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Intergenerational mobility in seven European Countries.

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Intergenerational mobility in seven European Countries.

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Abstract

This paper provides new evidence on cross-country comparison of intergenerational mobility using the eight waves of the European Community Household Panel. I estimate intergeneration earnings elasticity for sons and daughters father pairs in seven European countries. Data comparability across countries allows me to rank European countries according to their degree of intergenerational income mobility. When I consider intergenerational transmission of earnings towards daughters, it turns out that that Italy is the most immobile country in Europe. When considering sons, all the Mediterranean countries result to be more immobile than Germany.

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1. Introduction

Although a large body of the economic literature has studied the correlation between father and son socio-economic status, only fewer and more recent works have analysed the differences existing in intergenerational mobility across countries. Intergenerational mobility indicators are extremely sensitive to sample selection, thus data availability in cross-country comparisons is a crucial issue. Similar information on two generations income is needed for each country and both generations should be observed working in their prime age. To solve this problem the researchers have been looking for similar dataset across country, in order to apply the same selection rules and produce comparable estimations.

A first way to deal the issue is the one undergone by Jantii et al. (2005). They compare Nordic countries (register data) to US and UK. They put a lot of effort in applying the sample selection design needed to mimic NCDS (The UK cohort study) to other national dataset. They find that Nordic countries are mobile societies if compared to the US, while the UK showed up to be much closer to Nordic countries than to US.

Relevant information for the second generation could also be drawn from cross section surveys, which are less sensible to sample selection problem than panel data, whenever they contain retrospective information on parental background (occupation and level of education) for the fathers. This information can be used to construct similar indexes of socio-economic positions for both parents and children (Checchi and Dardanoni, 2002 and Checchi et al ,1999) or to infer income from a sample of older men (synthetic fathers) and estimate intergenerational correlation using a Two Sample Instrumental Variable method (TSIV) (Bjorklund and Jantti ,1997).

Another and completely different way to solve the data requirement problem in intergenerational mobility cross-country comparisons can be found in Couch and Dunn (1996). Using two very similar longitudinal data-sets (the GSOEP and the PSID) they focus on observations of parents and children contemporaneously active in the labor market, apply the same selection rules and same methodology to each country and conclude that there is a remarkable similarity between Germany and US. The use of contemporaneously working sons and fathers produces estimations that suffer of at least two potential biases. Indeed it arises some serious concerns about life-cycle bias because sons are observed early in their working career (the average age of sons sample is around 25 in US and 22 in Germany) while fathers are observed at later stages (the

average age of fathers sample is around 50). This bias is only partially attenuated by controlling for sons and fathers age and age squared. As Haider and Solon (2006) point out, the relationship between permanent income and current income varies according to the age at which current earnings is measured. They conclude that an under-estimation of the true intergenerational mobility elasticity occurs whenever sons are observed in their early career and fathers in their late career and this can justify the very low value of intergenerational earnings elasticity found by Couch and Dunn (1996). Furthermore, concerns arise also in the family matching procedure. As illustrated by Francesconi and Nicoletti (2006) the estimation of intergenerational mobility using a short panel may arise a selection problem (which they call co-residence selection) because information is available only for those child-fathers pairs observed together in at least a wave of the panel. They use different selection correction methods, and show that the inverse propensity score weighting is the best performer technique and can reduce the sample selection bias by more than a half.

Following Couch and Dunn (1996), in this paper I provide new evidence on cross-country comparison of intergenerational earnings elasticity using the same dataset for four European countries, the European Community Household Panel. The main advantage of these data is that the same "community" questionnaire is adopted by the national data collection units in each participating country which increases comparability among the countries.

This paper seeks to contribute to the existing literature in two important respects. First of all I provide estimates of intergenerational income elasticity for seven European countries only partially covered by intergenerational mobility literature up to now. These countries are Germany, Belgium, France, Italy, Greece, Spain and Portugal. Comparable estimations of the intergenerational earnings elasticities exist only for France and Germany (Corak, 2006). Secondly, I correct my estimates for co-residence selection bias using the propensity score weighting method in order to reduce the bias generated by the father-children matching process.

I am aware that the estimations of intergenerational earnings elasticity may still suffer of life-cycle attenuation bias due to the young age of children but, if the distortions are similar across countries, then the results can be useful to compare the degree of mobility of seven European societies.

