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'Actual' versus 'Virtual' Employment in Europe: Why is there Less Employment in Spain?*

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Abstract

We study the evolution of sectoral employment in eleven European countries in the last two decades. We pay special attention to Spain: the country that has experienced a higher persistent unemployment rate. Our statistical approach consists on decomposing for country, industry and temporal effects. *Virtual* economies are constructed by filtering country effects. The initial distribution of labor across sectors plays a crucial role in explaining cross-country differences on employment. In particular, Spain's higher unemployment rate corresponds to its higher weight of the agricultural employment in 1975. Within sectors, Spain follows European patterns of wages and employment. Wage behavior helps to explain the evolution of employment within industries but long-term idiosyncratic country differences are not explained by different wage/productivity patterns. Portugal is, however, an exception: it shows a different wage pattern than the rest of European countries and, in spite of the weight of the agricultural sector at the beginning of the period, the expansion of low productivity jobs result in a relatively low unemployment rate. Our study of the *virtual* economies also provides new evidence about the relative performance of some industries and/or countries, e.g., the poor performance of Belgium, the relatively good performance of Italy, in particular its textile sector, etc.

1 Introduction

In most European countries, unemployment rates have been close -or above- 10% in the last decade. This fact has been regarded as unacceptable by most economists and politicians: it questions whether resources are efficiently allocated and it raises important distributional issues. The unemployment problem is not homogeneous across European countries, and it is particularly dramatic in some of them. In Spain, for example, with above 20% unemployment rates, a policy which succeeded in bringing the national unemployment rate down to 10% would be viewed as a great achievement. This paper studies these differences on employment patterns across European countries using disaggregate sectoral data. Are country differences due to idiosyncratic effects –such as labor policies– or, mainly, the result of sectoral effects? We focus on Spain since, apparently, it is the most difficult case to explain.

In 1975 the unemployment rate in Spain was 3.6%, slightly inferior to the average EEC (4.3%), and the ratio between total employment and population (age 14-64) was 57.7%, not too different from the average EEC (62.9%). In 1993, according to the standardized OECD measures, the unemployment ratio in Spain had risen to 22.4%, twice as high as the average EEC rate, and the employment-population ratio fallen to 44.8% (59.2% in the EEC, 70.8% in the United States). Very little of this sharp change is due to the effects of the hard recent recession. In 1990, the best year of the last decade, the Spanish unemployment rate was 16% and the employment-population ratio was 48.4%.

Sharp facts usually provoke sharp reactions. The Spanish unemployment figures generate a wide range of reactions (some have risen from the daily debate to the specialized academic journals). The first one is that of *denial*: "the unemployment figures can not be right: there is an important underground economy, labor statistics (as reported in the Spanish Survey of the Active Population, EPA) underestimate employment, etc." There may be part of truth in this statement, but it can not be the main explanation: the differences are too great as to be accounted as a reporting error; similar reporting errors can be present in other countries, such as Italy or Portugal, and, furthermore, it is difficult to argue that such errors were not present two decades ago.

A second reaction is to argue that "Spain is different." In particular, that legal restrictions and contractual practices set Spain apart from other European countries and can explain the extremely low employment figures. Again, this is an appealing argument that must be taken into account, but the same objections that we have raised to the "underreporting" argument apply here. Not that legal restrictions can not result in different allocations of resources, but labor legislation has been progressively liberalized in Spain (i.e., becoming more "European") and while this has had an impact in the labor market (for example, facilitating the generation –and destruction–of employments; see [7]) unemployment rates have been persistently high. In particular, they have been higher than in other countries, such as Portugal, with important contractual rigidities.

The third, and an economist's, obvious conjecture is that the wage behavior must explain, ot at least reflect, the Spanish diversity. However, when one looks at the data, he finds little support to this conjecture. First, although both the real wages and indirect labor costs have grown substantially throughout the period 1974-90 in Spain, the labor productivity growth has more than offset the growth of the unit labor cost. This is particularly evident in the years 1983-90 (see Figure 8.b in this work). Second, starting from 1983 the labor cost (net of productivity growth) has been decreasing at a faster rate in Spain than in the rest of Europe. According to the macroeconomic textbook theory, (i) these wage dynamics should be consistent with no increase in unemployment, (ii) the net creation of employment should be higher in Spain than in the rest of Europe. The observation of the wage dynamics makes the puzzle more intriguing.

A number of other explanations have been proposed in the literature: "the political instability in the period of transition towards the democracy (1975-82)", "the high inflation rate in the 70's," etc. None of these explanations is easily reconciled either with the wage-productivity dynamics just discussed, or with the persistence of the high unemployment rates; well beyond the normal span of a temporary shock[1]

[1]Using aggregate data for Spain, J. Galí [4] finds a permanent negative effect on employment of a positive technological transitory shock. This is consistent with the presence of a unit root in the aggregate employment growth series. But even taking this as a fact, it can hardly explain the magnitude of the unemployment gap between Spain and other European countries. As we will see, our analysis, casts some doubts on the impact of

This paper provides a different picture of the Spanish puzzle. It shows the importance of 'sectoral' (composition) effects in explaining the trend of aggregate employment during the last twenty years. The most important cross-country difference is that Spain has had until very recently a substantially higher share of the total employment in agriculture than the other countries. The fall of employment in this sector, a common feature to all countries (but particularly severe in Spain), seems crucial to understand why Spain has created less net employment than the other European countries between 1974 and 1990.

Our approach is to estimate a statistical model for the evolution of employment at the industry level using data from ten European countries, where Spain is treated as just one individual observation. Our exercise consists in decomposing the dynamics of employment into 'country-specific', and 'sector-specific' effects (allowing for time variation of both of them) which are common to the ten European economies considered.

A preliminary illustration of our main result is provided by the following experiment. Construct a 'fictitious' economy which is identical to Spain in 1974 in everything but the proportion of labour force employed in agriculture which is assumed to be 10.4%[2], i.e. the share of France in 1974. Then, assume that the year-by-year growth rate of net employment in each industry is precisely the one actually observed in Spain for all non-agricultural sectors. In agriculture, instead, apply to the initial employment a time-varying growth factor which is equal to the growth of net employment in agriculture observed in the corresponding year in France. Figure 1 compares the evolution of employment in this fictitious economy with the actual employment. The difference is dramatic. In 1992 the observed unemployment rate is 18.1%, whereas, if the rate of employment loss in agriculture (and the initial size of agriculture) had followed a more European pattern, the resulting unemployment rate in 1992 would have been 8.2%. The average unemployment rate observed in Europe in 1992 has been 9.5%! In other words, what sets the Spanish economy apart from other European economies is not a higher unemployment rate -*per se*- but the fact that Spain has had to cope with a larger destruction of employ-

"aggregate country effects."

[2]The size of all other sectors is rescaled accordingly, leaving the total size of the labor force unchanged.

ment in the agricultural sector.

Our method of analysis is partially illustrated by this example. We adopt a modified version of the error component models recently applied by Stockman (1988) and Costello (1993) to the analysis of output and productivity growth trends, and decompose the growth rate of employment at the industry level for ten countries into country and sector specific trends.

The results –in line with Figure 1– are fairly striking: 82% of the long-run employment growth differentials across countries is accounted by sectoral effects and only 18% by country effects. Our analysis not only provides a good long-run picture of employment, it also helps to explain the short-run fluctuations (60%), and shows that the sectoral effect, more than the country effect, help to explain these fluctuations (40% and 20%, respectively).

We use the estimated sectoral effects to simulate the behavior of 'virtual' economies. In plain words, once we have filtered all components which have a nation-idiosyncratic nature, we simulate the evolution of employment in each industry using the number of workers employed in the first year of the sample as the initial condition. In the previous illustrative example we used France as the term of reference and we made an *ad hoc* adjustment of the initial share of agriculture in total employment. In the formal analysis, instead, the term of comparison becomes the estimated average of all ten countries.

The study of the 'virtual' economies shows that differences in the initial distribution of employment across sectors can cause significant divergences into the level of employment in the period considered (1974-90). This analysis also allows us to assess the performance of different sectors and industries from a comparative perspective, by characterizing what evolution employment in each industry would have followed had all country-idiosyncratic effects been absent.

When looking at Spain, we show that, in contrast with some widespread folk wisdom, the generation of employment in the Spanish non-agricultural sectors looks pretty much 'European'[3]. In other words, the long-run rate of employment creation in the non-agricultural sector is very similar to (actually, slightly higher than) that of the other countries considered[4].

[3]This is consistent with the finding of Nicolini and Zilibotti [10] which looks at the dynamics of the total factor productivity in the manufacturing sector.

[4]The countries considered are: Belgium, Denmark, Finland, France, Germany, Italy,

As we have said, a more detailed analysis is possible, by taking the 'virtual' economies as filters for observed patterns. For example: with respect to long-run country performances we observe that Germany or Denmark follow employment paths that are very close to their 'virtual' economies while Belgium shows a poor performance and Italy clearly outperforms its 'virtual' economy; with respect to the performance of a given sector by country, we observe wide disparities in the textile sector, with Italy, again, outperforming the industry average; with respect to cyclical fluctuations, we observe severe downswings in Spain (1979-88) and United Kingdom (1981-88). These departures from the 'virtual' model can be attributed to idiosyncratic factors, like the political shocks in Spain mentioned before.

There is, however, a contrasting case that deserves special attention: Portugal. Portugal shares with Spain similar initial conditions. In other words, in terms of initial distribution of employment by sector, the regions of Portugal form part of the map of the regions of Iberia, i.e., do not differ much from other regions of Spain. In the period 1974-91 Portugal also suffers a substantial reduction of employment in agriculture. The aggregate unemployment rate, however, has not risen significantly, and the other sectors (particularly services) have absorbed the labor force surplus which the agriculture has been generating. For example, when we contrast the 'actual' with the 'virtual' Portuguese employment, the former clearly outperforms the second[5].

Our analysis, in particular after taking Portugal into account, raises two related questions. First, what has prevented, in countries like Spain, the other sectors of the economy from absorbing the labour force which has been freed by the rural sector[6]? Second, what explains

Netherlands, Spain, Sweden and United Kingdom. Portugal is treated separately.

[5]We take as reference the average of the other ten countries, i.e., Portugal is not included. Notice among the three "olive producers" studied (Greece is not included in our analysis), Spain is the only country that does not clearly outperform its "virtual" economy.

[6]Here we mean both directly and indirectly freed. The observation of the data on the composition of the unemployed labour force suggests that, for example, in Spain the most significant phenomenon has been the growth of people seeking their first job. The increase of unemployment of workers previously employed in agriculture is also substantial, but quantitatively less important. This suggests that many young people living in rural areas have not taking over their parents' rural occupation in the period that these have been retiring.

labor growth differences across industries, periods and/or countries? To address these questions, we conclude our work with a brief comparative analysis of labour cost and productivity in the different countries.

Again, our 'virtual' economies serve as a benchmark. We find that, within sectors, temporal differences on employment growth rates are (negatively) correlated with the growth of *net* labor costs (i.e., adjusted for productivity growth). We find a similar effect with respect to country-industry departures from the 'virtual' pattern. What it is more remarkable is that long-term idiosyncratic country differences are not explained by different wage/productivity patterns when Portugal is not taken into account. Similarly, important idiosyncratic country differences, as the pressure from the displaced agricultural workers in Spain, do not seem to have affected wage/productivity patterns in industry and services.

In Portugal, however, the rate of growth of wages and productivity has been much lower than in the rest of European countries, including Spain[7]. This suggest that Portugal may have opted for maintaining (and developing) some low skill urban activities, which acting as a buffer, have been able to absorb large part of the displaced workers from agriculture and a relatively high female labor participation rate.

