



EU10 October 2008

Special Topic: Income Inequality in the EU8 Countries and the Role of Taxes and Transfers in Reducing It¹

Using data from household surveys that have recently become available—the European Union Surveys of Income and Living Conditions (EU-SILC) as well as the 2006 EBRD-World Bank Life in Transition Survey (LiTS), the World Bank has analyzed the main factors that help explain observed variation in income inequality within and across EU8 countries. This note summarizes some of the main findings of this analysis, particularly related to the following key questions:

- How high is income inequality in the EU8 countries, and how does it compare to prevailing levels in the EU15 and other countries in the rest of the world?
- What role direct taxes and social benefits play in redistributing incomes within these countries?

Steady improvement in economic performance since the mid-1990s has had varying impacts on income inequality. Table 1 compares income inequality estimates for the EU8 countries derived from the 2006 EU-SILC data with those reported in other sources for earlier years.² These estimates show that between 1996-99 and 2006, income inequality fell in Estonia, remained unchanged in Poland, rose slightly in Slovenia and Lithuania, but increased sharply in Latvia and Hungary. However, present levels of income inequality in all EU8 countries continue to be considerably higher than in the mid-1980s. The overall rise in income inequality has been the lowest in Slovenia and the Czech Republic, and the highest in the Baltic countries. Country rankings based on prevailing level of income inequality within the set of countries surveyed are fairly robust to the choice of income inequality indicator—based on nearly all four of the inequality measures derived based on equivalized disposable incomes in the 2006 EU-SILC (Table 2), Slovenia, Sweden, and Denmark have the lowest, while Latvia, Portugal, and Lithuania have the highest income inequality among EU countries.

Table 1. Long-term Trends in Income Inequality

Country	Gini coefficient for income per capita			
	1987-90	1993-94	1996-99	2006
Slovakia	-	-	-	0.30
Slovenia	0.22	0.29	0.25	0.26
Poland	0.28	0.28	0.33	0.33
Czech Republic	0.19	0.23	0.25	0.27
Estonia	0.24	0.35	0.37	0.35
Lithuania	0.23	0.33	0.34	0.37
Hungary	0.21	0.23	0.25	0.34
Latvia	0.24	0.31	0.32	0.40

Source: 2006: World Bank staff calculations based on data from the 2006 EU-SILC (based on per capita income, hence slightly different from Table 2). Earlier years: Making Transition Work for Everyone, World Bank, Washington DC, 2000.

Most of the income inequality in the European Union is in fact between rather than within countries. While there is some variation in the level of inequality within countries (Gini 0.24-0.39, Figure 1), the observed variation across countries is much larger (from 3,000-34,000 euros per equivalent adult per year).³

¹ This note draws from the work of Salman Zaidi, Main Drivers of Income Inequality in EU8 Countries: Some Insights from Recent Household Survey Data. June 2008. This data used in this study is available only for the EU8 countries.

² While all Gini coefficients reported here are based on the per capita income aggregates which were standardized to the extent possible to aid comparability, some differences nonetheless remain. These estimates should therefore be seen as broadly indicative (i.e. rather than definitive evidence per se) of long-term trends in inequality.

³ Income inequality across 22 EU countries in Table 2 yields an overall Gini coefficient of 0.40 for Europe-as-a-whole—considerably higher than the Gini for individual countries, and of similar magnitude to the Gini for USA (0.38 - 0.41, depending upon the source).

