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15 Wage Dispersion and Country Price Levels

Robert E. Lipsey and Birgitta Swedenborg

It has long been obvious that price levels, converted to a single currency via exchange rates, differ greatly from country to country. That fact has been demonstrated most conclusively in the reports on the UN International Comparison Program since the 1970s. The history of the finding and explanations for it have been reviewed in quite a number of papers (Kravis and Lipsey 1983, 1987; Bhagwati 1984; Clague 1985, 1986, 1993; Bergstrand 1991; Falvey and Gemmell 1991; and Kleiman 1993). Many of these focus on factors that affect the price of services, or the service component of prices of goods, on the ground that the sources of price differences must be concentrated in nontradable sectors of the economy.

In a recent paper, the present authors examined differences in the price levels for food products and found that, despite the presumed tradability of foods, price levels for them differed among countries even more than for the GDP as a whole, with its large service component (Lipsey and Swedenborg 1996). The main explanatory factors found for these price differences were levels of protection for farm products and levels of indirect taxation, mainly VAT on foods. Other factors, not specific to food prices, were real income per capita, presumably operating through its effect on the cost of services, and deviations of general price levels from those implied by per capita incomes, presumably as a consequence of temporary factors affecting exchange rates or of omitted characteristics of the countries' economies such as, possibly, inefficient or monopolistic service sectors.

Our explanation of the role of per capita income started from the idea that

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industries could be characterized as labor intensive or capital intensive. If we think of goods production as relatively capital intensive and service production as relatively labor intensive and of goods production as tradable and service production as nontradable (ignoring the oversimplification involved in these assumptions), services should be relatively cheap in poor countries, where labor is relatively cheap, as suggested in Kravis and Lipsey (1983) and Bhagwati (1984). Goods prices, at least at the producers' level, would tend to be more equal across countries because of the price-equalizing effects of trade. They could, however, differ at the purchasers' level because they may incorporate large elements of service input in, for example, wholesale and retail trade.

We speculated in that paper that another factor, missing in our analysis, might be the dispersion of wages among workers and industries. If we compare two countries in which labor prices are, on average, the same relative to capital input prices but one pursues a policy of equalizing wages among workers while the other allows large differences based on skill, the structure of service prices could differ. In the absence of major possibilities for substitution among types of labor, the country with large wage differences among workers should face relatively lower prices for services intensive in low-skill labor but relatively high prices for services intensive in high-skill labor. The country with a "solidaristic" wage policy, on the other hand, should face relatively high prices for low-skill services and low prices for high-skill services.

The effect of the wage structure will depend on the elasticity of substitution between skilled and unskilled labor. If the elasticity of substitution is high, the effect on service prices will be small. However, countries with wide wage dispersion will have higher proportions of unskilled workers in all industries than countries with a narrow range of wages, where it will be more profitable to employ skilled workers because the differential is small. Thus, we might observe the effects of wage dispersion in the price of services, the skill distribution of employment, or both.

15.1 Data

15.1.1 Measures of Wage Dispersion

The measure of wage dispersion that we use is based on data for individual workers and shows the differences between different deciles and median wage levels. Wage data by deciles were published in OECD (1996b), its *Employment Outlook*. We have experimented also with industry wage data, as published in Gittleman and Wolff (1993), with results similar to, but weaker than, those from individual wage dispersion data, perhaps because the industry data are available only for broad industries, especially outside the manufacturing sector. These equations are not shown here.

We use the individual wage dispersion data for fifteen countries reported in OECD (1996b), taking as our measure of the wage dispersion measure the

ratio of wages at the fifth (median) decile to those in the first (lowest) decile. An alternative measure, the ratio of the ninth decile to the median, is highly correlated with this one.

Among the countries reporting these data, the United States showed one of the highest degrees of inequality and Sweden the lowest. The ratio of wages in the ninth decile to those in the first was 4.3 in the United States and 2.1 in Sweden in 1995 (OECD 1996b). Most of the other European countries were closer to Sweden than to the United States in this respect. Much of the wage compression is in the lower half of the distribution; those in the lowest decile of wage earners in the United States earn 37 percent of the median wage while those in the lowest decile in Sweden earn 76 percent of the median wage. As a result, workers in the lowest decile in Sweden earned 60 percent more than those in the lowest decile in the United States in a year in which average real income (per capita GDP adjusted for purchasing power) was more than 25 percent higher in the United States than in Sweden (Björklund and Freeman 1997).

The degree of wage dispersion appears to be a fairly permanent characteristic of a country, reflecting union policies and government regulations. The ranking of countries with respect to wage dispersion has been relatively constant. For example, the correlation between the 1970 and the 1993 wage dispersions for countries with data for both years is 0.85.

To the extent that we accept the idea of worldwide equality of traded goods prices at the producer level (despite the evidence against it in the case of food prices), the factor proportions in the production of tradables should be irrelevant in determining their prices in different countries. International price differences would arise only as goods passed through national distribution systems, from differences in distribution margins and in taxes. The smaller the margin between producer and consumer prices for a tradable product, the smaller the differences among countries in prices should be at the consumer level. The larger the distribution margin, the more prices of tradables should vary across countries positively with per capita incomes, as we know they do (see Kravis and Lipsey 1987, 1988), and negatively with wage dispersion.

If these differences in wage dispersion reflected differences in the dispersion of productivity in the labor force, there would be little or no effect on prices or employment. In an analysis of the Swedish case, Björklund and Freeman (1997) concluded that wage compression in Sweden did not reflect the productivity or education of the workforce. Edin and Topel (1997) reached the same conclusion and attributed wage compression in Sweden to the egalitarian goals of Swedish unions and central wage negotiations in a highly regulated labor market.

The OECD (1996b) study finds strong negative correlations across countries between the incidence of low pay and both the degree of collective-bargaining coverage and unemployment benefit replacement rates. These relations suggest that differences in wage structure probably reflect differences in wage policy.

Björklund and Freeman (1997, 67) suggest that, "if low-skill workers are paid more . . . than they would be paid in a more market-driven system of wage setting, someone must foot the bill for the higher wages of those workers." One of the questions asked here, in effect, is whether that someone is domestic consumers.

The limitation to fourteen or fifteen countries means that we are always somewhat short of degrees of freedom for comparisons across countries in any single year. We try to overcome this difficulty by pooling data across years and across industries, where that is possible.

15.1.2 Measures of Price Levels

Data on price levels originate in the benchmark-year surveys of the UN International Comparison Program (ICP), covering 1970, 1973, 1975, 1980, 1985, 1990, and 1993. The history of the program is summarized in Kravis and Lipsey (1991). GDP and other measures from the ICP for many countries are extrapolated to other years in a series of calculations called *Penn World Tables* by Robert Summers and Alan Heston (1991). The most recent of these, which is used here, is version 5.6. Annual price levels for foods for 1979–90 have been estimated by extrapolation from 1985 in Lipsey and Swedenborg (1996). The OECD publishes annual estimates of GDP price levels in its national accounts volumes. Detailed price data for 1970 and 1975 for over 150 categories and summary measures for 1973 appear in Kravis et al. (1975) and in Kravis, Heston, and Summers (1978, 1982). Price data for OECD countries, at various levels of detail, are from OECD (1987, 1992, 1995) and Ward (1985).

Unfortunately, the weighting systems and index number formulas differ from one data set to another. The three earlier data sets are based on worldwide final purchase weights, and the indexes are constructed using the Geary-Khamis method. The OECD data are based on the final purchase weights of the OECD countries, and those for 1990 and 1993 use the EKS formula. We have not yet learned how much these differences in method affect our results.