The rest of the paper is organized as follows. Section 2 explains our statistical model and describes the sources of the data. Section 3 report the statistical results in more detail. Section 4 describe the construction of our 'virtual' economies and graphically shows the results. Section 5 deals with the case of Portugal. Section 6, studies the behavior of labor costs and productivity. Section 7 concludes.

2 Decomposing the evolution of employment. A statistical model.

In this section we propose a statistical model which disentangles country-specific and sector-specific components to the net generation of employment at the industry level. We propose an error component model along the line of Stockman (1988) and Costello (1993), though departing from these works in the identifying assumption adopted. We are

[7]At the beginning of the 90's the real salary of a manual worker in Portugal is about one third of that of a Spanish worker!

motivated by the observation that on the one hand the dynamics of employment at the industry level are positively correlated across countries. Economic theory relates this similarity in the sectoral patterns with the existence of worldwide sectoral technological trends as well as movements in the international price system. On the other hand, the generation of employment in different industries is affected by country specific factors, such as labor legislation, contractual practices, fiscal and monetary policies, etc.. Apart from these aggregate effects, some permanent differences in the performance of individual industries of different countries are observed. These can be associated with some microeconomic features like the capability of firms to introduce or absorb innovations, or to react to changes in the world economy. An example is the different performance of the textile industry in Britain and Italy in front of the emergent competition from LDC producers.

We specify the model as follows:

$$e(i,n,t) = m(i,n) + f(i,t) + g(n,t) + u(i,n,t) \qquad (1)$$

$$i = 1,...,I; n = 1,...,N; t = 1,...,T$$

where:

- $e(i,n,t)$ represents the growth rate of total employment in industry i in country n at time t,
- $m(i,n)$ is a time invariant effect which is specific to industry i and country n;
- $f(i,t)$ is the interaction between a fixed industry and a time effect;
- $g(n,t)$ is the interaction between a fixed nation and a time effect;
- $u(i,n,t)$ is an idiosyncratic disturbance which is assumed to be orthogonal to all other effects.

The model is estimated using a dummy variable regression method for a panel data of employment growth rates. The residuals of the regression will be our estimates of $u(i,n,t)$.

As noted by Stockman (1988) and Costello (1993), the model presented is unidentified, and perfect multicoliniarity would make the estimation impossible. Some normalizations are then required. A necessary condition to achieve exact identification is to have $N+T+I-1$ independent restrictions. The main strategy followed in the literature

consists of imposing a sufficient number of zero restrictions, by choosing a time period and a country as numeraire. In particular, Stockman assumes that (i) $g(N,t) \equiv 0$ for all t and (ii) $f(i,T) \equiv g(n,T) \equiv 0$ for all i, n, where N, T are the indices for the last country and time in the sample. This convenient normalization affects the interpretation of the parameters. For instance, the time series of estimated coefficients $f(i^*,t), t = 1,...,T-1$ describes the 'normal' effect for industry i^* in the numeraire country N, as a deviation from the last time period T. The parameters $g(n,t)$ and $m(i,n)$ must also be interpreted according to the normalization chosen. This identification has a number of shortcomings, though. First, the significance of the country effects may be larger or smaller depending on the country chosen as a reference point. Second, it does not return a transparent decomposition between country and common long term effects.

Since a central point of this work is the estimation of 'normal' (country-independent) dynamics of employment for the different industries, we opt for normalizing in terms of deviations from the average European patterns, instead of choosing a numeraire country. More specifically, we assume that:

- $\sum_{n=1}^{N} m(i,n) = 0, i =, 1, ..., I$
- $\sum_{t=1}^{I} g(n,t) = 0, n =, 1, ..., N$
- $\sum_{n=1}^{N} g(n,t) = 0, t =, 1, ..., T$

which give a set of $T + I + N$ restrictions, of which all but one are independent. Our set of identifying restrictions has the advantage of delivering a rather transparent interpretation for the estimated parameters. In particular we estimate three matrices which have the following interpretation:

(i) $F = \{f(i,t)\}$ represents the average European employment growth rate[8] in industry i at time t.

(ii) $M = \{m(i,n)\}$ represents long run deviation of industry i's employment growth rate in country n from the average European rate (*i.e.* $m(i^*,n) = \frac{1}{T}\left(\sum_{t=1}^{T} e(i^*,n,t) - f(i^*,t))\right)$).

(iii) $G = \{g(n,t)\}$ represents shocks which affect all industries located in country n at time t. Our normalization imposes that on the

[8]The average is taken by giving the same weight to the observation of each country. We will come back to this issue in the next section.

one hand these have only transitory effects for each country, on the other hand they average zero across countries at each point in time.

The model was estimated using yearly data from 1974 to 1991 for employment (from which growth rates from 1975 to 1991 have been computed) of ten european countries (see footnote 1) and fifteen industries. The level of disaggregation distinguishes between the following activities: agriculture (*agr*); mining, electricity, gas and water (*ene*); food, beverages and tobacco (*fod*); textiles (*tex*); paper, printing and publishing (*pap*); chemicals (*che*); non-metallic mineral products (*mnm*); basic metal products (*bmi*); machinery and equipment (*meq*); wood, leather and other manufactured products (*mot*); constructions (*ret*); wholesale, retail trade, restaurants and hotels (*ret*); transport, storage and communication (*trs*); finance, insurance and real estates (*fni*); community, social and personnel services (*com*). The data for all countries except for Spain are drawn from the 'OECD International Sectoral Database' (revision of 1994)', whose methodological aspects are described in Meyer zu Schlochtern (1988).

Some adjustments had to be made in order to obtain a balanced panel of data. First, in some countries the *fni* employment figures did not include real estate activities. In these cases we have used the growth rate of employment in the financial activities for which the data were available. When variables in levels have been needed (section 4), the size of the financial sector has been estimated by adjusting the available figure by the share of employment in real estate activity over the total *fni* sector in the other countries where these were separately reported. Second, the OECD data set reports the category 'producers of government services', as a separate sector, differently from the data which we have available for Spain. Third, in some countries some workers were reported as employed in unclassified 'other activities'. In all problematic cases we have compared the data with those provided by the International Labour Office Statistical Year Books (table B3), and made adjustments such that the total employment figure was unaffected.

The source of data for Spain is Garcia, Goerlich and Orts (1994) (based on Encuesta Industrial (EI)) for the manufacturing sector and the International Labour Office Statistical Year Books (with data proceedings from Encuesta de Poblacion Activa (EPA)) for non-manufacturing activities. Since there are discrepancies between the two sources of

data (in particular, the sum of the disaggregated employment levels from EI does not match with the figure for total employment in manufacturing reported by EPA), we opted to use the aggregate figure for employment in manufacturing provided by EPA and the share of employment at the industry level implied by the EI data.

3 Statistical results.

Our dummy-variable model explains (as either sectoral, or national or time effects) almost two thirds of the employment growth rate variance in the ten countries studied. The formal statistics of the regression are $R^2 = 0.647$ (adjusted $R^2 = 0.555$), and a highly significant $F(533, 2016) = 6.946$[9].

Tables 1.*a*, 1.*b* and 1.*c* report the point estimates of the coefficients according to our normalization. In table 1.*a* we report the matrix of the 'normal' sector effects (F) for the European economies considered. As expected, employment in agriculture falls steadily, at a rate of about 2.8% per year. In the manufacturing industry, all industries seem to have expelled labour force in net terms, though at rather different speeds, and with significant differences in the time patterns. On the one hand, the textile and basic metal industry are characterized by a high and regular rate of destruction of employment (at an average 4.1% and 2.9% per year, respectively). The industries of paper and chemicals follow a more cyclical pattern, and almost maintain the initial employment throughout the period considered. Food, non metallic minerals and machinery and equipment behave in an intermediate way, loosing employment at about an average 1% per year. As a whole, the manufacturing sector has been expelling labour force during 1975-84, then has experienced some recovery in 1985-1990 and finally has again lost employment with the beginning of the most recent recession in 1991. An analogous cyclical behaviour is followed

[9]There is some marginal evidence of serial correlation of the residuals (Durbin Watson statistics = 1.63, first lag correlation coefficient = 0.18), which raises some issues about efficiency of the OLS estimators. One could try to correct for this problem by estimating a set of univariate regressions of employment growth on one lag of itself for each country and industry and then using the residuals of these regressions as the dependent variable in the dummy-variable regression (see Stockman (1988), p.395). We decided not to follow this route, since the autocorrelation issue does not seem overwhelming, and the interpretation of the coefficients of the alternative model would become less intuitive.

Table 1.a. Sectoral 'common' effects (F).

F	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Avg.
Agr	-0.038	-0.037	-0.037	-0.021	-0.023	-0.025	-0.029	-0.022	-0.018	-0.021	-0.026	-0.032	-0.038	-0.032	-0.043	-0.031	-0.040	-0.030
Ene	0.014	0.007	0.001	-0.005	-0.009	0.019	0.004	-0.002	-0.007	-0.011	-0.007	-0.009	-0.007	-0.025	-0.017	-0.017	-0.016	-0.005
Pod	-0.028	-0.011	-0.012	-0.007	0.001	-0.007	-0.019	-0.020	-0.019	-0.009	0.000	-0.005	0.001	0.001	-0.006	-0.001	-0.010	-0.009
Tex	-0.065	-0.042	-0.051	-0.062	-0.023	-0.033	-0.085	-0.056	-0.063	-0.012	-0.015	-0.011	-0.030	-0.030	-0.038	-0.028	-0.076	-0.041
Pap	-0.032	-0.014	-0.009	-0.001	0.003	-0.003	-0.028	-0.022	-0.020	-0.004	0.005	0.002	0.018	0.013	0.027	0.004	-0.007	-0.004
Che	-0.022	-0.003	-0.003	-0.010	0.010	0.006	-0.028	-0.023	-0.015	0.004	0.015	0.010	0.017	0.007	0.015	0.006	-0.019	-0.002
Mnm	-0.051	-0.023	-0.018	-0.025	-0.005	-0.029	-0.059	-0.050	-0.049	-0.021	-0.030	-0.009	0.001	0.007	0.028	0.020	-0.038	-0.021
Emi	-0.001	-0.007	-0.016	-0.037	-0.014	-0.018	-0.059	-0.059	-0.047	-0.030	-0.026	-0.030	-0.047	-0.030	-0.010	-0.019	-0.046	-0.029
Meq	-0.027	-0.008	-0.007	-0.012	-0.001	0.004	-0.038	-0.025	-0.029	-0.015	0.010	-0.001	-0.004	0.000	0.013	0.009	-0.030	-0.009
Mot	-0.043	-0.009	-0.004	-0.005	0.000	-0.012	-0.043	-0.048	-0.025	-0.007	-0.014	0.003	0.001	0.009	0.016	0.009	-0.023	-0.012
Cot	-0.031	-0.016	-0.016	-0.005	0.001	0.000	-0.050	-0.041	-0.015	-0.025	-0.012	0.019	0.012	0.021	0.029	0.020	-0.017	-0.007
Mot	0.010	0.010	0.000	-0.003	0.010	0.001	-0.005	-0.004	-0.012	0.012	0.012	0.012	0.015	0.026	0.023	0.014	0.000	0.007
Trs	0.003	0.004	0.000	0.005	0.018	0.011	0.002	-0.001	-0.030	-0.008	0.010	0.008	0.007	0.014	0.017	0.010	-0.001	0.004
Fin	0.043	0.016	0.024	0.031	0.041	0.032	0.027	0.022	0.024	0.024	0.040	0.060	0.053	0.051	0.054	0.038	0.023	0.036
Com	0.017	0.016	0.033	0.025	0.022	0.013	0.016	0.018	0.027	0.023	0.012	0.020	0.019	0.017	0.014	0.029	-0.002	0.019

Table 1.b. Long-run 'country' effects (M).