This paper proceeds as follows. In section 2 I briefly discuss the econometric issues related to the measure of earnings intergenerational elasticity, in section 3 I

describe the data and the sample I use and finally section 4 contains the results. Then, some concluding remarks are in section 5.

2. Estimation methods

Earlier studies on intergenerational earnings mobility simply estimate the following equation

$$Y_{1i} = \beta Y_{0i} + \varepsilon_i \qquad (1)$$

where Y_{1i} is a measure of the permanent economic status of the son in family *i* and Y_{0i} is thus the corresponding measure for the father. Following Solon (1992), we can see that each generation permanent income is the sum of two components: a permanent one that reflects the true long-term earnings capacity (y_{Gi} with G=0 for the father and G=1 for the child*)* and a residual one that captures both transitory shocks in a particular year and errors due simply to inaccurate report of earnings (v_{Gi} with G=0 for the father and G=1 for the child):

$$Y_{Gis} = y_{Gi} + v_{Gis} \qquad (2)$$

if we are interested in the relation (1) but we estimate it using single-year measure the coefficient will be downward biased by the attenuation factor:

$$p\lim \hat{\beta} = \beta \left(\frac{\sigma^2_{y_0}}{\sigma^2_{y_0} + \sigma^2_{v0}} \right) \qquad (3)$$

To reduce this bias Solon (1992) proposes to use an average over many years of earnings because this will reduce (but not eliminate completely) the biases generated by both transitory shock and measurement error (σ_{v0}).[1] Mazumder (2003) shows that even averaging the fathers' earnings over five years do not reduce completely errors-in variable bias and suggests using more years. Unfortunately only eight waves of ECHP have been collected and the best that can be done is to use as many as valid yearly earnings available for each observation.

Parents and children are observed at different points in their life-cycle, thus the age effect of parents and children should be controlled simply adding average age and average age square of both generations to equation (1). Haider and Solon (2006) and Grawe (2006) show that the estimation may be sensitive to life cycle biases even after controlling for measurement error and age. Grawe (2006) points out that since income

[1] For a discussion see Mazumder (2001)

variance grows over the life cycle, estimates of income persistence based on data from mature fathers will naturally be lower than those based on young fathers and finds that a great part of the differences in estimated intergenerational correlations for the US is explained by the differences in the age of father and sons at the point of measurement. Reville (1995) finds that the intergenerational earnings correlation decreases with son's age. Solon and Haider (2006) sum up these results showing that intergenerational earnings elasticity estimated on a sample of young sons and old father is subject to substantial attenuation inconsistency bias due to both right and left side measurement error. This is exactly the case of my estimates and using ECHP I expect to find lower levels of intergenerational correlation than other studies (Corak, 2006 for a review), because sons are observed in their early life and father in their late years of labour market experience.

Finally, like all the estimations based on short panels, I have to face a co-residence selection problem. Francesconi and Nicoletti (2006) deeply analyse this issues comparing estimates based on the selected samples with those obtained from a sample with no selection bias and then test the performance of different approaches to correct the bias. They find that the best performer correction method is the inverse propensity score weighting method recently used by Woodridge (2002).

The first step consists on the estimate of the probability to be matched with the father in at least a wave:

$$x_i^* = \gamma_0 + \gamma_1 Z_i + \upsilon_i \qquad (4)$$

with $x_i = 1$ if $x_i^* > 0$

$x_i = 0$ otherwise

where x_i^* is a latent variable with associated dummy variable x_i that takes the value 1 if the father is matched in at least a wave and 0 otherwise. Z_i is a vector of explanatory variables including years of birth and regional dummies plus some identifying restrictions, i.e. variables that affects the probability of being matched and not have a direct influence on father income while υ_I is a standard error term. I use two indicators of tightness of the house market as identifying restrictions: the rent per room and the share of owned houses in the region of residence. From this first stage, I compute the inverse propensity score and use it as weight in the main equation.

Adding father and son age and age squared to equation (1) and taking averages over as many years as available for each observation yields:

$$\bar{Y}_{1i} = \alpha_0 + \beta \bar{Y}_{0i} + \alpha_1 \bar{A} + \eta_i \qquad (6)$$

where $\overline{Y}_{1i}$ *and* $\overline{Y}_{0i}$ are the average earnings respectively of sons and father in family *i, and* $\overline{A}$ is a vector containing average age and age squared of both father and child.