15.2 Explaining Price Levels

15.2.1 GDP Price Levels

If our hypothesis about the effect of wage dispersion is correct, and if service industries are typically intensive in the use of unskilled labor, we would expect that GDP price levels would be associated negatively, across countries, with wage dispersion. We test that proposition using the three-year averages of national price levels from Lipsey and Swedenborg (1996), with the results shown in table 15.1. The independent variables are the ones used in the earlier paper—real GDP per capita, the ratio of indirect taxes to GDP, and the net producer subsidy equivalent (NPSE), a measure of protection on foods—to which we have added here wage dispersion and a measure of the deviation of

Table 15.1 **Equations Relating GDP Price Levels to Wage Dispersion and Other Variables (PL = F[RGDPC, INDT, NPSE, XRR, DISP]; 15 OECD countries,[a] 1979–90)**

Period	Constant Term	RGDPC	INDT	NPSE	XRR	DISP	Adj. R^2	Prob F
1979–81	126.39	.57	2.52	.41	−1.18	−73.58	.812	.0007
	(2.66)	(2.28)	(2.92)	(2.00)	(2.11)	(3.67)		
1982–84	64.48	.65	1.36	.69	2.03	−45.01	.931	.0001
	(2.69)	(6.47)	(2.65)	(6.12)	(8.02)	(3.87)		
1985–87	66.43	.32	1.23	.40	1.53	−20.36	.733	.003
	(1.31)	(.72)	(1.23)	(1.48)	(1.38)	(1.74)		
1988–90	68.28	.56	.36	.45	2.21	−25.23	.709	.004
	(2.01)	(2.49)	(.38)	(2.94)	(1.67)	(1.63)		

Source: Lipsey and Swedenborg (1996), appendix table 15A.1 of this paper, and procedures described there for exchange rates.

Note: PL = GDP at exchange rates divided by GDP at PPP (OECD average = 100). RGDPC = real GDP per capita at international prices. INDT = indirect taxes as a percentage of GDP. NPSE = net producer subsidy equivalent on foods. DISP = wage dispersion, ratio of median wage to wage at lowest decile. XRR = deviation of the exchange rate from 1979–93 trend value. *t*-statistics are given in parentheses.

[a]Australia, Austria, Belgium, Canada, Denmark, France, Germany, Italy, Japan, the Netherlands, Norway, Portugal, Sweden, the United Kingdom, and the United States.

each country's exchange rate from its trend over the period 1979–93. We expect the coefficients of all these variables except wage dispersion to have positive signs.

The coefficient for wage dispersion was consistently negative, as we expected, and statistically significant in the first two periods. The higher the degree of wage dispersion, the lower the overall price level. As in our earlier study, higher per capita GDP, indirect taxes, and protection of agricultural products were all associated with higher GDP price levels. In addition, positive deviations of the value of a country's currency from its long-term trend also usually produced higher price levels, although the first period was an exception.

15.2.2 Price Levels for Broad Product Groups

The ICP groups its more than 150 detailed categories of consumption and fixed investment into eleven broad groups that are reasonably consistent since the first ICP report for 1970. We can use these groups by pooling results for six scattered years to test for effects of wage dispersion. At the highly tradable end of the range we cover foods, beverages, and tobacco, clothing and footwear, and producer durables. At the other end of the spectrum, among the least tradable, we have rent, fuel, and power, medical and health care, education, recreation, and culture, construction, and government consumption, mainly compensation of government employees. For each of these groups, we have observations for all the OECD countries in 1985, 1990, and 1993 and smaller

Table 15.2 **Results of Equations Explaining Price Levels for Broad Final Product Groups by Wage Dispersion and per Capita GDP, 1970, 1973, 1975, 1985, 1990, and 1993 Pooled (PL = F[DISP, CGDPX])**

	Intercept	CGDPX	DISP	Adj. R^2	Prob F
Clothing and footwear	1.13	17.49	−.72	.145	.0027
	(3.2)	(2.9)	(3.5)		
Collective consumption by government	.79	9.71	−.32	.088	.0207
	(3.6)	(2.6)	(2.5)		
Construction	.72	14.16	−.45	.122	.0061
	(2.7)	(3.1)	(2.9)		
Education, recreation, and culture	.71	12.95	−.39	.198	.0004
	(3.7)	(4.0)	(3.6)		
Food, beverages, and tobacco	1.12	12.92	−.55	.122	.0063
	(3.8)	(2.6)	(3.2)		
Gross rent, fuel and power	.72	7.57	−.18	.030	.1451
	(3.2)	(2.0)	(1.4)		
Household equipment and operation	1.01	8.76	−.33	.065	.0449
	(4.3)	(2.2)	(2.4)		
Machinery and equipment	1.47	7.22	−.47	.090	.0193
	(5.2)	(1.5)	(2.9)		
Medical and health care	−.33	16.73	−.16	.408	.0001
	(2.1)	(6.2)	(1.7)		
Miscellaneous goods and services	.75	22.09	−.77	.237	.0001
	(2.4)	(4.2)	(4.3)		
Transport and communication	1.85	8.78	−.71	.298	.0001
	(8.0)	(2.2)	(5.3)		

Source: OECD (1996a, 1996b).

Note: PL = PPP/XR (United States = 1). PPP = purchasing power parities for final expenditure on GDP per U.S. dollar (United States = 1). XR = period average exchange rates (foreign currency per U.S. dollar). DISP = wage dispersion, ratio of median wage to wage at lowest decile. CGDP = GDP per capita at current prices and current PPPs. CGDPX = index of GDP per capita at current prices and current PPPs where United States = 100 each year. t-statistics are given in parentheses.

numbers of countries in 1970, 1973, and 1975. The results of the analysis are shown in table 15.2.

For only one of the eleven groups, gross rent, fuel, and power, did our equation, using only per capita income and wage dispersion as independent variables, fail to provide a significant explanation of price levels. All the coefficients for per capita income were positive, and all but one were statistically significant at conventional levels. All the coefficients for wage dispersion were negative, and the only ones for which wage dispersion was not significant were gross rent, fuel, and power and medical and health care. In the former case, one reason may be that the real estate industry and the petroleum and power-generation industries are all highly capital intensive. The housing sector is also subject to rent controls and subsidies in some countries, and taxes on fuel vary widely. In the latter case, the high degree of subsidization of consumption and

the variance in the extent of subsidization across countries may blur the effects of other variables.

One might have expected that the equations would explain prices of services better than those of goods because goods are more tradable. There are no obvious differences among these groups attributable to that distinction; goods prices seem as well explained as service prices. Furthermore, the size of the coefficients does not seem to differ consistently between goods and services. However, these groups are too broad and too mixed in content to permit a reliable judgment. That issue is investigated further below, using detailed categories that can be more clearly defined as mostly goods or mostly services. Adding the variable used above to represent deviations of exchange rates from their trend values has virtually no effect on these equations, as can be seen in table 15.3. All the coefficients for the exchange rate deviation are positive, as we expect, but the addition of the variable reduces the degree of explanation almost as often as it increases it.

The previous conclusion remains undisturbed. Price levels for broad groups of final products are related positively to per capita income and negatively to wage dispersion, and the relations hold for goods as well as services and for capital goods as well as consumption goods.

15.2.3 Individual Product and Service Price Levels

To analyze these relations at the detailed product level, we concentrate on the three years (1985, 1990, and 1993) for which the product classification is the same. The most detailed breakdown of goods and services in the OECD reports on the ICP consists of almost 200 items, of which 143 are goods and 46 are services.