M	Agr	Ene	Pod	Tex	Pap	Che	Mnm	Emi	Meq	Mot	Cot	Mot	Trs	Fin	Com
Germany	-0.008	-0.001	0.004	0.003	0.002	0.006	0.003	0.014	0.013	0.004	0.000	0.003	0.001	-0.009	-0.007
France	-0.007	-0.006	0.008	0.000	0.002	-0.005	-0.007	0.000	-0.004	-0.002	-0.005	-0.001	0.005	-0.002	0.001
Italy	-0.005	0.009	0.002	0.033	0.001	-0.002	0.014	0.005	0 004	0.000	0.010	0.007	-0.003	0.024	0.007
United Kingdom	0.020	-0.018	-0.007	0.002	-0.007	-0.011	0.001	-0.038	-0.017	0.005	0.000	0.005	-0.006	-0.002	-0.002
Netherlands	0.022	0.011	-0.003	-0.008	0.004	0.001	0.002	0.015	-0.002	0.002	-0.004	0.002	0.005	-0.006	-0.005
Belgium	0.007	-0.030	-0.004	-0.007	-0.012	0.000	-0.017	-0.015	-0.009	-0.011	-0.003	-0.004	-0.008	-0.003	-0.002
Denmark	-0.001	0.014	0.001	0.008	-0.001	0.012	-0.009	0.001	0.013	0.011	-0.006	-0.015	0.002	-0.006	-0.001
Sweden	-0.001	0.019	0.002	-0.024	-0.004	-0.006	-0.002	-0.007	0.000	-0.001	0.001	-0.003	0.004	-0.002	0.006
Finland	-0.004	0.009	-0.002	-0.020	-0.001	-0.003	0.008	0.022	0.001	-0.009	-0.001	-0.002	0.001	0.003	-0.006
Spain	-0.022	-0.006	0.000	0.013	0.014	0.008	0.006	0.003	0.001	0.001	0.007	0.008	-0.001	0.002	0.009

Table 1.c. Short-run 'country' effects (N).

N	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Germany	-0.032	-0.013	-0.001	0.007	0.005	0.010	0.011	-0.006	-0.007	-0.001	-0.005	-0.001	-0.007	-0.008	-0.001	0.022	0.029
France	0.004	0.007	0.011	0.007	-0.007	-0.002	0.009	0.014	0.006	-0.014	-0.017	-0.011	-0.010	-0.006	0.000	0.000	0.000
Italy	0.012	0.009	0.016	0.006	0.003	0.007	0.012	0.005	-0.008	-0.022	-0.010	-0.005	-0.007	-0.001	-0.017	-0.007	0.010
United Kingdom	-0.003	-0.006	0.014	0.012	0.005	0.000	-0.038	-0.014	-0.012	0.007	0.014	-0.018	0.014	0.017	0.022	0.002	-0.017
Netherlands	-0.009	-0.012	-0.006	-0.002	-0.004	0.000	-0.003	-0.018	-0.016	-0.002	0.012	0.006	0.008	0.014	0.005	0.012	0.018
Belgium	-0.007	-0.011	-0.006	-0.004	-0.004	-0.006	-0.005	0.005	0.008	0.006	-0.001	-0.009	-0.005	-0.001	0.014	0.006	0.020
Denmark	-0.030	0.020	0.002	0.002	0.000	-0.028	-0.014	0.007	0.014	0.040	0.031	0.031	0.000	-0.022	-0.027	-0.023	-0.003
Sweden	0.022	0.004	-0.013	-0.005	0.004	0.007	0.003	0.002	0.005	0.008	0.000	0.008	-0.002	0.003	-0.010	-0.015	-0.020
Finland	0.031	-0.003	-0.017	-0.010	0.022	0.037	0.030	0.015	0.016	0.004	-0.001	-0.019	-0.010	-0.014	-0.013	-0.015	-0.052
Spain	0.012	0.005	0.002	-0.011	-0.022	-0.026	-0.006	-0.009	-0.006	-0.026	-0.022	0.018	0.018	0.019	0.027	0.018	0.007

by employment in constructions. The service activities are clearly the main net creator of employment in the period considered, with a leading role of the financial sector, whose net absorption of labour force proceeds at an annual 3.6%, with a significant acceleration in the late eighties.

In table 1.*b* we report the estimates of the long-run country and sector specific effects (M)[10]. By columns we can read the relative performance of different industries in a particular country. As a whole, Italy seems to have been the best and Belgium the worst performer. Spain, the country with the most dramatic growth in the aggregate unemployment rate, has generated at least as much employment as the other European countries in almost all sectors, with the significant exception of agriculture! In particular, there is a positive country effect for the textile industry, which has lost less employment than predicted by the purely sectoral effect (with a difference of the order of 1.3% per year).

In table 1.c we report the estimates for the country-specific cyclical effects (N). Focusing again on Spain, they reveal a heavily cyclical pattern, more pronounced than in most of the other European countries. In particular, after a good reaction to the first oil shock, Spain experienced a prolonged negative period from 1978 to 1985, then followed by a rapid recovery in the end of the eighties.

We now proceed to assess formally the relative importance of country and common sectoral effects on both the long run and short run dynamics. Table 2a reports the summary results of the decomposition of the 1974-91 yearly average employment growth rates $(\bar{e}(i,n))$ into country effects $(m(i,n))$ and yearly average sector effects $(\bar{f}(i) = \frac{1}{T}\left(\sum_{t=1}^{T} f(i,t)\right))$.

[10]The finding that big economies like France and Germany exhibit very little deviations from the average for almost all sectors suggest that weighting the countries by their relative size is unlikely to change our results significantly.

Table 2a. Analysis of long-run variations

	Var. of $\bar{e}(i,n)$ explained by	Covariances		Correlations	
		$\bar{e}(i,n)$	$f(i)$	$\bar{e}(i,n)$	$f(i)$
$\bar{e}(i,n)$	1.000	$4.893e-004$		1.000	
$\bar{f}(i)$	0.817	$3.996e-004$	$3.996e-004$	0.904	1.000
$m(i,n)$	0.183	$8.978e-005$	$-3.771e-010$	0.428	-0.000

More than 80% of the total variations are explained by industry effects which are nation-independent. This suggests that relatively little of the cross-country differences between employment performances can be attributed to country idiosyncratic shocks, like economic policy etc.

On the other hand, both country and common effects play a significant role in explaining the high frequency variations. Table 2b gives the result of the variance decomposition. Note that we have defined $c(i,n,t) \equiv e(i,n,t) - u(i,n,t) - f(i,t)$ where $u(i,n,t)$'s are the estimated residuals, which means that $c(i,n,t)$ is the country-specific component of the part of $e(i,n,t)$ which is explained by the regression (em i.e. the complement of f(i,t) to the fitted value). As the table shows, common sectoral effects (f) accounts for about 43% of the high frequency employment growth variations over time, sectors and countries. The other 57% is explained by effects $(c(i,n,t), u(i,n,t))$ which are country-specific, a third of which is accounted for by $c(i,n,t)$.

Table 2b. Analysis of short-run variations

	Var. of $e(i,n,t)$ explained by	Covariances
	$e(i,n,t)$	$f(i,t)$
$f(i,t)$	0.429	1.000
$c(i,n,t)$	0.214	-0.000

4 The construction of 'virtual' economies.

Table 2 already shows the importance of the sectoral effects. In this section we will provide a more direct picture of these effects by considering the following exercise. Imagine that all country-dependent parameters of the model are set to zero for country k, i.e. $m(i,k) = g(k,t) = u(i,k,t) = 0$ for all i,t. We can now construct a **'virtual'**

economy which has the same level and distribution of employment across sectors as it was in country k in 1974, but follows the dynamics described by the matrix $f(i,t)$ thereafter. Since different activities generate (or destroy) employment at different rates, a crucial determinant of the evolution aggregate employment is the initial allocation of employment across industries.

To render the results more transparent, we aggregate the results obtained from the fifteen sectors individually considered into country-level paths. We only make use of the point estimates without trying to construct confidence intervals for the 'virtual' economy (which we know would become very large after few years). The pictures which we will present simply aim at comparing the performances of different countries to the average performance conditional on a certain initial employment structure. The motivation for the analysis of this section is twofold. First, it provides an interesting benchmark to assess the evolution of employment in different economies. Second, it shows explicitely that even a homogeneous behavior of the different industries across countries is consistent with an increasing dispersion in the unemployment rates, when no other market or adjustment mechanism are taken into account.

4.1 'Virtual' Europe

Figure 2 shows a comparison between the 'virtual' and 'actual' employment in the countries of our sample. Among the large countries: Germany's 'actual' economy follows very closely its 'virtual' economy (except for the 'Berlin's Wall shock' in 1990-1991); Italy is a strong outlier, and generates much more employment than the one predicted by its 'virtual' economy; United Kingdom in the last ten years has been performing slightly below its 'virtual' economy, with a severe downturn at the beginning of the eighties, and France that up to 1985 was outperforming its 'virtual' economy, has been lagging behind in the last six years of the sample. Among the smaller countries, Belgium does not perform to its 'virtual' expectations, whereas Sweden outperforms it. As a whole (with the exception of Italy), the differences between 'virtual' and actual economies should be regarded as fairly small.

Table 3 reports some information along the same lines. In particular, it shows and observed unemployment rates in 1974 and 1990 and

the 'virtual' unemployment rate in 1990. The first interesting observation is that the dispersion of the unemployment rates is higher in 1990 than in 1974 for both the actual and virtual economies. This means that if in all countries employment had grown 'homogeneously' industry-by-industry at the average rate, the resulting aggregate unemployment rates would have been far from converging to a common level. The second interesting point is that the countries which experienced the four highest unemployment rates in 1990 (Spain, Italy, France and Denmark) are also the countries with the highest virtual unemployment rates[11]. Finally, for six out of ten countries the difference between the virtual and observed unemployment rate does not exceed 2% in absolute value.

Table 3.

'Actual' and 'virtual' unemployment rates.

	1974 Actual	1990 Actual	1990 Virtual
Germany	1.6	4.8	5.3
France	2.8	9.1	7.1
Italy	5.3	9.8	19.16
UK	2.9	7.1	5.6
Netherlands	2.7	7.5	4.3
Belgium	3.0	7.8	0.6
Denmark	2.1	8.0	6.6
Sweden	2.0	1.5	5.7
Finland	1.7	3.4	4.2
Spain	2.6	16.1	18.0
Coef. var.	0.37	0.50	0.74

Source: OECD & Eurostat (actual), own computations (virtual).

Figure 3 provides an interesting inter-country comparison. We normalize the total employment of every country in 1974 to be the same (the same than Spain), but we preserve the different initial distributions of employment across sectors. We then generate the corresponding 'virtual' economies from these initial conditions. As it can be seen, countries with similar initial conditions, such as France and Germany,

[11]If we had data to compute the 'virtual' unemployment for Ireland and (separately) the Italian Mezzogiorno, they would certainly be also consistent with the picture provided here.

follow practically the same 'virtual' paths, but different initial conditions generate fairly different paths. To refer again to unemployment rates, according to the virtual trends shown by Figure 3, if Spain had had the employment structure of France in 1974, and had been subject to no idiosyncratic effect thereafter, its unemployment rate in 1991 would have been below 10%. To get the flavor of the magnitude of the cross-country differences in the initial employment structure, observe that the share of employment in agriculture, industry, construction and services of France in 1974 were, respectively, 11%, 28%, 52% and 9%. In the same year, the composition of employment in the UK was 3%, 34%, 56% and 7%, whereas in Spain it was 25%, 27%, 38% and 10%.

Though the discussion carried on so far has focused on aggregate employment, our decomposition is also useful to study dynamics at the industry level. For example, Figure 4 shows how the textile sector has behaved quite differently across European countries, comparing Italy, the best performer, and the UK, an average performer, whose employment in textiles halves throughout the period considered.