This is the main equation and it is estimated by weighted least square, using inverse propensity score as individual weights.

If the variance in log earnings is the same for both generations then the intergenerational elasticity obtained, $\hat{\beta}$, is also the intergenerational correlation. The two measures are roughly comparable even if the variance in income differs substantially across generations as shown by Solon (1992). Bowles and Gintis (2002) suggest that the regression coefficient is to be preferred since it does not conflate changes in cross-sectional inequality with the association in earnings across generation.

3. Data and sample selection

The European Community Household Panel (ECHP) is a large household survey that covers most member countries in the European Union. Rather than trying to harmonise output from national surveys, the European statistical agency (Eurostat) adopts an input oriented approach and uses the same community questionnaire as the base for the national versions of the survey. A desirable feature of ECHP is that the questions on earnings, the reference period and the survey methods are common across countries. I use all the available 8 waves, from 1994 to 2001. The survey is composed of a household and a personal file, and the same individuals and families are followed and interviewed over time. In the first wave (in 1994) a sample of some 60,500 nationally representative households - i.e. approximately 130,000 adults aged 16 years and over - were interviewed in the 15 Member States. I provide estimate of the intergenerational income elasticities for Germany, Belgium, France, Italy Greece, Spain and Portugal. The set of countries considered in this study belongs to corporatist-type welfare state[2]. This means that the welfare state is family oriented, young people tend to cohabit longer with their parents because it can be difficult to leave parents' house and the state does not protect them, for example with unemployment benefit if they loose their jobs.

[2] The Mediterranean welfare state is considered as a sub-set of the corporatist one.

I consider both son –father and daughter- father pairs and allow families to contribute as many father-child pairs as meet the selection rules. Sons and daughters are matched to their father using the relational file provided in each wave. So I include in the sample every individual that in at least a wave was linked to somebody as a child, aged between 16 and 35 and his/her father (i.e. every male that in at least a wave was coded as parent and that has an age between 35 and 70). I exclude observations during any year in which the child was enrolled in school or the parent to whom she is matched was enrolled in school or retired. Finally I exclude both self-employed and unemployed children and fathers. In calculating averages of earnings and age across years, I include as many years of valid data as are available for each individual.

TABLE 1 AROUND HERE

The first concern that arises in selecting the samples is that countries included in this paper have different social habits as regards cohabitation with parents and, as already seen, this exposes my results to a possible co-residence sample selection bias. Table 1 illustrates the undergone selection procedure. In the first two columns the number of individuals aged on average less that 35 and more than 17 for each country and gender is reported. Using the relational file I then match each child to her father and the matched sample size (and the percentage with respect to the initial sample) is reported in column 3 and 4. As it can be seen, the percentage of children with an age between 17 and 35 matched to their fathers is higher in Mediterranean countries: compare the 61% of Italian sons with the 38% of French ones. It should be noticed that sons and daughters exhibit different co-residence habits in Italy, Greece and Portugal. To account for the existence of two different selection processes among children of different gender in different countries, I estimate the selection equation separately for each country and child gender.

Finally only pairs with at least a year of valid earnings information both for father and child are included in the sample. The sample sizes drastically decreases. Along with the vast majority of studies on intergenerational mobility, I do not explicitly correct for selection into employment assuming exogenous selection into employment for both generations[3].

[3] For a discussion see Couch and Lillard, (1998) and Francesconi e Nicoletti (2006)

TABLE 2 ABOUT HERE

In table 2 I report the average age of children and fathers. Children are observed in their early steps in the labour market, and fathers in their last steps. Indeed, the average age of the samples does not differ across countries.

TABLE 3 ABOUT HERE

Another possible selection problem is due to the exclusion of self-employed from the sample. Dunn and Holtz-Eakin (2000) study the intergenerational persistence of self-employment and finds that the intergenerational link is strong. Self –employment reported earnings are far more exposed to measurement error than employees' and the earnings variable I use is the monthly gross salary which is not available for self-employed[4] in ECHP. Standard analyses of intergenerational mobility exclude self-employed from the sample and assume exogenous selection into dependent employment, and I will do the same.