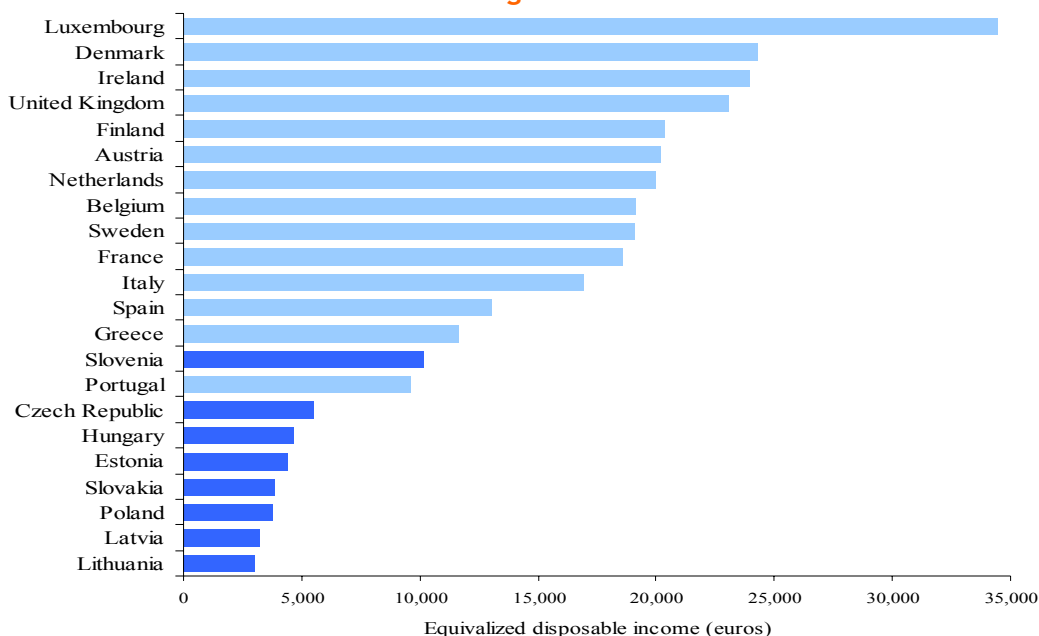
Among the EU8 countries, Slovenia and the Czech Republic are the countries with the greatest equality of incomes, with outcomes similar to low-inequality Nordic countries such as Sweden and Denmark (Gini coefficient of about 0.24). Slovakia has slightly higher income inequality (Gini coefficient of 0.28), similar in level to that in many other central European countries. At the bottom end, Hungary, Poland and the Baltic countries have fairly high income inequality (Gini coefficient of about 0.33-0.38), at least when compared to other EU countries. However, income inequality in these countries is still much lower than in most other countries in the world. For instance, the Gini coefficient of income inequality in Latvia (0.38 in 2006) was lower than that in Thailand (0.40 in 2002), Chile (0.51 in 2000), and Brazil (0.59 in 2001).

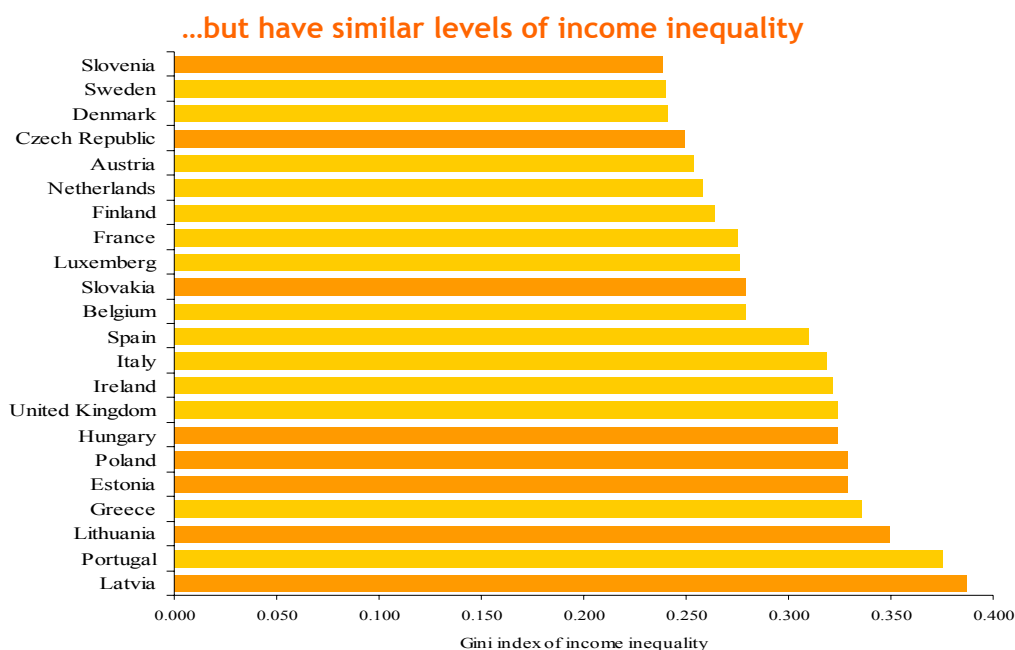
Table 2. Various Summary Measures of Income Inequality