4.2 'Virtual' Spain: why the unemployment rate is so very high.

Table 3 already shows that Spain's unemployment problem is not a perverse result. The 'virtual' economy has an even higher unemployment rate in 1991 (Figure 5) than the real economy. This is particularly clear when one isolate the virtual 'urban' sectors (Figure 6a) where the size of the surplus of the real over the virtual employment in 1991 was about one million workers. On the other hand, as Figure 6b shows, the process of job destruction in the agriculture has been more severe in its 'actual' than in its 'virtual' economy, particularly during the expansive years of the end of the second part of the 1980s. This may be a manifestation of a negative impact on the agricultural sector of the integration of Spain in the community.

When we observe sectors in more detail we observe how the industrial sector follows fairly closely the path of its 'virtual' economy (Figure 6c, see also Table 1b). The service sector (Figure 6d) is stagnating from 1977 to 1985 and then experiences a boom in the years 1984-91. The observation of this set of figures reveals (consistently with the last raw of Table 1c) that employment in Spain is also char-

acterized by a heavy cyclical pattern, with a deep recession from 1977 to 1985, when the gap between the real and virtual employment went above half a million units, followed by a fast recovery thereafter. However, this recovery has only allowed to Spain to go back to its virtual path, which implies some extremely high unemployment rate.

The most important long term issue seems to be the painfully low level of the virtual employment. This suggests that policy action should aim at 'beating' the virtual economy in order to restore some socially acceptable employment level; but also says that the adjustment process (e.g. through maintaining higher flexibility of labor contracts, reducing labor costs, etc.) which is necessary to achieve this objective can be much harder and more painful than some small reform of the legal and institutional framework to make it homogeneous to that of the other European countries.

5 The case of Portugal

The case of Portugal is very interesting and deserves special attention. In 1974 the agricultural sector represented a higher share of total GDP in Portugal than in Spain (35% and. 25%, respectively). Like in Spain, agriculture lost employment at a sustained rate, and its share in total employment fell down to 16.7% in 1991. However, total employment has grown in Portugal during the period 1974-91 (whereas it has fallen in Spain), the difference being due to the positive net creation of employment in manufacturing and, even more, the boom of employment in services. It should be remarked, however, that the yearly rate of destruction of employment in agriculture is significantly higher in Spain (5.5%) than in Portugal (2.8%).

This sharp contrast is exemplified by comparing the 'actual' and the 'virtual' Portuguese employment[12] (Figure 7). It is clear that in Portugal employment growth has clearly outperformed the 'virtual'

[12]Since the series for Portugal at our disposal were not entirely consistent with the other country's series, and some observations could only be obtained by interpolating between the available data, we have not included Portugal in the computation of the average 'virtual' economies. That is, our exercise for Portugal is as if Portugal was so small as to not affect European trends. This, of course, it is not entirely correct, but we think that the main features of our exercise would be preserved even if -with proper data- we were to include Portugal in our reference sample.

economy. This is true even if the agricultural sector has loss employment more than in the 'virtual' economy. It has been the growth of employment in some industrial sector – textiles, in particular – and in services – commercial/turistic activities, in particular – which has driven the aggregate good performance. Table 4 reports the average growth rates of employment in each Portuguese industry and the yearly average 'virtual' growth rate drawn from the last column of Table 1a.

Table 4. Comparative long-run performance of Portugal.

Sect.	Portugal	Europe	Sect.	Portugal	Europe
Agr	-0.032	-0.030	Ene	0.047	-0.005
Fod	-0.001	-0.009	Tex	0.014	-0.041
Pap	0.003	-0.004	Che	0.011	-0.002
Mnm	-0.001	-0.021	Bmi	-0.003	-0.029
Meq	0.011	-0.009	Mot	-0.026	-0.012
Cst	0.008	-0.007	Ret	0.028	0.007
Trs	0.013	0.004	Fin	0.072	0.036
Com	0.038	0.019			

N.B.: yearly average growth rates reported.

Source (for Portuguese data): ILO.

Portugal is also interesting for its geographical location in the Iberian Peninsula, and for sharing many characteristics with some poor regions of Spain which have bordered with Portugal. Why did not these Spanish regions followed the Portuguese model? For instance, between 1980 and 1991 in the regions with the highest share of agriculture of Spain the industrial employment behaves very similarly to the advanced regions of Europe (see [6]). Why did not they develop low cost labor intensive activity? Probably, the low wage (and contract) flexibility across regions partially answers this question. We analyze in the next Section the different behavior of labor costs.

It should be noticed, however, that the Portuguese experience is in fact not too dissimilar from that of most industrialized countries (including Spain in th 60's) which could absorb the labor force expelled by the agriculture thanks to the development of labor intensive industrial activities (e.g. textiles) without generating a significant issue of unemployment. One might argue that the Portugal of the turn of the century (with still has an important share of employment in agriculture) may face the same difficulties which Spain has suffered in the last

twenty years. Rather than being the Portuguese example a possible way out to the problems currently experienced by Spain, the Spanish experience may be a sound warning to its Iberian colleagues[13].

6 The behavior of labor costs

Our study of "virtual economies" identifies in the size and decline of the agricultural sector an important source of difference between unemployment in Spain and in the rest of Europe. Based on our work, one could argue that any country whose urban sector had found itself faced with the burden of absorbing employment in the same measure would had experienced a very high unemployment rate. That is, markets, institutions and economic policies do not need to have worked so pathologically bad in Spain for the differences in the unemployment rate to be understood.

This observation questions previous attempts to explain the issue of unemployment in Spain in terms of a worse performance of the manufacturing sector, the labor market, etc. (Bentolila and Tohari, 1991; Bentolila and Blanchard, 1991; Viñals, 1991). But, on the other hand, it does not say why the extra pressure of the supply of labor did not make wages to fall enough as to generate the needed employment in the urban sector, after all this traditional mechanism seems to have worked in Portugal. In this section we compare the wage behavior of different countries.

6.1 Europe

To study the behavior of wages and employment we have replicated our disaggregate study for the growth of wages. That is, if we denote by $w(i,n,t)$ *the growth rate of per capita labor costs minus the growth rate of output* in industry i, country n and period t, we can, as in equation (1), decompose

$$w(i,n,t) = m_w(i,n) + f_w(i,t) + g_w(n,t) + u_w(i,n,t) \qquad (2)$$

$i = 1,...,I; n = 1,...,N; t = 1,...,T$

[13]In fact, our study is also suggestive of some employment problems that may be facing ahead Eastern European economies which still have an important agricultural component and are trying to follow the West European path.

where we use subindex w to denote the corresponding component of wages.

Notice that, for example, a Cobb-Douglas technology predicts that labor shares be constant, and this implies that the growth of (net) labor costs w should be equal to minus the employment growth rate. Even with more general technologies one would expect the two variables to be negatively correlated. Also, one expects to find such negative correlation between the different components of our decomposition. For instance, if there are some significant positive country-specific effects for employment in an industry of a certain country, they should be matched by some negative country-specific effects on wages.

We could only perform this analysis for the (nine) two-digit manufacturing industries listed in section 2 (we also re-estimated equation (1) after excluding the non-manufacturing activities). Table 5 reports the cross correlations (contemporary, at lead one and lag one) between the different components of the two series. When we consider time dependent variables, we obtain the expected negative correlation between (net) labor costs growth and employment growth. All cross-correlations are (jointly) highly significant according to the Ljung-Box Q-statistic except for the residuals. In particular, some negative correlation shows up in both the components of the part of the dependent variable which is explained by our regression (f and c). Notice that the time structure of the correlation is also the expected one, with employment being negative correlated with both contemporary and one period lagged (net) labor costs. The magnitude of the estimated correlations is not, however, very large. In conclusio, we find supportive evidence to the hypothesis that within industries, and within countries, a relative decrease of (net) labor costs has the effect of stimulating employment.

Table 5. Correlations of employment and wages .

$s =$	$t+1$	t	$t-1$
$e(i,n,t)$ & $w(i,n,s)$	0.0230	-0.1162	-0.1394
$f(i,t)$ & $f_w(i,s)$	0.0473	-0.1501	-0.2133
$c(i,e,t)$ & $c_w(i,n,s)$	0.0141	-0.2149	-0.2223
$r(i,e,t)$ & $r_w(i,e,s)$	0.0171	-0.0249	-0.0264

However, according to the theory one would also expect that time average deviations from the 'virtual' patterns of employment (m)

should be negatively correlated with deviations from 'virtual' patterns of net wages. However, when we look at the cross correlation between long-run country-effects (m, m_w) we find that this is is not significant (and has the wrong sign, being $\rho(m, m_w) = 0.0055$). We regard this result as puzzling. It seems to raise policy questions about the importance of wage policies on long-run employment, as well as, theoretical questions about the adequate model of the labor market.

6.2 Spain: Europe *vs* Iberia.

The above estimations correspond to our reference ten country sample. As we have seen in Section 5, employment dynamics in Portugal have a fairly different behavior, and seem well reflected by the labor cost behavior.

Figure 8 shows the evolution of labor costs (net of productivity) in manufacturing in Europe (ten countries), Spain and Portugal. As it can be seen, taking the twenty years as a whole, Spain follows more closely the European than the Portuguese pattern.

From 1977 to 1982 employment in the Portuguese industry grows at an annual rate of 3.2%, whereas in Spain it falls at yearly 3.5%. But Portugal not only differs from the rest of Europe for the low growth of salaries (inferior to that of productivity), but also for the moderate growth rate of productivity per worker, compared with Europe, and, in particular, Spain. So, for instance, in 1991 the hourly labor cost in industry is 3.92 ECU in Portugal and 12.15 in Spain (6 and 13.3, respectively in PPP), whereas the average hourly earnings are 1.5 and 4.4 ECU, respectively. This difference in the structure of costs seem to have allowed Portugal to maintain its comparative advantage in low cost (and low productivity) activities.

A closer look at Figure 8 shows that the presence of the short run effects detected in Table 5 for Europe. Spain is characterized by a larger fall of (net) wages after 1984. This is consistent with the actual employment growing more than the virtual employment after 1984-85 (see Figure 5). In other words, although the wage dynamics do not explain the persistent part of the Spanish unemployment, it seems to explain its temporary deviation from the virtual unemployment. The same is true when one looks at Italy (figure not reported). In Italy productivity grows faster than wages up to 1983, which is the period in which the divorce between the actual and the virtual employment

dynamics is generated (see Figure 2c; note that the gap remains almost constant from 1983 to 1991).

7 Conclusions.

This work provides new evidence about the sources of differences in employment growth rates across European countries in the last two decades. We only focus, however, on demand factors. In particular, by decomposing sectoral, country and temporal effects, we show the importance of sectoral effects. We do not take into account supply factors, such as migrations –which have been minimal in this period– or variations of the labor force –which has shown a small tendency to increase, in particular among women. But the fact that long-run country differences are not explained by differences in growth rates of (net of productivity) labor cost suggests that the interaction of demand and supply factors is not well captured by simple -textbook- models of the labor market.

Though the formulation of a consistent theory is left to further research, we can make some preliminary considerations. Spain, more than Portugal, reflects some of the basic features of the European labor market –it is not an exception or anomaly, as it is ususally perceived. The critical issue seems that the initial structure of employment in the mid 70's (this *is* the difference from other advanced economies), would have required a much larger process of labor mobility between sectors and industries than that which has been observed in the most developed European countries in the last two decades, in order to keep total employment rate close to the European standard.