The earnings variable I use is the current gross monthly earnings. The results are thus not affected by differences in national taxation systems. All earnings are then converted in 2000 units using ILO current price indexes for each country. Table 3 contains the average earnings for each sample. In averaging earnings across years, missing years of earnings are substituted with the minimum wage in the individual history (see Francesconi and Nicoletti, 2006 for a discussion).

The probability of observing father and children together in at least a wave varies among regions within each country and thus I add to the selection equation a set of regional dummies[5]. Each child is assigned to the region of the first wave she is observed if she is not matched with her father, and to the region of her family if she is matched. The probability of leaving parental house and not being matched is strongly affected by the prevailing condition in the house market (Haurin et al., 1994, Ermisch, 1999). As proxies of the tightness of house market I compute two different indicators for each region. The first one is the average (gross monthly) rent per room of the rented houses in the region and the second is the share of owned houses in the region. In order

[4] Self employed income is the yearly (not monthly) income of the previous year.

[5] At NUT2 level of definition in ECHP.

to get a regional representative picture of the house market, in computing these indicators I use (yearly) cross-sectional households' weights. Of course, being these indicators computed by region, identification of the effect of house market indicators on the probability of being matched is based on the evolution over time of indicators among each region. In the selection equation I include also two educational dummies. Summary statistics of the main variables included in the selection equation can be found in table A1.

4. Results

Table 4 contains results of the selection equation estimation. For each country and gender I estimate the probability to be matched with a father as a function of the years of birth (4 years dummies), the (log) of the average rent per room in the region, the share of owned houses in the region, two educational dummies (secondary and tertiary), and regional dummies.

TABLE 4 ABOUT HERE

The house market indicators are statistically significant in all countries and have a positive signs: the higher is the rent per room the higher is the likelihood to match father and child, the higher the share of owned houses, the lower the share of houses available to rent, the higher the probability to observe father and child co-residing.

Table 5 presents the inverse propensity score weighted least squared estimations of equation (6) separately for son-father pairs and daughter-father pairs.

TABLE 5 ABOUT HERE

These coefficients are very low if compared to other results obtained for the same countries (see Corak, 2006 for a review) but the few studies that use contemporaneous data for fathers and children have results within the same range. Couch and Dunn (1996) with a similar structure of data for Germany find results between 0.08- 0.28 for sons.

From table 5 it is possible to conclude that there are significant cross country differences within Europe in the degree of intergenerational income mobility and the

transmission process of income from one generation to the other differs according to the off-spring gender. In fact, with the exception of Belgium and Greece, the intergenerational elasticity is always higher for daughters.

Excluding those coefficients that are not significant (Greek daughters), I can rank countries according to their degree of mobility. As regards son-father pairs, it turns out that Mediterranean countries tend to have elasticity above .20 ranging from .196 for Spain to .311 for Greece (the most immobile country). Germany seems to be characterised by more mobile society whit elasticity around .100. This result confirms the ranking found by Corak (2006), according to which Germany with an intergenerational earnings elasticity (IGE) of .32 was found to be more mobile than France (IGE .42). Belgium is between the two groups, much closer to the Mediterranean countries.

When we consider the rank in intergenerational mobility towards women, a completely different picture emerges. Italy is far more immobile than all the other countries with an elasticity of .368. At the opposite, Belgium is the more mobile society, whit elasticity respectively of .168. All the other countries stay in between.

The observed heterogeneity in the degree of intergenerational earnings mobility among countries begs the question whether these differences can be associated to differences in educational system and institutional setups. A reliable analysis could not be carried out with this small number of countries, and it is left aside for future works.

5. Concluding remarks

In this paper I provide new evidence on cross-country comparison of intergenerational mobility using the European Community Household Panel. Although this data-set produces estimations that suffer of many potential biases and are non directly comparable to other studies using older children, they can still be useful in a cross-country comparison point of view.

For the first time, I ranked seven European countries, only partially covered by economic intergenerational mobility literature, according to their degree of income intergenerational mobility.

I confirm that fathers behave differently in passing income and education to offspring accordingly to their gender and two different picture emerge when considering sons –father and daughters-father pairs.