One difficulty in explaining service industry price levels is that some services are delivered free to consumers or are heavily subsidized. Major examples are services provided by the government rather than by private firms, such as education and medical services in most countries. In the earlier rounds of the ICP, an attempt was made to calculate the full cost of these services rather than the subsidized price, but it is not clear how successful the effort was. In any case, the effort was abandoned after 1975.

We begin by summarizing the results in terms of the signs of the coefficients for wage dispersion, per capita income, and exchange rate deviations in two ways. One is for equations with a significant degree of explanation of price levels, which we define as prob $F < .05$. The other is for all equations, regardless of the significance of the equations as explanations of price levels. Equations for goods and for services, pooling data for 1985, 1990, and 1993, are the basis for table 15.4.

As might be expected, the proportion of statistically significant equations was higher for services than for goods. Half the equations for services were significant, as compared with about 40 percent for goods. Among these significant equations, the coefficients of wage dispersion, per capita GDP, and the

Table 15.3 **Results of Equations Explaining Price Levels for Broad Final Product Groups by Wage Dispersion, Exchange Rate Residuals, and per Capita GDP, 1970, 1973, 1975, 1985, 1990, and 1993 Pooled (PL = F[DISP, CGDPX, XRR])**

	Intercept	CGDPX	DISP	XRR	Adj. R^2	Prob F
Clothing and footwear	1.13	18.45	−.77	.71	.158	.0033
	(3.2)	(3.1)	(3.7)	(1.4)		
Collective consumption by government	.79	10.24	−.35	.39	.097	.0253
	(3.6)	(2.8)	(2.7)	(1.3)		
Construction	.72	14.48	−.47	.23	.113	.0149
	(2.7)	(3.1)	(2.9)	(.6)		
Education, recreation, and culture	.71	13.52	−.42	.42	.217	.0004
	(3.8)	(4.2)	(3.8)	(1.6)		
Food, beverages, and tobacco	1.12	13.69	−.58	.57	.134	.0076
	(3.9)	(2.8)	(3.4)	(1.4)		
Gross rent, fuel and power	.72	7.92	−.20	.27	.025	.2104
	(3.2)	(2.1)	(1.5)	(.8)		
Household equipment and operation	1.01	9.22	−.35	.35	.066	.0650
	(4.3)	(2.3)	(2.5)	(1.0)		
Machinery and equipment	1.47	8.00	−.51	.58	.106	.0188
	(5.3)	(1.7)	(3.1)	(1.5)		
Medical and health care	−.33	16.68	−.16	−.04	.399	.0001
	(2.1)	(6.1)	(1.7)	(.2)		
Miscellaneous goods and services	.75	22.36	−.78	.20	.227	.0003
	(2.4)	(4.2)	(4.3)	(.4)		
Transport and communication	1.85	8.92	−.71	.11	.287	.0001
	(7.9)	(2.2)	(5.2)	(.3)		

Source: OECD (1996a, 1996b), appendix table 15A.1 of this paper, and procedures described there for exchange rates.

Note: PL = PPP/XR (United States = 1). PPP = purchasing power parities for final expenditure on GDP per U.S. dollar (United States = 1). XR = period average exchange rates (foreign currency per U.S. dollar). DISP = wage dispersion, ratio of median wage to wage at lowest decile. CGDP = GDP per capita. CGDPX = index of GDP per capita at current prices and current PPPs where United States = 100 each year. XRR = deviation of exchange rate from 1970–93 trend value. t-statistics are given in parentheses.

exchange rate deviation overwhelmingly had the expected signs. The coefficients with t-values of two or above were almost unanimous in showing positive effects for per capita GDP and negative coefficients for wage dispersion, but the exchange rate deviation was significant in only one case among services. If we tally the results from all equations, regardless of the F-test indications, we again find that the signs of the coefficients were as hypothesized, to a high degree, and again the statistically significant coefficients were almost unanimous. Over half the coefficients for per capita GDP were significant in service-price-level equations but less than a third in equations for goods price levels. The exchange rate deviation was significant in only a few goods-price-level equations and in only one service-price equation. For wage dispersion, the variable of most interest to us, over half the coefficients in goods and in

Table 15.4 **Signs of Coefficients for Wage Dispersion, per Capita Income Index, and Exchange Rate Deviation in Equations Explaining Detailed Goods and Services Price Levels, 1985, 1990, and 1993, Pooled**

	Coefficients for:		
	Wage Dispersion	Per Capita GDP Index	Exchange Rate Residuals
	Equations with Prob $F < 0.05$		
Goods			
Negative	56	9	4
	(52)	(2)	(0)
Positive	2	49	54
	(1)	(34)	(16)
Total	58	58	58
	(53)	(36)	(16)
Services			
Negative	21	—	3
	(15)		(0)
Positive	1	22	19
	(0)	(20)	(1)
Total	22	22	22
	(15)	(20)	(1)
	All Equations		
Goods			
Negative	137	21	10
	(75)	(2)	(0)
Positive	7	123	134
	(1)	(42)	(20)
Total	144	144	144
	(76)	(44)	(20)
Services			
Negative	43	1	10
	(23)	(0)	(0)
Positive	1	43	34
	(0)	(25)	(1)
Total	44	44	44
	(23)	(25)	(1)

Source: Appendix table 15A.2.

Note: Figures in parentheses are number of coefficients with $t \geq 2$.

services were significant. Thus, among the three variables that we use to explain product price levels, wage dispersion accounts for the largest number of significant coefficients.

Another way of summarizing the results is by the size of the coefficients for the three variables. The averages of the coefficients for which t-statistics were above one and those for which they were above two are shown in table 15.5.

Table 15.5 **Averages of Coefficients for Wage Dispersion, per Capita Income Index, and Exchange Rate Deviation in Equations Explaining Detailed Goods and Services Price Levels, 1985, 1990, and 1993, Pooled**

	Average Coefficients for:		
	Wage Dispersion	Per Capita GDP Index	Exchange Rate Deviations
	Coefficients with t-Statistics ≥ 2		
Goods	−.86	13.34	1.36
Services	−1.03	15.59	.87
	Coefficients with t-Statistics ≥ 1		
Goods	−.73	12.08	1.04
Services	−.84	14.58	.77

Source: Appendix table 15A.2

The influence of wage dispersion on price levels is larger, on average, for services than for goods, as we expect, and the same is true for the effect of per capita income. More surprising, the exchange rate deviation has a larger effect on goods prices than on prices for services, despite the presumption that goods are more tradable and therefore more subject to international arbitrage that would prevent exchange rate fluctuations from affecting prices calculated in a common currency. Thus, we can explain price levels more frequently for services than for goods, presumably because price differences are not arbitraged away by trade, and, in those cases where these variables do explain price levels, the effects are larger for services than for goods, at least the effects of wage dispersion and per capita income.

One reason for failures to explain some price levels well is that we are attempting to explain all of them by the same limited set of variables when there must be particular factors that affect individual products, such as specific taxation or subsidy elements in their prices. It is therefore not surprising that, among the six items in alcoholic beverages and tobacco products, price levels for only one are explained to a significant degree (appendix table 15A.2). In medical and health care, another group where we would expect to find a variety of subsidy and payment arrangements, eight of sixteen equations were significant but only four coefficients for wage dispersion. Two other items for which we could not explain price levels were telephone and related services and education fees, neither of which is a surprise, but the equation for postal services and its coefficient for wage dispersion were significant, which is a surprise.