It is not an accident that –in the process of European unification, and labor market integration– the displaced workers from some regions of Spain, and from some other southern regions, have not been absorbed by other countries. The south-north migrations of the past correspond to the traditional mechanism of absorbing displaced workers from the countryside into low-skill jobs in the industry and services. In that respect, Portugal, seems to have behaved more like an European country of some decades ago. In contrast –this hypothesis goes– Spain, has followed other European countries, in following a growth path biased towards high-skill intensive activities. Thus, on the one hand a large number low-skill workers coming from the countryside

entered the urban labor market, on the other hand the demand for unqualified workers from the industrial and service sector remained low or even fell. As a result, the fall in the wage of low-skill workers which would have been required to clear the market is very large.

The gap between the market clearing wage of qualified vs. unqualified workers may have then grown too fast and hit the resistance opposed by the institutional constraints which characterize the functioning of the labor market in Spain (collective bargaining, firing costs, etc.). Although constraints of a similar nature can probably be found in other European economies as well, their effect on employment has been less significant than in Spain, simply because the urban sector of these economies did not have to accomodate so large a flow of low-skill workers.

Notice that we do not deny the effect of institutional and contractual factors, we think that have to be placed in the right perspective. That these may have been important, along the lines just described, can be seen from the different paths followed by Portugal and some regions of Spain, such as Extremadura, which had very similar initial conditions and close geographical ties (see [6]).

Our results are also interesting from a policy perspective. If most of the unemployment comes from 'sectoral composition' effects, it is naive to think that reforms which make the legal and financial system homogeneous to that of the other European countries are a sufficient condition to bring the unemployment rate down to the level of the other European countries in a short period. A wrong assessment of the nature of the problem can be very harmful, since it can induce the authorities not only to adopt inadequate policies, but also to abandon correct reforms undertaken with unrealistic expectations about their immediate effects.

Last, but not least, we also want to remark that the picture described here could not have been produced without the help of a relatively simple statistical technique. Although the methodology is not new in the literature, we hope that our development in the identification stage will stimulate new research on this and related issues.

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Figure 1. Employment in Spain with a `French' agriculture.

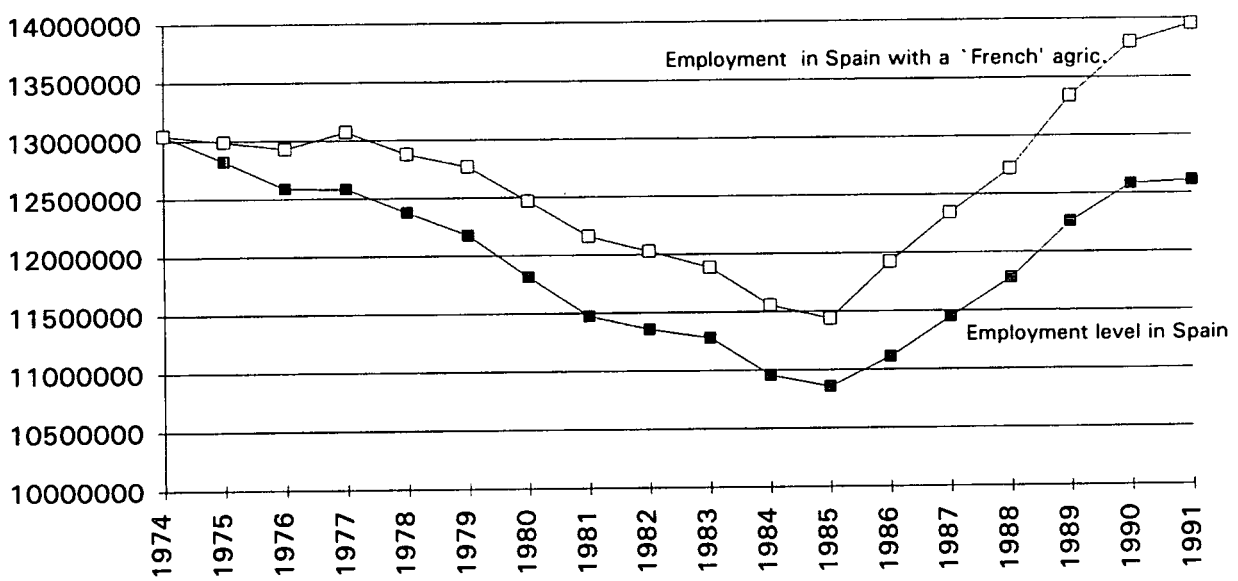


Figure 2.a. Germany.

(N.B.: employment in the former East Germany not included)

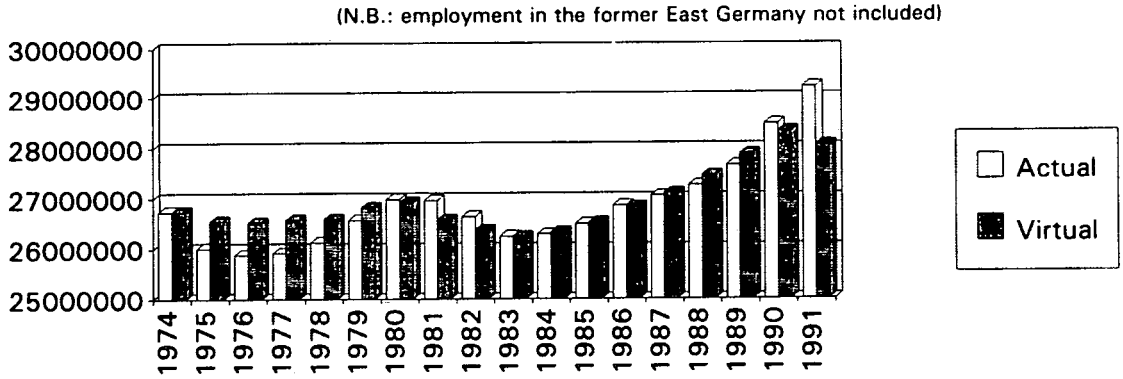


Figure 2.b. France.

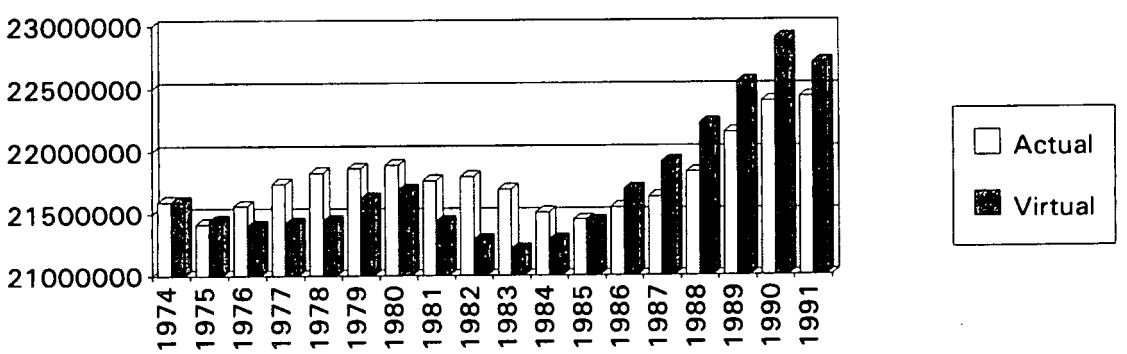


Figure 2.c. Italy.

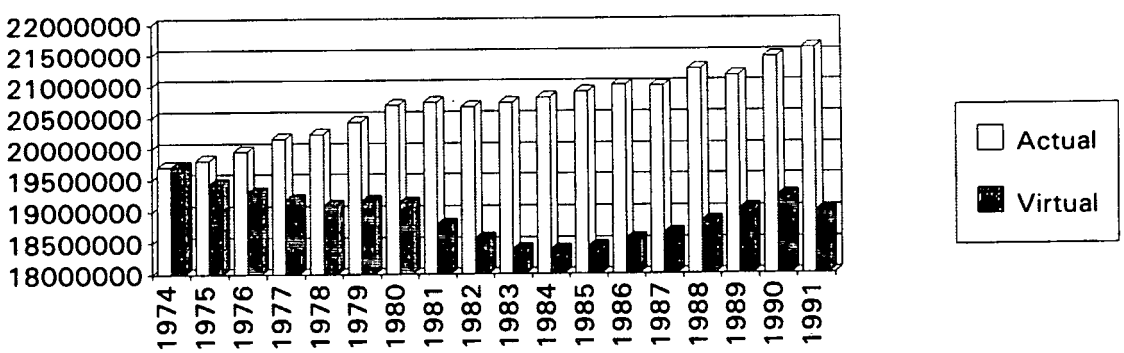


Figure 2.d. United Kingdom.

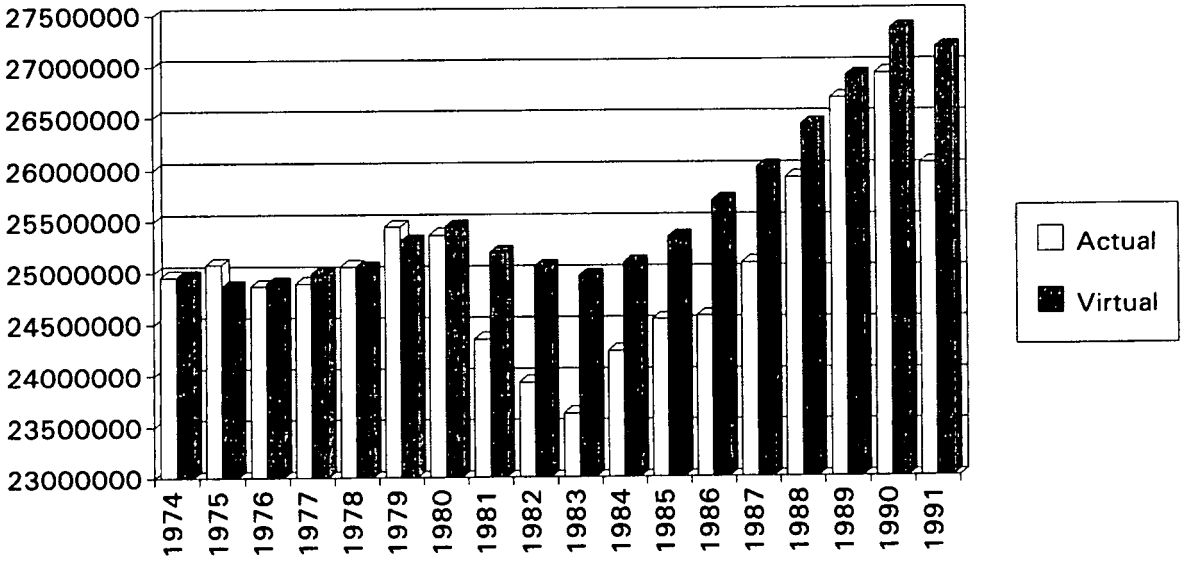


Figure 2.e. Netherlands.

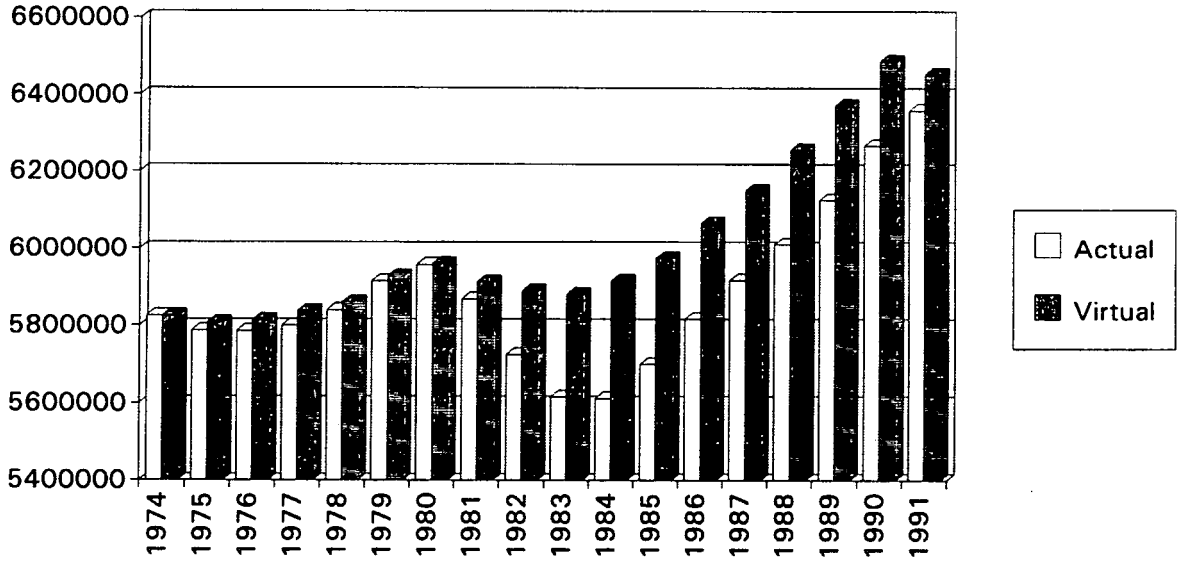


Figure 2.f. Belgium.