Country	Mean Income (Euros)	Summary Inequality Measures			
		Gini coefficient	Coefficient of variation	Relative deviation	Theil index
Slovenia	10,176	0.239	0.466	0.167	0.097
Sweden	19,088	0.240	0.519	0.166	0.109
Denmark	24,272	0.241	0.541	0.167	0.112
Czech Republic	5,497	0.249	0.595	0.175	0.119
Austria	20,163	0.254	0.513	0.177	0.113
Netherlands	19,943	0.258	0.613	0.180	0.128
Finland	20,370	0.264	0.741	0.183	0.143
France	18,609	0.275	0.625	0.192	0.140
Luxembourg	33,485	0.276	0.581	0.194	0.133
Belgium	19,159	0.279	1.518	0.194	0.187
Slovakia	3,859	0.279	1.189	0.191	0.202
Spain	13,010	0.310	0.633	0.219	0.166
Italy	16,949	0.319	0.694	0.223	0.182
Ireland	23,943	0.322	0.989	0.227	0.215
Hungary	4,700	0.324	0.887	0.223	0.223
United Kingdom	23,066	0.324	0.741	0.228	0.192
Estonia	4,359	0.329	0.685	0.234	0.187
Poland	3,768	0.329	0.690	0.232	0.188
Greece	11,634	0.336	0.720	0.237	0.199
Lithuania	3,049	0.349	0.717	0.249	0.210
Portugal	9,602	0.375	0.902	0.268	0.262
Latvia	3,234	0.387	0.920	0.276	0.277
Ratio - min. to max:	11.0	1.62	3.26	1.66	2.86

Source: World Bank staff calculations.

Figure 1. Most EU8 countries have average incomes much lower than in the EU15





Source: World Bank staff calculations based on data from the 2006 EU-SILC

Slovenia has the lowest income inequality among the EU8 countries while Latvia has the highest income inequality (Table 3). The total population of each country is divided into 20 equal groups ordered by level of income—thus the group p05 contains the poorest 5 percent of each country, p10 the next 5 percent, etc. Finally, each cell in the table expresses the average income of that particular population sub-group as a percentage of the prevailing national average income. Thus the table shows the poorest 5 percent of Slovenia’s population (i.e. the p05 group) have an average income of 32 percent of the national average, while the corresponding share for the richest 5 percent (i.e. the p100 group) is 232 percent. By contrast, the spread of these shares in Latvia is much higher—10 percent and 382 percent respectively.

Table 3. Distribution of equivalized disposable incomes in EU8 countries

Population Sub-group	Total disposable income accruing to the group (expressed in percent of the national average)								
	Slovenia	Czech R.	Slovakia	Hungary	Estonia	Poland	Lithuania	Latvia	EU8 Group
p05	32	36	29	17	19	20	16	10	24
p10	48	50	46	39	37	35	32	29	40
p15	56	57	54	47	45	43	41	37	48
p20	62	62	60	53	50	49	47	42	54
p25	68	67	65	59	54	55	53	47	59
p30	73	71	69	63	60	60	57	52	64
p35	77	75	73	68	64	65	63	57	68
p40	82	78	77	72	69	70	68	62	73
p45	86	82	81	77	74	76	73	68	78
p50	90	86	85	82	80	81	79	75	83
p55	94	91	89	86	87	87	85	81	88
p60	99	95	93	91	94	94	91	89	94
p65	105	101	98	97	101	101	99	97	100
p70	111	107	103	103	109	108	107	107	107
p75	117	113	109	110	118	117	117	118	115
p80	124	120	116	118	130	128	129	129	124
p85	133	131	126	129	143	142	144	145	136
p90	146	144	139	145	161	162	169	166	154
p95	166	165	161	176	196	195	208	207	183
p100	232	269	327	366	310	312	323	382	310
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Gini index	0.239	0.249	0.279	0.321	0.327	0.328	0.348	0.383	

Source: 2006: World Bank staff calculations based on data from the 2006 EU-SILC

- Each of these countries has a fairly large middle class—defined as people earning between 75 percent and 125 percent of the national average. For example, among the EU8 countries taken as a group (last column), about 40 percent of the population (from p45 to p80 inclusive) falls in this group.