If we think of the wage dispersion as being a result of conscious policy, we can ask how much of a difference in prices of typical goods and services would be implied by a change in the degree of dispersion. The average wage dispersion in the fifteen countries in 1993 was 1.6 (appendix table 15A.1), meaning

that the median wage was 60 percent above the lowest decile. The range was from 1.3 to 2.3. The detailed product equations imply that an increase of 0.3 in dispersion, which would raise the dispersion in the country with the lowest to the OECD average, would lower the price of the typical good or service by about a quarter. That would be roughly sufficient to lower the Swedish price level, for example, to the OECD average.

15.3 Conclusions

It seems safe to conclude that there is a pervasive relation between wage dispersion and country price levels and that it applies to both goods and services. It applies more frequently to services, and, where it does apply, the effect of wage dispersion is larger for services than for goods. The higher the degree of wage dispersion, at least at the low end of the wage scale, between the lowest-paid workers and the median, the lower is the country's price level. A compressed wage structure is associated with relatively high prices for both goods and services. This effect is in addition to the association between high per capita income and high price levels and to the effect of unusually high or low levels of the exchange value of a country's currency. The relation of prices to wage dispersion seems even a little more consistent than the relation to the other two variables.

Although it seems reasonable to attribute the differences in price levels at least partly to wage dispersion, along with per capita income and exchange rate fluctuations, there remains the possibility that there are some other common features of countries that follow policies to reduce wage dispersion that also produce high prices for goods and services.

We began our investigation on the assumption that the sources of international price differences would be found mainly in the service sector of the economy because arbitrage would tend to reduce international differences in goods prices. There is plenty of evidence that international differences in service prices are larger than differences in goods prices, as has been pointed out in many studies of international price level differences, such as Kravis, Heston, and Summers (1982), Kravis and Lipsey (1983, 1987, 1988), and Bhagwati (1984), among others. Given the similarity in coefficients between goods and services equations here, despite the more frequent indications of significant effects in services equations, it would reinforce our explanation of price levels if we found that the relation was stronger for products that are relatively labor intensive and particularly for those intensive in the use of unskilled labor in production. The same would be true if we found the relation particularly strong for products requiring heavy distribution costs between the original producers and consumers. Both of these are issues that we intend to explore further.

To investigate the role of factor intensities, particularly the role of the labor intensity of production, it would be necessary to match these price levels for individual goods and services to data available only by industry on labor input

per unit of output, from input-output accounts or industrial census data, a difficult problem even for one country. If we do not wish to assume identical factor intensities across countries for individual industries, it would be desirable to collect data from several countries. Observed factor intensities are likely to differ among countries. If there is any possibility of substitution in response to factor price differences, factor intensities measured in physical terms will differ. Factor intensities measured in value terms will also differ unless all elasticities of substitution are unitary. If no factor substitution is possible, factor intensities in an industry, measured in physical terms, will be identical in all countries, but factor intensities in value terms will vary with factor prices.

If we derive factor intensities from census data rather than from input-output data, it would be important to take account of the wedges between the producer prices in industry data and prices paid by final purchasers, represented in our country-price-level data. There are some data from the United States, such as those published by the U.S. Department of Commerce (1994a, table C), that show inputs of wholesale and retail trade and transportation that are incorporated into final demand at purchasers' prices.

The effect of wage dispersion on prices presumably depends not only on labor intensity but particularly on intensity in the use of unskilled labor. Data would be available only by industry, at best, and even these are probably available for very detailed industries only for the United States. Average wage levels across industries give some indication of average skill levels, but a more appropriate unskilled labor intensity would be the input of labor in the low-skill occupation classes or the input of labor with low education levels, as reported in U.S. decennial census data or the *Current Population Reports.*

Another variable possibly worth exploring is the tradability of different products. To some extent that may be encompassed by the transportation margin already referred to, but there may be other factors that determine the extent of trade. With few exceptions, consumer services are rarely traded across international borders, but, for goods, tradability may determine how much arbitrage takes place to reduce international price differences. Tradability might be measured by ratios of world trade to world production (if they could be assembled) or by similar ratios from U.S. input-output tables.

An extension of the analysis of the effects of egalitarian wage policy would be to think of it as the equivalent of a tax levied on consumers of the goods and services for which prices are raised by the policy. Then it would be of interest to calculate the incidence of the tax as related to the income levels and family characteristics of consumers of the various goods and services.

Appendix

Table 15A.1 Data for Independent Variables Used in the Regressions

	Wage Dispersion	Exchange Rate Residuals	GDP per Capita (United States = 100 each year)
1, 1970, Belgium	1.39	−6.350	65.13
2, 1970, France	1.61	−5.103	71.25
3, 1970, Germany	1.47	−.530	72.84
4, 1970, Italy	1.49	11.690	58.34
5, 1970, Japan	1.59	16.857	57.47
6, 1970, Netherlands	1.33	−.360	71.68
7, 1970, United Kingdom	1.47	11.860	64.54
8, 1970, United States	2.44	7.487	100.00
1, 1973, Belgium	1.39	−3.280	67.74
2, 1973, France	1.61	2.358	72.89
3, 1973, Germany	1.47	−1.837	72.93
4, 1973, Italy	1.49	11.043	56.66
5, 1973, Japan	1.59	6.525	61.04
6, 1973, Netherlands	1.33	−3.049	71.36
7, 1973, United Kingdom	1.47	−.201	64.69
8, 1973, United States	2.44	−8.890	100.00
1, 1975, Belgium	1.39	−.567	71.37
2, 1975, Denmark	1.41	3.643	75.81
3, 1975, France	1.64	7.666	75.72
4, 1975, Germany	1.47	−2.376	75.41
5, 1975, Italy	1.49	3.944	59.59
6, 1975, Japan	1.59	−9.030	62.14
7, 1975, Netherlands	1.33	−.508	76.32
8, 1975, United Kingdom	1.43	−7.242	65.64
9, 1975, United States	2.44	−11.142	100.00
1, 1985, Austria	1.57	−3.489	72.89
2, 1985, Australia	1.61	10.334	73.04
3, 1985, Belgium	1.40	−9.002	70.84
4, 1985, Canada	2.40	24.032	84.67
5, 1985, Denmark	1.42	−7.244	70.47
6, 1985, France	1.41	−7.795	77.16
7, 1985, Germany	1.61	−5.067	76.42
8, 1985, Italy	1.44	−10.547	69.79
9, 1985, Japan	1.61	.196	71.91
10, 1985, Netherlands	1.55	−5.804	70.29
11, 1985, Norway	1.45	6.397	82.51
12, 1985, Portugal	1.56	−24.560	35.83
13, 1985, Sweden	1.35	−1.619	77.52
14, 1985, United Kingdom	1.64	4.554	67.97
15, 1985, United States	2.03	42.602	100.00

(continued)

Table 15A.1 (continued)

