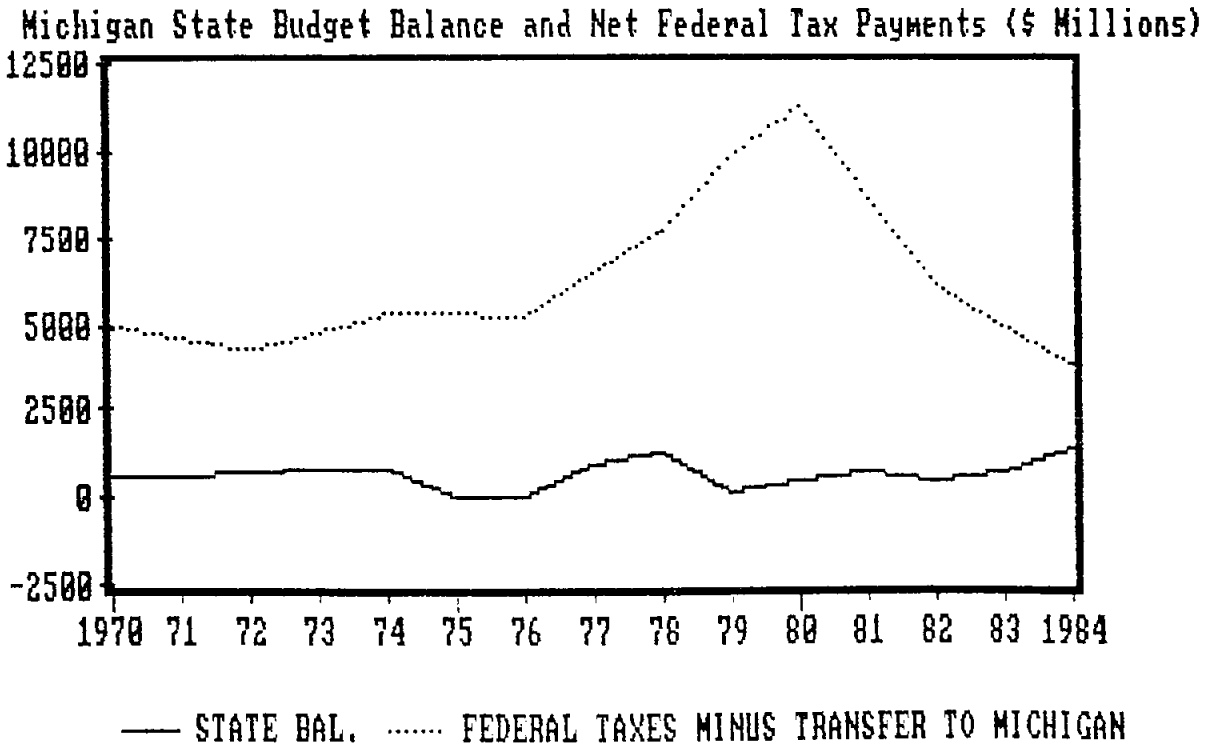
Figure 2


Michigan Unemployment Differential and Emigration, 1970-85
Per Cent
6
5
4
3
2
1
0
1970 71 72 73 74 75 76 77 78 79 80 81 82 83 1984
UNEMPLOY.
RATE OF EMIGRATION AS PERCENT OF POPULATION

basis would have been $422 million rather than $1 million in 1975.