- The average incomes of the poorest 5 percent in Hungary, Poland, and the Baltic countries (in particular Latvia) are very low—typically only 20 percent or less of the prevailing national averages; by contrast, the corresponding shares in Slovakia, Czech Republic, and Slovenia are much higher.
- The richest 5 percent of the population in Latvia and Hungary have very high incomes in relation to the prevailing national averages (roughly 3.5 to 4 times as high), in sharp contrast to the rich in Slovenia and the Czech Republic (roughly 2 to 2.5 times the national average).

Educational background and labor market status are important factors in explaining differences in incomes across individuals and regions. Within each country, those with higher education tend to be concentrated among the top income groups. The distribution of the population aged 16 years and older in the EU8 countries by level of education is presented in Table 4. Educational attainments in most EU8 countries are, in general, quite high. However, the Baltic countries stand out: a higher share of their adult population has completed post-secondary or tertiary education than in other countries. This in turn may help partly explain why average incomes of the top deciles are higher than in other countries. In contrast, In Slovenia and Poland, between one-fifth and one-fourth of the adult population has only primary or lesser education.

Table 4. Educational attainment of the population in EU8 countries

Level of Education	Percentage of the population aged 16 yrs and older with level of education indicated							
	Slovenia	Czech R.	Slovakia	Hungary	Estonia	Poland	Lithuania	Latvia
Population with:								
Primary or less	21	0	2	10	6	23	11	4
Lower secondary	11	17	19	22	18	3	15	22
Upper secondary	51	70	64	50	42	55	30	45
Post-second./ tertiary	16	12	15	19	34	19	41	29
Poorest decile group:								
Primary or less	47	0	4	16	9	29	9	4
Post-second./ tertiary	4	3	6	5	23	5	21	13
Richest decile group:								
Primary or less	4	0	0	1	0	4	1	0
Post-second./ tertiary	56	38	37	55	63	56	77	58

Source: 2006: World Bank staff calculations based on data from the 2006 EU Survey of Income and Living Conditions

The unemployed tend to be concentrated among the poorest income decile (an odds-ratio of roughly 3-5 compared to the overall population). The EU-SILC data set includes a work-intensity variable, whereby each household is assigned a work intensity status ranging from 1 to 4 (1 denotes not working, and 4 denotes working full-time); average work intensity scores for the richest deciles are much higher than the poorest decile group (Table 5). Our analysis shows employment status to be a strong predictor of welfare in both EU8 and EU15 countries, with disposable incomes negatively correlated with share of unemployed household members, and positively correlated with work intensity status.

Table 5. Work status and level of intensity in EU8 countries

	Percentage of the population aged 16 yrs and older							
	Slovenia	Czech R.	Slovakia	Hungary	Estonia	Poland	Lithuania	Latvia
Percent of population unemployed:								
Overall population	6	6	5	4	3	7	5	6
Poorest decile	19	25	20	16	13	24	21	28
Richest decile	1	1	1	1	0	2	1	3
Work intensity:								
Overall population	3.1	3.1	3.1	2.9	3.3	2.9	3.2	3.2
Poorest decile	2.0	2.0	2.3	1.9	1.9	2.2	2.1	2.1
Richest decile	3.6	3.8	3.6	3.5	3.8	3.6	3.8	3.8

Source: 2006: World Bank staff calculations based on data from the 2006 EU Survey of Income and Living Conditions