	Wage Dispersion	Exchange Rate Residuals	GDP per Capita (United States = 100 each year)
1, 1990, Austria	1.67	.242	75.68
2, 1990, Australia	1.68	−4.093	72.57
3, 1990, Belgium	1.40	.780	74.29
4, 1990, Canada	2.28	−3.744	83.33
5, 1990, Denmark	1.38	2.313	75.33
6, 1990, France	1.62	1.975	78.97
7, 1990, Germany	1.40	.087	72.80
8, 1990, Italy	1.43	10.707	74.09
9, 1990, Japan	1.65	−16.691	80.11
10, 1990, Netherlands	1.57	1.049	72.65
11, 1990, Norway	1.32	−4.357	79.65
12, 1990, Portugal	1.72	−.42	42.66
13, 1990, Sweden	1.33	.568	77.41
14, 1990, United Kingdom	1.72	1.451	72.27
15, 1990, United States	2.02	−13.026	100.00
1, 1993, Austria	1.67	−4.320	79.03
2, 1993, Australia	1.64	−6.243	71.47
3, 1993, Belgium	1.40	−.150	79.68
4, 1993, Canada	2.26	−5.610	79.64
5, 1993, Denmark	1.38	3.247	78.98
6, 1993, France	1.61	5.437	77.07
7, 1993, Germany	1.37	−1.220	76.20
8, 1993, Italy	1.60	7.060	73.02
9, 1993, Japan	1.64	20.977	83.62
10, 1993, Netherlands	1.54	−1.640	73.16
11, 1993, Norway	1.32	−10.410	87.94
12, 1993, Portugal	1.75	23.870	48.64
13, 1993, Sweden	1.36	−13.320	69.37
14, 1993, United Kingdom	1.74	−4.610	69.86
15, 1993, United States	2.06	−9.403	100.00

Source: GDP per capita with United States = 100 for each year from OECD (1996a, pt. 7, table 2). Wage dispersion is ratio of median to lowest decile, from OECD (1996b). Exchange rate residuals are residuals from trends in exchange rates. Exchange rates in dollars per unit of currency were taken from OECD (1996a) by dividing GDP in own currency by GDP in U.S. dollars. They were put in terms of relatives (1970–93 = 100) and converted to indexes with OECD averages for each year set to 100. Simple linear trends were then fitted to each country's index.

Table 15A.2 Results for Individual Goods (G) and Services (S)

	DISP	*t*-Stat.	CGDPX	*t*-Stat.	XRR	*t*-Stat.	Adj. R^2	Prob > *F*
Food, beverages, and tobacco								
G Food and beverages	−.69	2.7	13.88	2.1	.77	.9	.210	.0345
G Rice	−.73	2.9	13.26	2.5	.70	1.3	.196	.0101
G Flour and other cereals	−.37	.8	16.31	1.7	1.47	1.5	.065	.1382
G Bread	−.62	2.4	17.06	3.1	.59	1.0	.203	.0087
G Other bakery products	−.64	2.0	13.96	2.0	1.40	2.0	.150	.0270
G Pasta products	−.76	2.6	14.26	2.2	.68	1.0	.149	.0274
G Other cereal products	−.60	2.2	8.29	1.4	.83	1.4	.090	.0880
G Fresh, frozen, and chilled beef	−1.32	2.5	13.66	1.2	1.17	1.0	.083	.0999
G Fresh, frozen, and chilled veal	−.27	.7	14.22	1.7	.51	.6	.013	.3328
G Fresh, frozen, and chilled pork	−.82	3.1	15.60	2.8	.67	1.1	.227	.0050
G Fresh etc. lamb, mutton, and goat	−.74	3.4	13.59	2.9	.08	.2	.249	.0030
G Fresh, frozen, and chilled poultry	−1.99	5.0	23.87	2.8	.39	.4	.379	.0001
G Delicatessen	−1.35	3.6	17.81	2.2	1.07	1.2	.227	.0050
G Other meat preparations, extracts	−.57	1.4	9.85	1.1	.50	.5	−.009	.4596
G Other fresh, frozen, chilled meat	−1.39	3.2	4.50	.4	1.63	1.6	.172	.0186
G Fresh, frozen, or deep-frozen fish	−.38	2.6	9.84	3.1	.32	1.0	.211	.0072
G Dried, smoked, or salted fish	−.24	1.5	3.68	1.0	.45	1.2	.021	.2928
G Fresh, frozen, deep-frozen seafood	−.43	1.2	9.72	1.3	.55	.7	.001	.3983
G Preserved or processed fish & seafood	−.35	1.8	9.39	2.2	.69	1.6	.126	.0438
G Fresh, pasteurized, sterilized milk	−.05	.2	9.42	1.9	.42	.8	.046	.1927
G Condensed, evaporated, powdered milk	−.46	1.5	.55	.1	.79	1.2	.001	.3984
G Other milk products excluding cheese	.10	.4	7.27	1.1	.74	1.2	.026	.2711
G Processed and unprocessed cheese	−.56	1.4	5.42	.6	1.60	1.8	.041	.2090
G Eggs and egg products	−1.37	4.2	14.82	2.1	.31	.4	.283	.0013
G Butter	−.07	.3	.54	.1	.75	1.2	−.036	.6676
G Margarine	−.34	1.4	6.95	1.3	.70	1.2	.028	.2580
G Edible oils	−.98	2.4	24.80	2.9	−.79	.9	.189	.0117
G Other animal and vegetable fats	−.98	3.2	12.01	1.8	.33	.5	.171	.0173
G Fresh fruit	−.50	2.4	12.57	2.7	.65	1.4	.186	.0125
G Dried fruit and nuts	−.16	.8	5.97	1.4	.13	.3	−.014	.4926
G Frozen and preserved fruit and juices	−.53	2.1	−1.48	.3	1.65	2.8	.148	.0281
G Fresh vegetables	−.93	3.7	15.99	2.9	.91	1.6	.283	.0013

(continued)

Table 15A.2 (continued)

	DISP	*t*-Stat.	CGDPX	*t*-Stat.	XRR	*t*-Stat.	Adj. R^2	Prob > *F*
G Dried vegetables	−2.25	2.1	35.20	1.5	1.87	.8	.065	.1369
G Frozen vegetables	−.95	3.4	13.68	2.3	1.23	2.0	.245	.0033
G Preserved vegetables, juices, soups	−1.08	3.3	−.25	.0	1.90	2.6	.221	.0057
G Potatoes and other tuber vegetables	−.03	.1	13.55	2.5	.35	.6	.099	.0742
G Potato products	−.71	2.2	8.91	1.3	.33	.5	.057	.1588
G Raw and refined sugar	−.39	2.3	5.70	1.5	.50	1.3	.094	.0810
G Coffee and instant coffee	−.47	1.8	3.67	.7	1.02	1.8	.057	.1597
G Tea and other infusions	−1.31	2.6	3.31	.3	1.87	1.6	.107	.0642
G Cocoa excluding cocoa preparations	−.18	.4	6.85	.7	1.38	1.3	−.010	.4641
G Jams, jellies, honey, and syrups	−.70	2.2	7.54	1.1	1.58	2.2	.123	.0467
G Chocolate and cocoa preparations	−.13	.6	1.64	.3	.52	1.0	−.044	.7329
G Confectionery	−.60	2.0	11.13	1.7	.20	.3	.058	.1576
G Edible ice and ice cream	−.91	2.0	2.86	.3	.09	.1	.029	.2545
G Salt, spices, sauces, condiments	−.46	1.2	13.55	1.6	.43	.5	.010	.3456
G Mineral water	−.30	.6	20.69	2.1	.20	.2	.035	.2332
G Other soft drinks nec	−.73	2.0	8.66	1.1	.99	1.2	.049	.1831
G Spirits and liqueurs	−1.44	2.9	23.86	2.2	.05	.0	.163	.0207
G Wine (not fortified or sparkling)	−.05	.2	16.50	3.7	−.08	.2	.220	.0059
G Beer	−.17	.5	17.84	2.7	.07	.1	.099	.0734
G Other wines and alcoholic beverages	−1.26	1.7	23.47	1.5	−.04	.0	.026	.2676
G Cigarettes	−.57	1.8	16.11	2.3	−.25	.3	.094	.0811
G Other tobacco products	.07	.2	9.48	1.2	−.66	.8	−.030	.6179
Clothing and footwear								
G Men's clothing	−.60	3.0	4.82	1.1	.97	2.2	.179	.0145
G Ladies' clothing	−.60	2.6	8.89	1.8	.90	1.7	.147	.0287
G Children's clothing	−.66	2.3	−3.04	.5	1.65	2.6	.149	.0279
G Infant's clothing	−1.36	1.7	−3.31	.2	2.01	1.1	.018	.3064
G Materials, yarns, accessories, etc.	−1.13	4.1	9.11	1.5	1.38	2.2	.284	.0013
S Repair and maintenance of clothing	−1.45	3.4	15.26	1.7	1.05	1.1	.191	.0114
G Men's footwear	−.53	2.8	10.23	2.5	.77	1.8	.209	.0075
G Ladies' footwear	−.47	1.4	12.03	1.6	1.25	1.6	.078	.1098
G Children's and infant's footwear	−.65	1.5	8.44	.9	2.63	2.7	.135	.0370
S Repairs to footwear	−.42	2.7	16.16	4.9	.38	1.1	.383	.0001
Gross rent, fuel and power								
S Rents of tenants	−.14	.8	19.84	5.1	−.08	.2	.370	.0001
S Imputed rents of owner-occupiers	−.34	1.8	20.53	5.0	.06	.1	.357	.0002