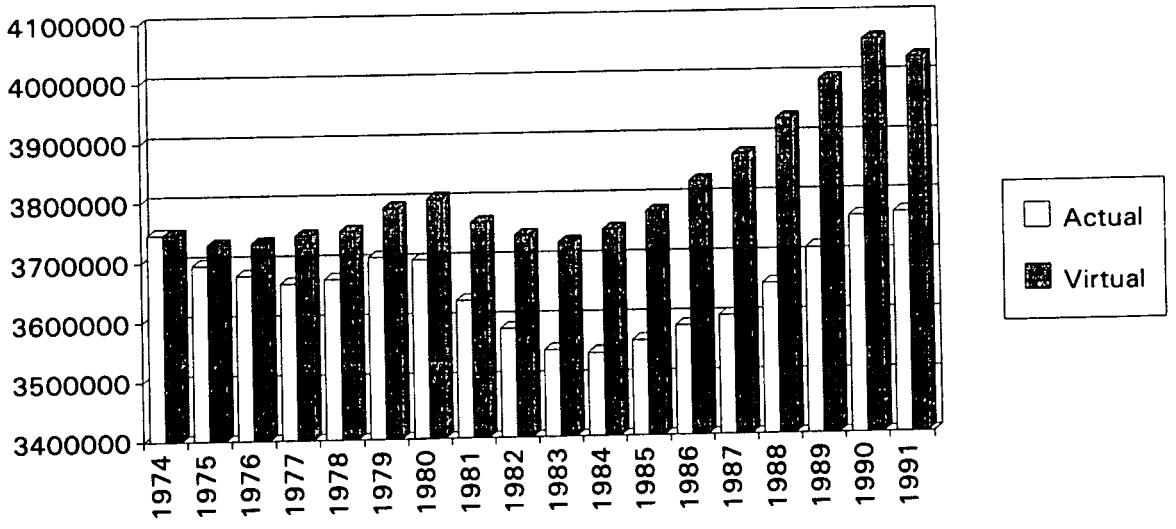


Figure 2.g. Denmark.

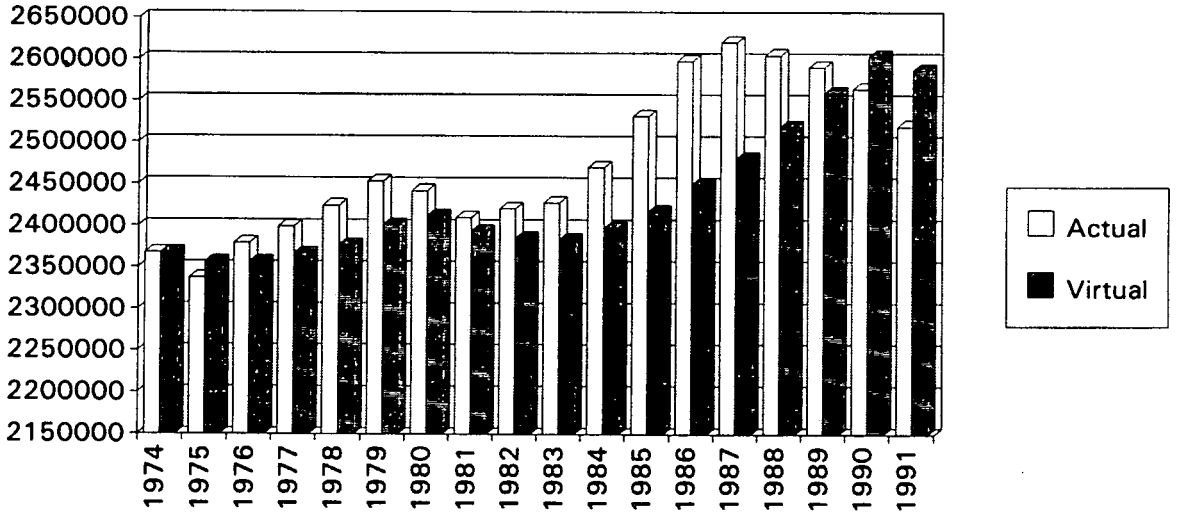


Figure 2.h. Sweden.

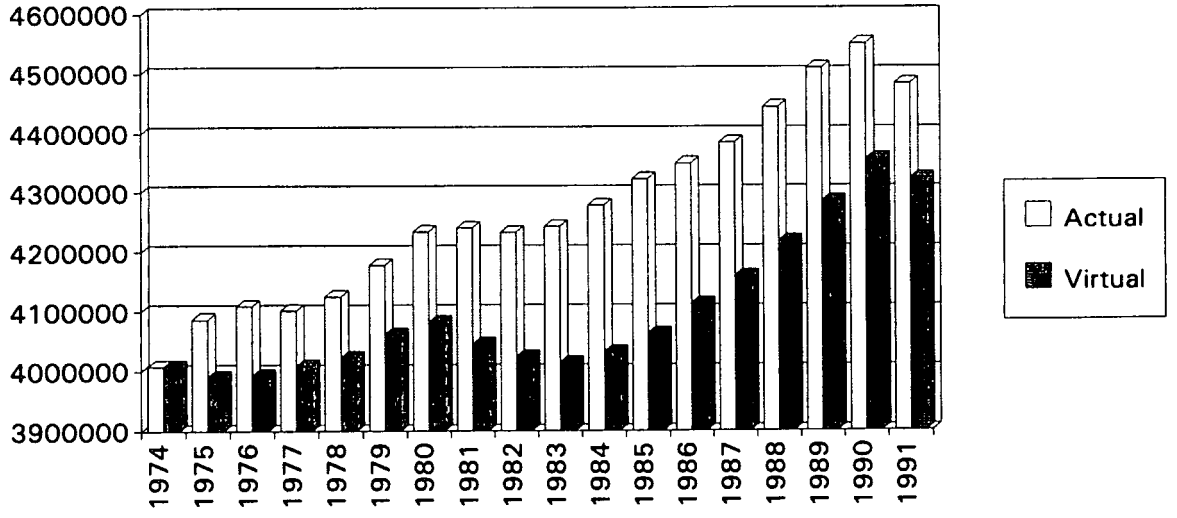


Figure 2.i. Finland.

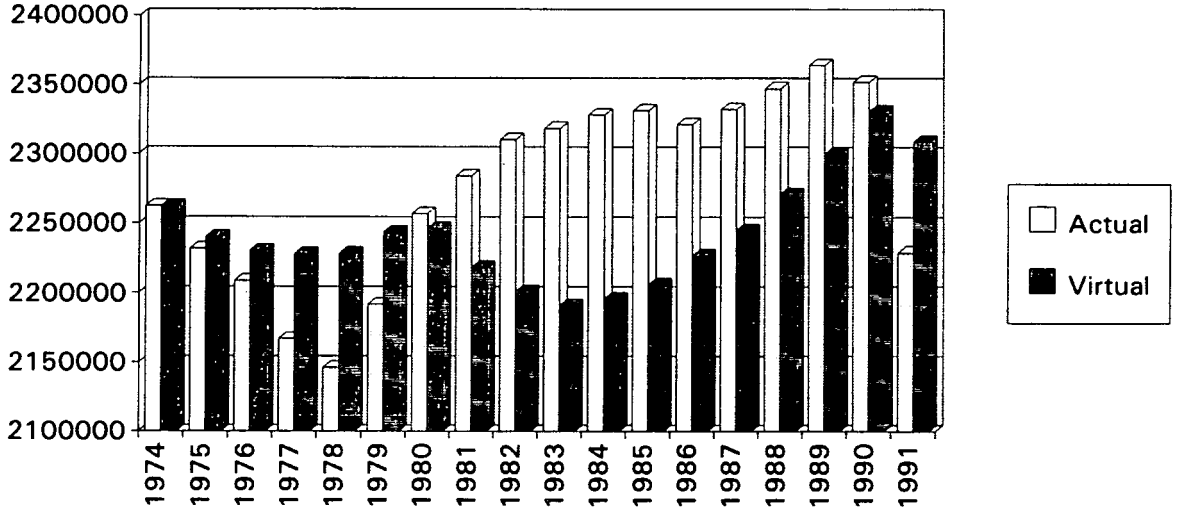


Figure 3. Comparison between `virtual economies' .

(initial employment normalized to the level of Spain)

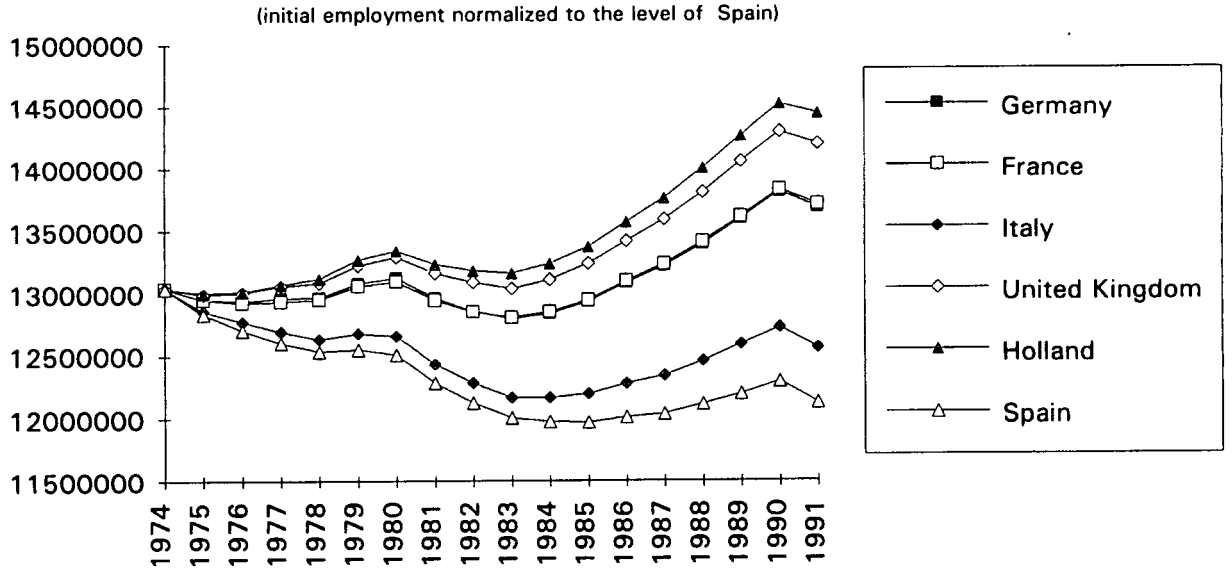


Figure 4. Actual and virtual employment in textiles.

Comparative performances of the UK and Italy.