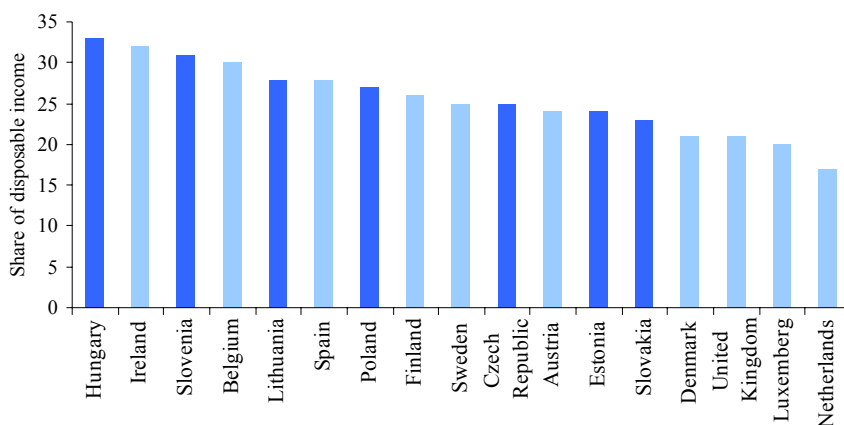
Similarly, disposable incomes are positively correlated with level of educational attainment of household members, with the “premiums” associated with tertiary / secondary education highest in Slovenia and Poland (countries with the highest share of population with primary education or lower). The analysis also

suggests that differences in human capital and labor force participation rates across regions help explain a large part of the observed differences in living conditions within countries, but do not help much in explaining differences in living standards across countries.

Taxes and transfer policies play a very important redistributive role in the EU8 countries. Income inequality in the EU8 countries is in general quite low compared to other countries in the world, due in large part to the strong redistributive roles of their national tax and benefit systems. General government spending in the EU averages close to half of GDP, a considerably higher share than in the United States and other OECD countries. In addition to differences in levels of total government spending, EU countries devote a considerably larger share of public expenditures to direct transfers to households and subsidies—for instance spending on social programs, such as old-age disability and survivors’ benefits, unemployment and other labor market programs.

The importance of social programs in redistributing incomes in Europe is well-known, and has been the subject of considerable scholarly attention. Figure 2 compares the size of benefits across different EU member states, expressed as a share of equivalized disposable incomes. Among EU countries, the benefit share varies from a low of 17 percent in the Netherlands to 33 percent in Hungary. The share of benefits in the EU8 countries tends, on average, to be somewhat higher than in the EU15: it is the lowest in Estonia and Slovakia (23 percent), the Czech Republic (25 percent), Poland (27 percent), Slovenia (30 percent) and Hungary (33 percent).

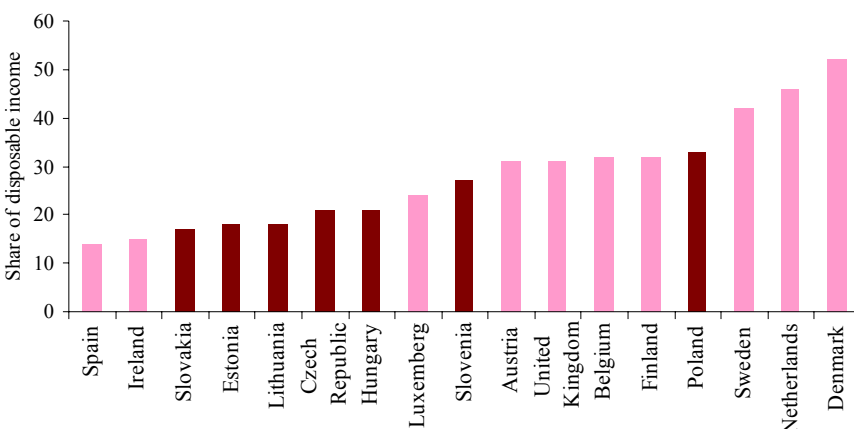
Figure 2. Benefits as a share of disposable incomes



Source: World Bank staff calculations using 2006 EU-SILC data.