Table 15A.2 (continued)

	DISP	*t*-Stat.	CGDPX	*t*-Stat.	XRR	*t*-Stat.	Adj. R^2	Prob > *F*
S Repair and maintenance of housing	−.74	3.0	16.51	3.1	.82	1.5	.250	.0029
S Sanitary services and water charges	−.84	1.8	4.05	.4	.21	.2	.010	.3461
S Electricity	−.53	2.1	−4.31	.8	.82	1.4	.081	.1035
S Town gas and natural gas	−1.50	3.2	7.39	.7	.79	.8	.158	.0249
G Liquefied petroleum gas	−1.94	2.2	32.40	1.7	1.05	.5	.081	.1027
G Liquid fuels for heating and lighting	−.60	1.9	2.19	.3	.91	1.3	.032	.2435
G Coal, coke, and other solid fuels	−1.92	2.0	31.87	1.5	1.68	.8	.056	.1615
G Water, electricity, gas, and fuel	−.70	3.1	7.09	1.6	1.84	3.2	.410	.0010
Household equipment and operation								
G Furniture and fixtures	−.32	1.1	3.59	.6	1.03	1.5	.004	.3809
G Carpets and other floor coverings	−.17	.7	3.80	.8	.77	1.5	.003	.3856
S Repair of furniture, floor coverings	−.69	2.0	14.06	1.9	.34	.4	.073	.1232
G Household textiles, other furnishings	−.23	.9	7.81	1.4	.66	1.1	.017	.3110
S Repair of houshold textiles etc.	−.89	3.2	14.33	2.3	.76	1.2	.214	.0085
G Refrigerators and freezers	−.36	1.2	6.05	.9	.83	1.2	−.002	.4146
G Washing machines, dryers, dishwashers	−.67	2.0	2.00	.3	1.32	1.7	.059	.1542
G Cookers, hobs, and ovens	−.57	1.9	−10.95	1.7	.86	1.3	.126	.0438
G Heaters and air-conditioners	−.30	.8	3.72	.4	−.22	.2	−.056	.8445
G Vacuum cleaners, polishers, etc.	.36	2.2	6.54	1.8	.50	1.3	.245	.0033
G Other major household appliances	−1.08	2.9	2.74	.3	1.40	1.7	.141	.0328
S Repair of major household appliances	−.32	1.0	12.98	1.8	−.07	.1	.013	.3308
G Glassware and tableware	−.21	.6	10.75	1.5	.57	.7	.001	.3952
G Cutlery and silverware	−1.40	2.9	28.10	2.7	.24	.2	.189	.0119
G Motorless kitchen and domestic utensils	−.40	1.4	12.37	2.0	.12	.2	.045	.1955
G Motorless garden appliances	−.36	.9	5.70	.7	.83	.9	−.032	.6360
G Electric bulbs, wires, plugs, etc.	−.24	1.2	9.21	2.0	.64	1.3	.086	.0941
S Repair of glassware, tableware, etc.	−1.31	3.3	25.21	3.0	−.11	.1	.256	.0033
G Cleaning and maintenance products	−.86	3.1	13.46	2.2	.71	1.1	.189	.0118
G Other nondurable household goods	−.69	2.0	9.98	1.3	.97	1.2	.058	.1563
S Laundry and dry cleaning	−1.13	3.6	7.97	1.2	.41	.6	.203	.0086

(continued)

Table 15A.2 (continued)

	DISP	*t*-Stat.	CGDPX	*t*-Stat.	XRR	*t*-Stat.	Adj. R^2	Prob > *F*
S Other household services	−.29	1.2	13.15	2.5	.16	.3	.087	.1012
S Domestic services	−.53	1.7	19.69	3.0	−.19	.3	.146	.0293
Medical and health care								
S Medical and health care	−.07	.7	9.65	4.6	.06	.3	.324	.0005
G Drugs and medical preparations	.19	1.0	7.38	1.4	−.41	.6	.095	.1496
G Other medical supplies	−.54	1.9	15.09	2.4	.50	.8	.115	.0549
G Spectacle lenses and contact lenses	−.49	2.0	10.45	1.9	.54	1.0	.086	.0952
G Orthopedic and therapeutic appliances	.00	.0	.16	.0	.03	.1	−.081	.9997
S Services of general practitioners	−.09	.7	11.12	3.4	.17	.6	.178	.0165
S Services of specialists	−.24	1.6	8.62	2.5	.21	.6	.111	.0626
S Services of dentists	−.04	.3	5.90	1.6	.08	.2	−.004	.4274
S Services of nurses	−.14	.6	4.60	.9	−.14	.3	−.053	.8082
S Services of other practitioners	−.94	2.5	21.96	2.7	.15	.2	.158	.0227
S Medical analyses	−.22	.8	9.59	1.7	.04	.1	.001	.3975
S Medical staff	.10	1.4	11.82	7.4	.08	.5	.625	.0001
S Nonmedical staff	−.07	.7	12.54	5.9	.14	.6	.461	.0001
G Pharmaceutical products	.22	1.3	9.32	2.7	−.05	.1	.177	.0152
G Therapeutical equipment	−.35	2.0	10.26	3.0	1.13	2.5	.344	.0035
G Other equipment	−1.36	4.6	11.55	1.5	−.51	.5	.415	.0011
Transport, communication								
G Passenger vehicles	−.50	2.0	−1.80	.3	.58	1.1	.047	.1891
G Motorcycles and bicycles	−.80	4.0	3.20	.7	.13	.3	.250	.0029
G Tyres, tubes, parts, accessories	−.28	1.1	1.28	.2	1.07	1.9	.027	.2654
S Maintenance and repair services	−2.37	2.1	20.88	.9	−.46	.2	.049	.1836
G Motor fuels, oils, and greases	−1.52	4.6	−4.47	.6	1.59	2.1	.339	.0003
G Car hire, driving schools, tolls, etc.	−.98	1.8	15.24	1.1	.98	.8	.013	.3330
S Local by bus, train, tube, tram, taxi	−.51	2.3	16.86	3.4	.12	.2	.215	.0066
S Long distance by coach and rail	−.10	.4	13.41	2.7	.01	.0	.099	.0744
S Long distance by air and sea	−.19	1.4	5.80	2.0	.30	1.0	.070	.1271
S Other purchased transport services	−2.09	2.5	14.33	.8	1.08	.06	.074	.1172
S Postal services	−.71	4.2	10.44	2.9	.87	2.3	.349	.0002
S Telephone, telegraph, telex services	−.04	.2	6.26	1.3	−.20	.4	−.032	.6332
Education, recreation, and culture								
S Recreation, cultural, religious affairs	−.25	2.5	13.28	6.9	.02	.1	.548	.0001
G Radio sets	−.91	3.6	−.09	.0	.44	.8	.212	.0071
G Television sets, video recorders, etc.	−.77	3.3	3.67	.7	.66	1.3	.170	.0178