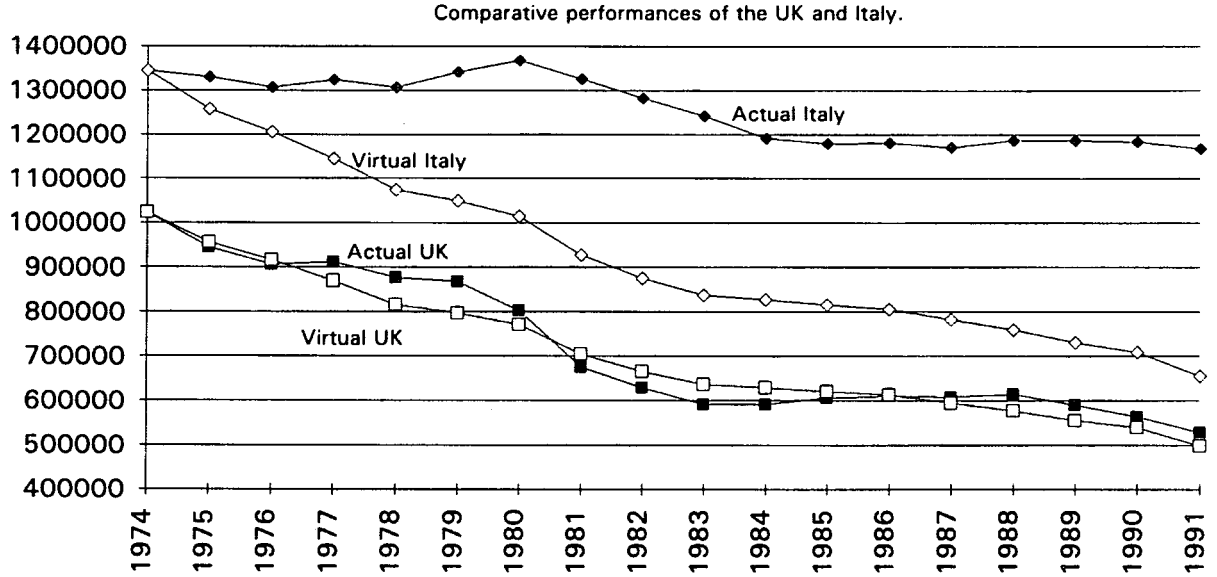


Figure 5. Spain.

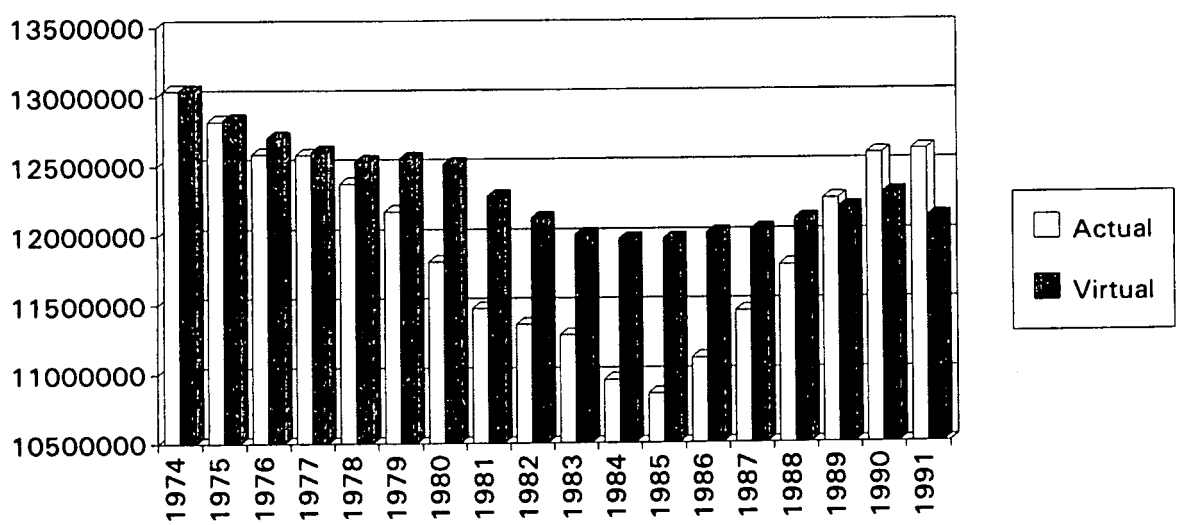


Figure 6.a. Spain, all sectors except agriculture.

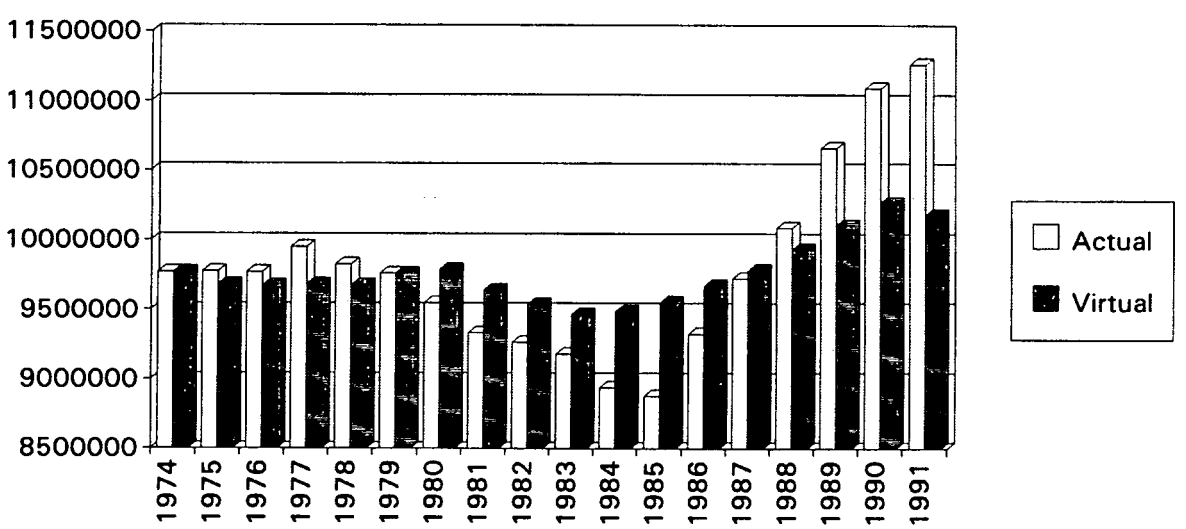


Figure 6.b. Spain, agriculture.

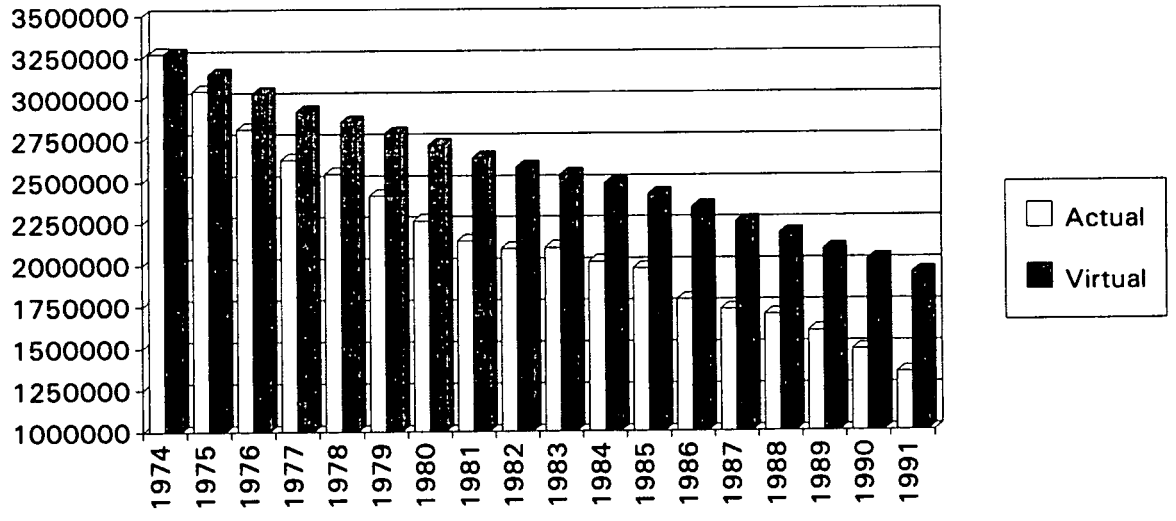


Figura 6.c: Spain, manufacturing sector.

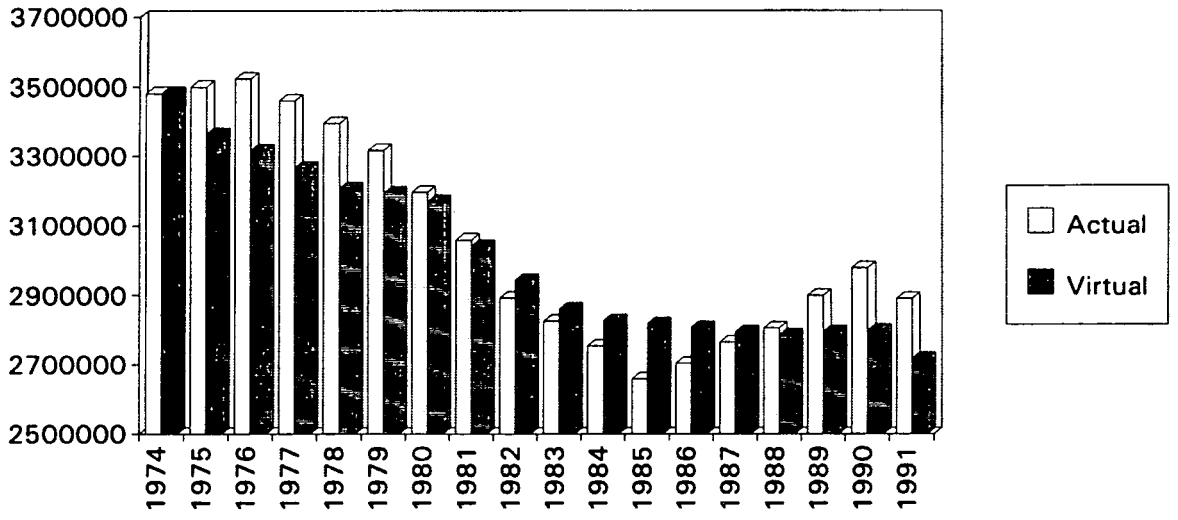


Figure 6.d. Spain, services.

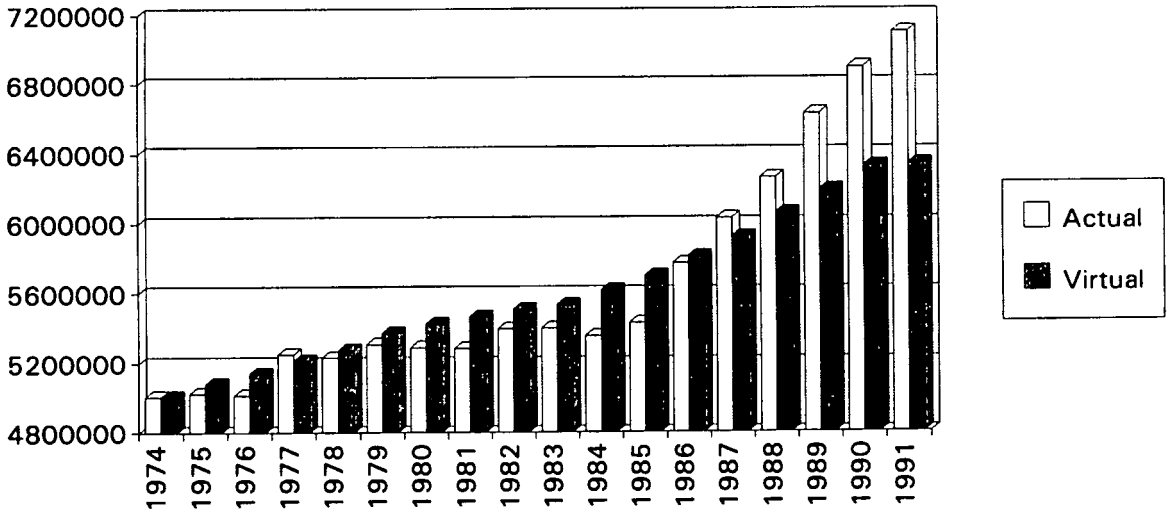


Figure 6.e. Spain, construction.