As regards son-father pairs, it turns out that Mediterranean countries tend to have elasticity above .20 ranging from .196 for Spain to .311 for Greece (the most immobile country). Germany seems to be characterised by more mobile society whit elasticity around .100. Belgium is between the two groups, much closer to the Mediterranean countries. When considering the transmission of earnings towards daughters, Italy is the most immobile country with elasticity above .3; Belgium is the more mobile society with elasticity lower than .1, while all the other countries stay in between.

References

Bowles S.and Gintis H (2002) "The Inheritance of Inequality," *Journal of Economic Perspectives*, American Economic Association, vol. 16(3), pages 3-30, Summer.

Checchi, D. , Ichino, A. and Rustichini, A. (1999) "More equal but less mobile? education financing and intergenerational mobility in Italy and in the US", *Journal of Public Economics* 74 (3) 351-393

Checchi D. and Dardanoni V.(2002) "Mobility comparisons: does using different measures matter?," Departemental Working Papers 2002-15, Department of Economics University of Milan Italy.

Corak, M.(2006) "Do Poor Children Become Poor Adults? Lessons from a Cross Country Comparison of Generational Earnings Mobility," IZA Discussion Papers 1993, Institute for the Study of Labor (IZA).

Couch, K. and Dunn, T. (1996) , "ntergenerational Correlations in Labor Market Status", *Journal of Human Resources* 210-232

Couch, K. and Lillard, D. (1998), Sample selection rules and the intergenerational correlation of earnings, *Labour Economics* 5 (1998) , 313.- 329

Dunn, T. and Holtz-Eakin, D., (2000) "Financial Capital, Human Capital, and the Transition to Self-Employment: Evidence from Intergenerational Links," *Journal of Labor Economics*, University of Chicago Press, vol. 18(2), pages 282-305, April.

Ermisch J. (1999) "Prices, parents, and young people's household formation" *Journal of Urban economics*. 45: 47-71

Francesconi, M and Nicoletti, C (2006) "Intergenerational mobility and sample selection in short panels," *Journal of Applied Econometric*s, John Wiley & Sons, Ltd., vol. 21(8), pages 1265-1293.

Grawe, N D. (2006) "Lifecycle bias in estimates of intergenerational earnings persistence," *Labour Economics*, Elsevier, vol. 13(5), pages 551-570, October.

Haider, S. J. and Solon, G.(2006). "Life-Cycle Variation in the Association between Current and Lifetime Earnings." *American Economic Review*, 96(4):1308-1320

Haurin DR, Hendershott PH., Kim, D. (1994) “Housing decisions of American Youth”. *Journal of Urban Economics.* 35: 28-44

Jäntti M, Bratsberg B, Røed K, Raaum O. & Naylor R. & Österbacka E.& Björklund A. & Eriksson T.(2006) "American Exceptionalism in a New Light: A Comparison of Intergenerational Earnings Mobility in the Nordic Countries, the United Kingdom and the United States," IZA Discussion Papers 1938, Institute for the Study of Labor (IZA).

Mazumder B.(2003)"Revised estimates of intergenerational income mobility in the United States," Working Paper Series WP-03-16, Federal Reserve Bank of Chicago.

Reville R.T., (1995) “Intertemporal and life cycle variation in measured intergenerational earnings mobility”. Mimeo, Brown University.

Solon G. (1992), “Intergenerational Income Mobility in the United States”, *American Economic Review*, vol. 82, pp 393-408.

Wooldridge, JM.(2002) “Inverse Probability weighted M-estimators for sample selection, attrition, and stratification. *Portuguese Economic journal* 1: 117-139

Table 1: Samples sizes and average age

Country	Starting sample:		Matching process: Number of matched pairs (percentage)		Final samples: pairs with valid information on earnings	
	Young male	Young female	Sons	Daughter	Sons	Daughter
Germany	2807	2493	1201 (43%)	850 (34%)	916	673
Belgium	982	1010	389 (39%)	276 (27%)	235	193
France	2494	2087	951 (38%)	641 (31%)	683	466
Italy	2782	2144	1692 (61%)	1133 (53%)	819	528
Greece	1632	1287	934 (57%)	629 (49%)	402	291
Spain	3235	2381	1861 (57%)	1396 (59%)	1020	713
Portugal	2386	1984	1365 (57%)	957 (48%)	796	553

Table 2. Average age of the samples

Country	Average father Age		Average child Age	
	Son-father pairs	Daughter-father pairs	Sons	Daughters
Germany	50.1	49.4	22.6	21.6
Belgium	50.9	49.8	23.7	22.6
France	49.3	49.4	22.4	22.6
Italy	53.3	53.2	24.0	23.6
Greece	52.4	52.3	23.6	22.7
Spain	52.4	53.0	22.9	23.3
Portugal	51.3	51.7	22.6	22.7

Table 3. Average monthly gross earnings.