Table 15A.2 (continued)

	DISP	*t*-Stat.	CGDPX	*t*-Stat.	XRR	*t*-Stat.	Adj. R^2	Prob > *F*
G Record players, cassette recorders, etc.	−.71	1.1	8.61	.6	1.48	1.0	−.023	.5582
G Cameras and photographic equipment	−.02	.1	−12.42	4.6	.15	.5	.324	.0004
G Other durable recreational goods	−.70	5.8	−5.32	2.0	.79	2.9	.509	.0001
G Records, tapes, cassettes, etc.	−.52	2.0	1.50	.3	.95	1.6	.052	.1721
G Sports goods and camping equipment	−1.08	2.5	.63	.1	1.65	1.7	.106	.0644
G Games, toys, and hobbies	−1.43	2.6	.64	.1	1.72	1.4	.103	.0690
G Films and photographic supplies	−.32	2.0	2.24	.7	−.02	.1	.036	.2278
S Parts and repairs for recreational goods	−.29	1.0	18.08	2.8	−.10	.1	.108	.0622
S Cinemas, stadiums, museums, zoos, etc.	−.17	.9	6.20	1.5	.60	1.4	.050	.1791
G Radio & TV license, rental, subscription	−1.49	4.9	20.89	3.2	.97	1.4	.391	.0001
S Photographic services, services for pets	−1.08	2.1	13.13	1.2	1.61	1.4	.066	.1348
G Books	−.41	1.5	7.35	1.2	1.15	1.9	.073	.1190
G Newspapers and other printed matter	−1.22	4.9	15.77	2.9	.77	1.4	.380	.0001
S Education fees	−.38	.4	13.54	.7	.03	.0	−.063	.9035
Miscellaneous goods and services								
S Hairdressers, beauty parlors, etc.	−.47	2.1	12.95	2.7	.51	1.0	.162	.0210
G Durable toilet articles and repairs	−.79	2.6	10.00	1.5	.42	.6	.100	.0732
G Nondurable toilet articles	−.77	2.9	12.73	2.2	.36	.6	.160	.0219
G Jewelry, watches, and their repair	−.47	1.8	6.67	1.2	.27	.5	.019	.3025
G Travel goods and baggage items	−.71	4.0	−3.36	.9	.64	1.6	.283	.0013
G Goods for babies, personal accessories	−.39	1.4	−.05	.0	1.33	2.1	.052	.1782
G Writing & drawing equipment & supplies	−1.31	4.4	15.90	2.5	.26	.4	.318	.0005
G Flowers, plants, pets, and pet food	−.76	1.3	12.36	1.0	2.50	1.9	.053	.1696
S Restaurants and takeaways	−.83	4.3	8.71	2.1	.30	.7	.288	.0011
S Pubs, cafés, bars, and tearooms	−1.56	4.4	29.25	3.8	.29	.4	.375	.0001
S Staff canteens	−1.24	2.2	26.04	2.1	−.61	.5	.108	.0656
S Hotels and other lodging places	−1.09	2.7	13.47	1.5	.53	.6	.108	.0623
S Charges for financial services nec	−.81	2.1	16.71	1.6	.69	.7	.060	.1600
S Fees for other services nec	−1.86	2.1	28.08	1.5	−.20	.1	.065	.1372

(continued)

Table 15A.2 (continued)

	DISP	*t*-Stat.	CGDPX	*t*-Stat.	XRR	*t*-Stat.	Adj. R^2	Prob > *F*
Machinery and equipment								
G Structural metal products	−.42	1.1	1.86	.2	1.29	1.6	.002	.3912
G Products of boilermaking	−.53	1.9	8.67	1.4	.12	.2	.041	.2090
G Tools and finished metal goods	−.78	2.5	.75	.1	1.85	2.6	.154	.0249
G Agricultural machinery and tractors	−.12	.7	2.96	.8	.96	2.5	.101	.0707
G Machine tools for metalworking	.09	.5	2.47	.6	.22	.5	−.041	.7144
G Equipment for mining, metallurgy, building, and civil engineering	−.31	2.8	5.13	2.1	.51	2.0	.199	.0094
G Textile machinery	−.56	1.9	2.03	.3	.69	1.0	.021	.2905
G Machinery for food, chemical, and packaging industries	−.21	1.1	.57	.1	1.00	2.4	.072	.1215
G Machinery for working wood, paper; laundry equipment	−.30	.5	−4.98	.4	.71	.5	−.062	.8897
G Other machinery & mechanical equipment	−.21	.7	1.43	.2	.94	1.4	−.023	.5645
G Office and data-processing machines	−1.58	1.0	−14.89	.4	1.59	.4	−.040	.7026
G Precision and optical instruments, photographic equipment	−.16	.8	−2.44	.5	.28	.6	−.045	.7455
G Optical instruments, photographic equipment	−.12	.6	−3.27	.7	.32	.7	−.044	.7279
G Electrical equipment including lamps	−.64	2.0	5.53	.8	1.21	1.7	.072	.1228
G Telecommunication & electrical equipment nec	−.20	1.1	−2.90	.7	1.02	2.5	.082	.1017
G Electronic equipment etc.	−.26	.7	7.35	.9	1.14	1.4	.006	.3670
G Motor vehicles and engines	−.46	1.7	−.92	.2	.98	1.6	.030	.2508
G Boats, steamers, tugs, platforms, rigs	−.53	2.5	−.57	.1	.70	1.5	.098	.0752
G Locomotives, vans, wagons	−.44	1.6	2.42	.4	.79	1.2	.008	.3557
G Aircraft and other aeronautical equipment	−.55	2.6	−.70	.2	.60	1.3	.102	.0705
G Other transport equipment	−.55	2.6	−1.81	.4	.58	1.2	.120	.0589
Construction								
G One-family dwellings	−1.01	4.4	13.40	2.7	.48	.9	.319	.0005
G Multifamily dwellings	−.44	3.6	12.57	4.8	.20	.7	.404	.0001
G Agricultural buildings	−.58	3.0	4.24	1.0	.72	1.7	.153	.0256
G Industrial buildings	−.52	2.8	10.12	2.5	.23	.6	.175	.0159
G Buildings for market services	−.42	2.2	9.80	2.3	.54	1.2	.139	.0340
G Buildings for nonmarket services	−.44	2.2	11.43	2.6	.68	1.5	.169	.0183

Table 15A.2 (continued)

	DISP	*t*-Stat.	CGDPX	*t*-Stat.	XRR	*t*-Stat.	Adj. R^2	Prob > *F*
G Roads, streets, and highways	−.29	1.7	8.10	2.2	.33	.9	.092	.0847
G Other transport routes and utility lines	−.47	1.5	11.16	1.6	.73	1.0	.045	.1947
G Other civil engineering works	−.12	.4	5.56	.8	.92	1.3	−.002	.4138
G Other products	−.58	3.9	7.95	2.7	.84	2.1	.439	.0005
Collective consumption by government								
S Social security and welfare services	−.22	2.0	13.74	6.4	.13	.6	.501	.0001