Also displayed is a measure of net transfers to Michigan from the federal government. This series is estimated by the Tax Foundation, a nonprofit research organization, and published in the Michigan Statistical Abstract (Verway, 1987). Constructing it requires assumptions about the incidence of federal taxes. To obtain a continuous time series, I have interpolated linearly where there are missing data. The series shows that the swing in net federal transfers after 1976 was large compared to the shift in the state government's budgetary position. Federal expenditures in Michigan fell short of federal tax payments by Michigan residents according to these calculations. The main reason for the disparity is the low rate of federal defense spending in the state (Erdevig, 1986). A dramatic decline in the differential is evident after 1980. Most of the swing is on the disbursement side: federal expenditure in Michigan rose by 12 per cent between 1979 and 1980 and by an additional 44 per cent between 1980 and 1981, largely reflecting transfers to support the unemployed. (Unemployment insurance and employment training, community and urban development, and Medicaid were the three categories of federal programs to show the largest increases in outlays in Michigan between 1980 and 1981.) Though the federal fiscal shift was large compared to the change in the state's budgetary position, it occurred with a lag. Unemployment started rising in 1979, yet a significant swing in federal transfers began only in 1981, once the position of the state's unemployment insurance trust fund had eroded. Although the largest swing in the state's budgetary position took place in 1978-79, it was another two years before federal transfers respond.

Figure 3


Michigan State Budget Balance and Net Federal Tax Payments ($ Millions)
12500
10000
7500
5000
2500
0
-2500
1970 71 72 73 74 75 76 77 78 79 80 81 82 83 1984
STATE BAL.
FEDERAL TAXES MINUS TRANSFER TO MICHIGAN

Though it operates with significant lags, the American system of fiscal federalism plays an important role in regional adjustment within the United States. So does the high level of labor mobility. Neither mechanism can be expected to operate as powerfully in Europe. The implication is that serious thought must be given to the cultivation of other mechanisms to facilitate regional adjustment.

III. Conclusion

This paper has argued that Europe remains further than the United States and Canada from the ideal of an optimum currency area. Real exchange rates are more variable in Europe than in the U.S., suggesting a greater prevalence of region-specific shocks and a case for nominal exchange rate changes to coordinate price-level adjustments between regions. Real securities prices are more variable within Europe, confirming the importance of region-specific shocks. Although regional disparities within Europe are sure to decline with the completion of the internal market, by how far remains a subject for debate. The extent of regional problems within existing currency and customs unions like the United States underscores the need for regional shock absorbers, such as fiscal federalism, to accomodate asymmetrical disturbances.

Rather than simply recapitulating this point, I close with another illustration. The United States currently is grappling with a savings and loan crisis. That crisis is nationwide. Yet its incidence is uneven across regions. It is concentrated in the Southwest, where a depressed regional economy attributable in part to low and falling petroleum prices led to an unusual number of nonperforming real estate loans. The liquidity

needed to prevent widespread failure of financial institutions in the Southwest is transfered from other parts of the United States by the Federal Reserve System. The funds needed to reorganize insolvent institutions and to repay the deposits of residents are transfered into the Southwest through the American system of fiscal federalism. Reportedly, depositors in Texas will receive $20 billion this year in deposit insurance, while the U.S. Treasury collects only $1.3 billion in taxes from the savings and loan institutions in that state. In contrast, depositors in failed institutions in Illinois will be paid only $257 million, while the state's thrifts contribute $1.4 billion to the government (Mashek, 1990). Complaints by governors and other representatives of states like Illinois, while not unknown, have been few and far between.

Consider, hypothetically, comparable events in Europe. Imagine a wave of involvencies among financial institutions in Belgium, for example, due to a shift in demand away from the products of Belgian industry and a rise in Belgian unemployment. To prevent failures from spreading, the Belgian authorities will want to inject liquidity into the banking system. To restore depositor confidence, they will seek to reassure the public that their deposits will be protected, at least to some extent. With a fixed exchange rate and absent capital controls, however, the Belgian National Bank will not be able to increase the money supply unilaterally in order to provide liquidity. Raising taxes to finance the depositor bailout will only exacerbate the problem of insufficient demand. One solution is budgetary transfers from other E.C. members, as in the U.S. system of fiscal federalism, and the injection of liquidity from elsewhere in the currency union, as occurs within the Federal Reserve System. This is

another illustration of the problems that may occur unless existing facilities for financial swaps and fiscal transfers are expanded at an early stage in the transition to European monetary union.

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