Country	Average father Earnings		Average children earnings	
	Son-father pairs	Daughter-father pairs	Sons	Daughters
Germany	2377.5	2313.3	1202.8	922.3
Belgium	2663.1	2661.0	1658.8	1430.4
France	2063.1	2193.7	1059.9	985.6
Italy	1456.3	1581.2	1059.6	924.8
Greece	932.4	99.5	645.5	546.8
Spain	1374.8	1507.4	881.0	758.4
Portugal	655.9	683.7	500.0	455.4

Note: earnings are expressed in 2000 prices and then converted in euro.

Table 4: Selection equation estimates. By country and child gender*

	Gender	(log) monthly gross rent per room	Share of owned houses in the region	PseudoR2
Germany	Sons	3.41 (.54)	10.06 (.78)	0.32
	Daughters	3.35 (.60)	9.04 (.93)	0.36
Belgium	Sons	11.06 (1.69)	19.28 (2.44)	0.31
	Daughters	5.78 (1.61)	11.94 (1.89)	0.34
France	Sons	7.33 (0.73)	18.9 (1.11)	.34
	Daughters.	7.46 (.89)	15.8 (1.28)	.33
Italy	Sons	3.04 (.42)	22.8 (1.41)	.35
	Daughters	1.89 (.49)	25.3 (1.66)	.36
Greece	Sons	23.2 (1.5)	27.9 (1.21)	.60
	Daughters	32.9 (2.41)	28.3 (1.46)	.61
Spain	Sons	2.41 (.34)	16.8 (1.24)	.31
	Daughters	2.86 (.39)	16.8 (1.38)	.31
Portugal	Sons	1.55 (.19)	14.9 (1.07)	.29
	Daughters	1.49 (.22)	10.1 (1.05)	.25

Notes: *Standard errors between parenthesis. Regional dummies (NUTS2), educational dummies, and years of birth dummies (4 years interval) also included.

Table 5: Estimation results of the intergenerational earnings elasticity $\hat{\beta}$. By country and child gender.

Country	Son-father pairs		Daughter- father pairs	
	$\hat{\beta}$	Sample	$\hat{\beta}$	Sample
Germany	.132 (.043)	916	.227 (.089)	673
Belgium	.189 (.059)	235	.168 (.079)	193
France	.245 (.042)	683	.273 (.049)	466
Italy	.218 (.033)	819	.368 (.055)	528
Greece	.311 (.136)	402	.011 (.076)	261
Spain	.196 (.030)	1020	.275 (.039)	713
Portugal	.222 (.056)	796	.243 (.052)	553

Notes: Standard errors between parenthesis. Outliers are detected using the Hadi procedure of STATA 9 and excluded.

APPENDIX

Table A1: Summary statistics of variables used in the selection equation.

Country	Average monthly gross rent per room* (standard deviation)	Average share of owned houses	Highest level of education attained		Average year of birth
			Secondary	Tertiary	
Germany	149.9 (23.8)	.43 (.10)	.62 (.48)	.17 (.38)	1970.5 (5.9)
Belgium	95.5 (15.4)	.74 (.10)	.39 (.48)	.46 (.49)	1968.7 (5.4)
France	124.9 (28.6)	.63 (.07)	.35 (.47)	.36 (.48)	1970.7 (5.4)
Italy	79.2 (21.1)	.78 (.07)	.55 (.50)	.10 (.30)	1969.7 (5.2)
Greece	83.8 (13.5)	.80 (.09)	.46 (.50)	.36 (.48)	1969.9 (5.6)
Spain	41.7 (10.6)	.84 (.07)	.26 (.44)	.39 (.48)	1970.5 (5.6)
Portugal	23.7 (7.2)	.72 (.11)	.23 (.42)	.13 (.34)	1971.8 (5.8)

Notes: *in 2000 prices and in euro.

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