While less is known about the structure of personal taxes in these countries, indications are that the income tax system in European countries is also considerably more progressive than in the U.S. Among EU members, the tax share of disposable income varies from a low of 14 percent in Spain to over 50 percent in Denmark. Among the EU8 group, tax shares are in general lower than in other EU15 countries—Poland however, is a notable exception (Figure 3). Slovakia, Lithuania and Estonia have relatively low tax shares (around 17-18 percent of equivalized disposable incomes).⁴ Next are Hungary and the Czech Republic (21 percent) and Slovenia (27 percent). Finally, taxes as a share of equivalized disposable incomes are the highest in Poland (33 percent), close to twice the average shares in Slovakia and the Baltic countries.

Figure 3. Taxes as a share of disposable incomes



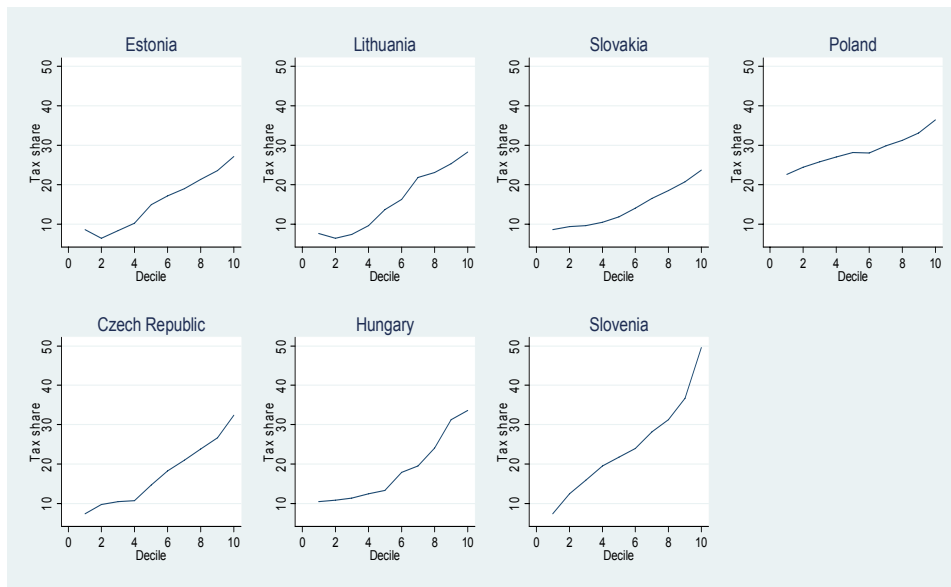
Source: World Bank staff calculations using 2006 EU-SILC data.

The tax systems in all the EU8 countries are quite progressive. Figure 4 presents the average share of taxes compared to total disposable income by decile groups in each country, as ranked by their level of

⁴ Latvia is excluded from these tables, as data on gross incomes are not available in the EU-SILC dataset.

equivalized disposable income. An upward sloping curve therefore shows that taxes as a share of disposable income are relatively greater for higher income groups. The tax systems in all EU8 countries are progressive, as illustrated by the upward-sloping tax incidence curves for each country. Even in the flat-rate tax countries of Estonia, Lithuania, and Slovakia, it seems the exemption threshold for incomes helps introduce a fairly strong element of progressivity in the overall system. In general, however, the degree of progressivity varies considerably across the EU8 countries: for instance, the tax-incidence curve for Slovenia is considerably steeper than in other countries.