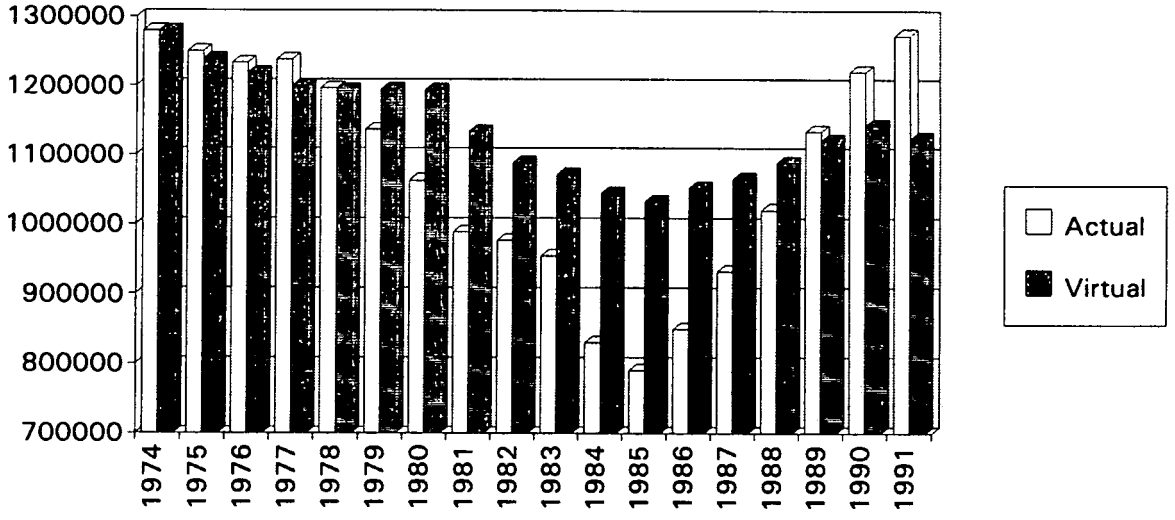


Figure 7. Portugal.

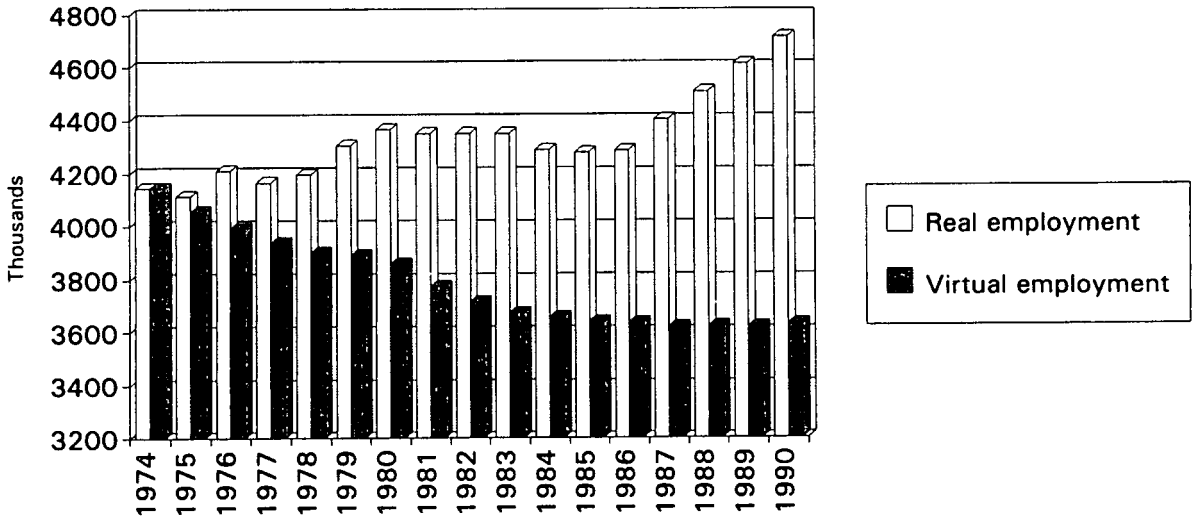


Figure 8.a. Labour cost and productivity in Europe.

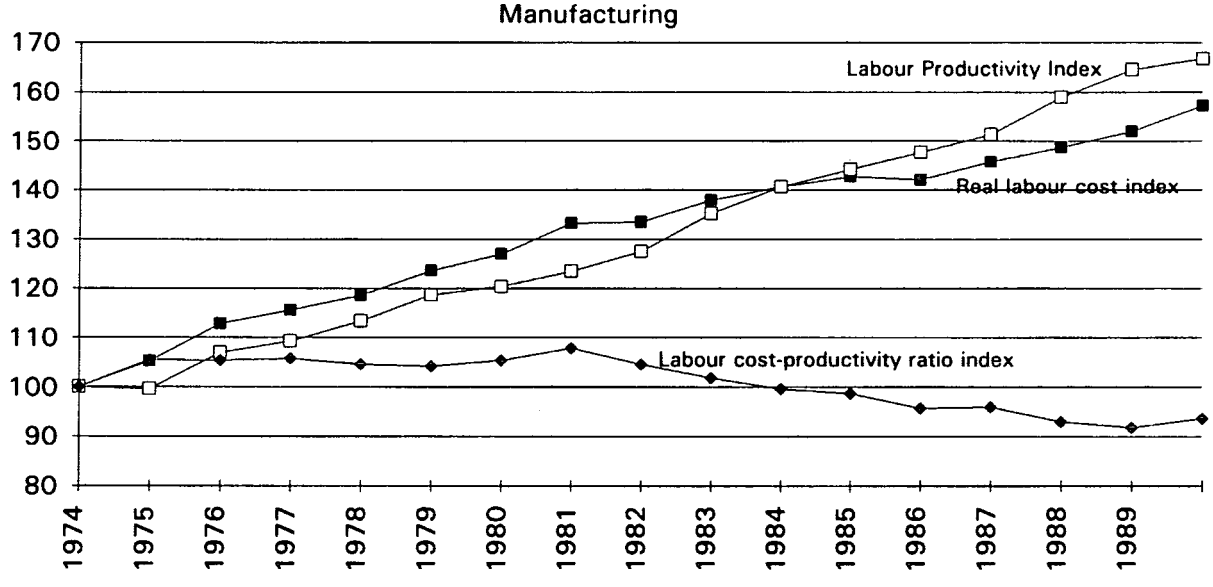


Figure 8.b. Labour cost and productivity in Spain.

Manufacturing.

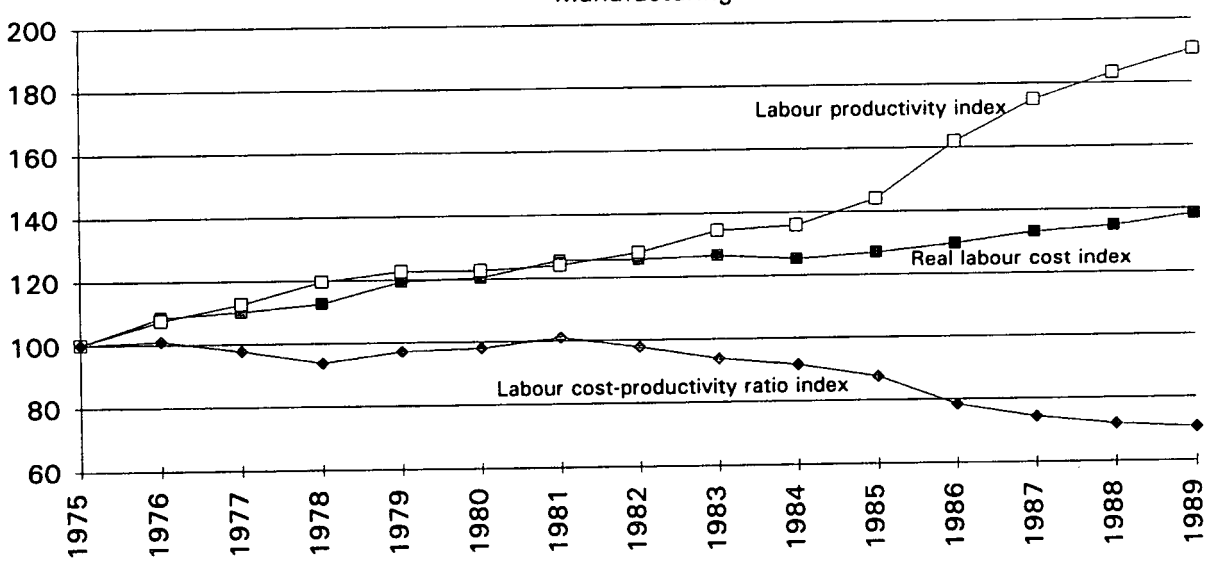
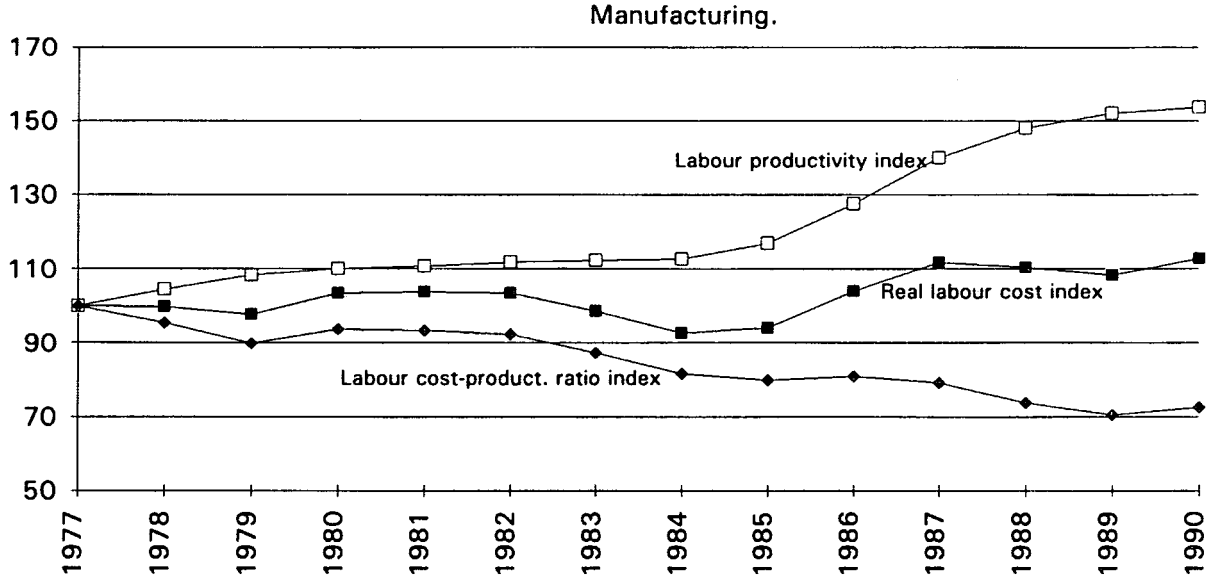


Figure 8.c. Labour cost and productivity in Portugal.

Manufacturing.



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