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Comment

Andrew Levin

Since the advent of the UN International Comparison Project, a large literature has developed concerning international differences in purchasing power. Much of the cross-country variation in relative prices can be explained by differences in per capita income (cf. Kravis and Lipsey 1988), but a surprising degree of variation occurs even among industrial countries with similar income levels. This paper provides persuasive evidence that relative price variation within the OECD is systematically related to differences in wage dispersion, which are closely tied to unionization rates and unemployment benefits. The paper also

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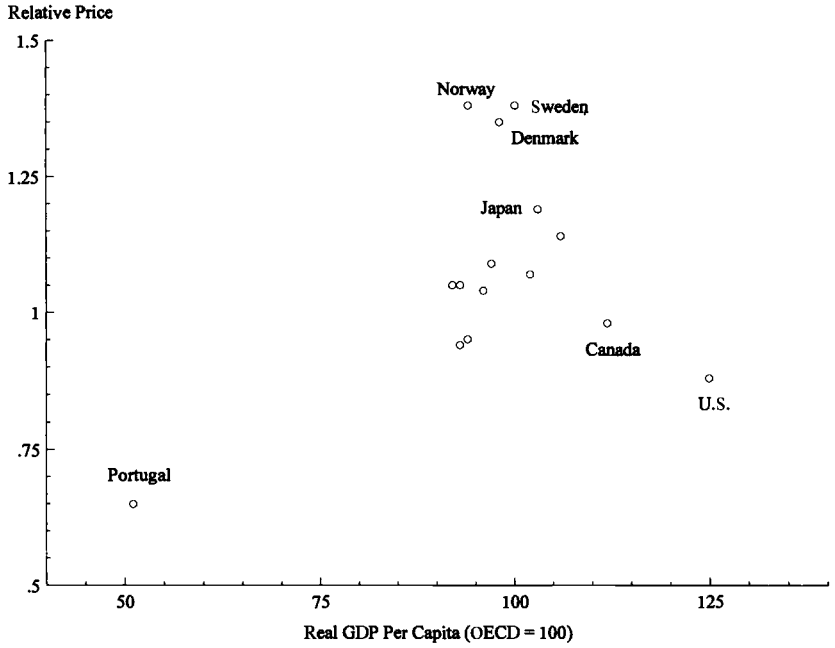

Fig. 15C.1 Influence of real GDP per capita

reinforces the earlier findings of Lipsey and Swedenborg (1996) concerning the relative price effects of food subsidies and tax rates. These results indicate that egalitarian wage policies and distortionary agricultural policies can have a significant effect on the general price level and thereby generate a substantial tax on consumers.

To analyze the relative price effects of wage dispersion, the authors perform a large number of cross-sectional and panel regressions for various time periods and levels of industry disaggregation. However, the basic results can be illustrated by considering cross-country differences in purchasing power for a single year. In particular, figure 15C.1 provides a cross-plot between relative prices and real GDP per capita for fifteen OECD countries in 1990.[1] The country with the lowest price level, Portugal, has about half the per capita income of the other fourteen countries, consistent with the general pattern obtained by comparing the relative prices of industrial and developing economies.

Nevertheless, if Portugal is excluded, figure 15C.1 appears to indicate a

1. As defined by the authors, the relative price variable (PL) is the ratio of real GDP (in international purchasing power parity–based prices) to the nominal value of GDP (converted using market exchange rates). The index of real GDP per capita (RGDPC) is also computed using international purchasing power parity–based prices, with the OECD average equal to one hundred. Wage dispersion (DISP) is defined as the ratio of median earnings to the level of earnings at the lowest decile.

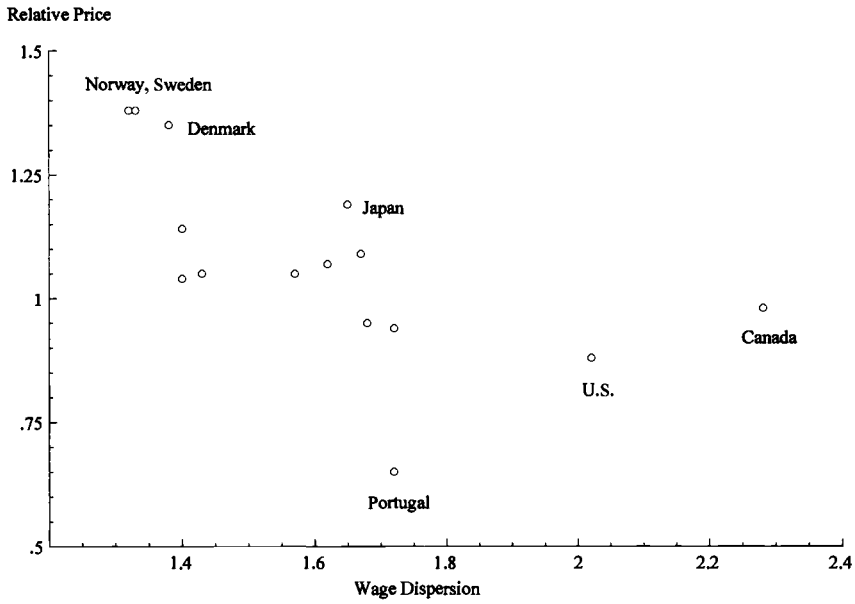

Fig. 15C.2 Influence of wage dispersion

negative relation between income and relative prices: the United States and Canada have high income levels and relatively low prices, while the three Scandinavian countries and Japan exhibit moderate per capita income combined with exceptionally high price levels. The results of Lipsey and Swedenborg (1996) shed some light on this anomaly since the latter four countries have the highest food tax and subsidy rates in the OECD, but this factor does not explain why the United States and Canada are such outliers in comparison with the other eight countries (Australia, Austria, Belgium, France, Germany, Italy, the Netherlands, and the United Kingdom.

Figure 15C.2 provides a cross-plot between relative prices and wage dispersion in 1990 for the same fifteen OECD countries. Within this group, the United States and Canada have dramatically higher levels of wage dispersion, while the three Scandinavian countries have the lowest wage dispersion. Portugal appears to be an outlier in figure 15C.2, but we have already seen that its low relative price can be attributed to a much lower income level than the other countries. Thus, figures 15C.1 and 15C.2 indicate the presence of a systematic negative relation between wage dispersion and relative prices. Although these figures represent data for only a single year, both wage dispersion and relative prices exhibit a very high degree of persistence (see table 15C.1), and essentially the same negative relation will therefore tend to be evident in other time periods as well. Furthermore, the policy implications are fairly dramatic: these

Table 15C.1 **Trends in Wage Dispersion, 1975–93**

	1975	1993
Belgium	1.39	1.40
Denmark	1.41	1.38
France	1.64	1.61
Germany	1.47	1.37
Italy	1.49	1.60
Japan	1.59	1.65
Netherlands	1.33	1.54
United Kingdom	1.43	1.72
United States	2.33	2.40

results suggest that the three Scandinavian countries (Denmark, Norway, and Sweden) could achieve a 20 percent reduction in consumer prices by moving toward wage structures and agricultural policies comparable to those of the continental European countries, which in turn could achieve a 15–20 percent price reduction by moving toward wage structures and agricultural policies like those of the United States and Canada.

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