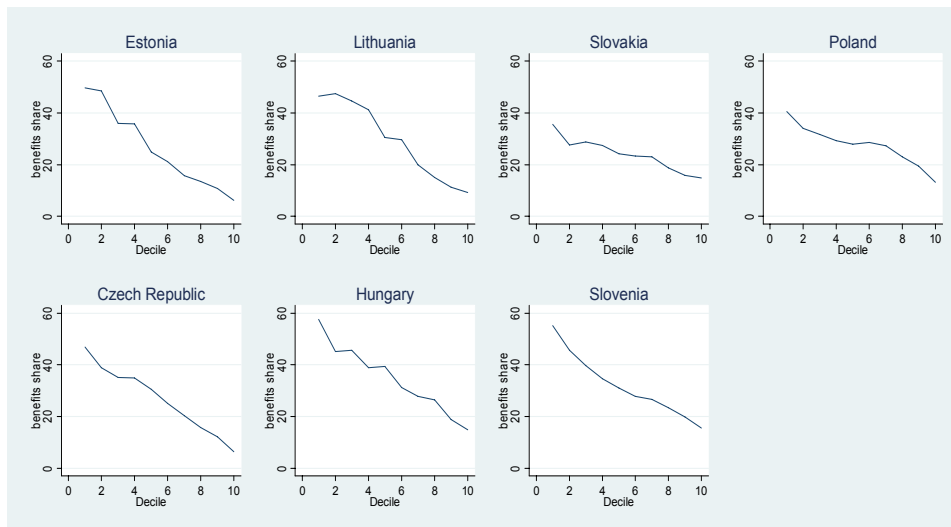
Figure 4. Tax incidence curves



Source: World Bank staff calculations based on data from the 2006 EU Survey of Income and Living Conditions

Benefits systems are also quite progressive. Figure 5 presents the comparable benefit-incidence curves—the size of the negative slope of the curves for each country indicates the degree of progressivity of the system.

Figure 5. Benefit incidence curves

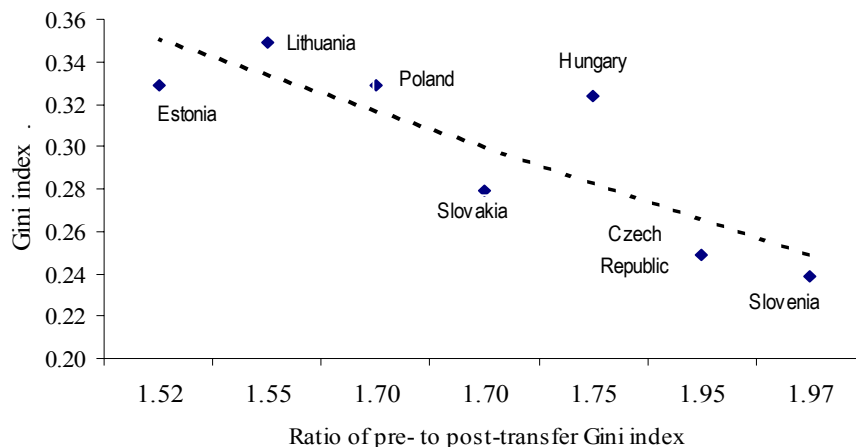


Source: World Bank staff calculations based on data from the 2006 EU Survey of Income and Living Conditions

Several interesting points are evident from these graphs. First, the benefit-systems in all countries are considerably more progressive than the respective tax systems, not too surprising given that income redistribution (rather than revenue generation) is their main objective. Second, despite their high progressivity, even households in the top income decile receive a non-negligible share of incomes in the form of benefits, which in turn helps explain why these programs enjoy such widespread public support in all

countries. Third, the benefit-systems in Hungary and Slovenia are considerably more generous than in other EU8 countries for all income levels, indicating that the overall tax-benefit systems in these countries are in fact much more similar to their EU15 continental counterparts than to those of the Baltic countries or Poland. Finally, Poland and Slovakia stand out as the only countries where the share of benefits accruing to the poorest income decile constitutes less than 40 percent of their total disposable incomes.

Figure 6. The role of public transfers in explaining differences in income inequality



Source: World Bank staff calculations based on data from the 2006 EU Survey of Income and Living Conditions

Countries where governments actively redistribute incomes using the tax and benefit systems tend to have considerably lower inequality than those that do not. An inverse relationship is evident in the scatter plot of inequality of post-transfer disposable incomes vs. extent of redistribution taking place through the tax and benefit systems (Figure 6). Thus, Slovenia and the Czech Republic have relatively low income inequality because of the strong redistributive role of taxes and benefits; by contrast, Baltic countries have higher inequality than other EU8 countries because of the smaller role of direct taxes and public transfers in redistributing incomes within these countries.

What Explains Differing Levels of Public Support for Redistribution? An interesting three-way classification of the EU8 countries emerges based on the relative role played by their respective tax and benefit systems in reducing income inequality. The first group comprises Estonia and Lithuania,⁵ with the lowest income redistribution among EU8 countries (similar in magnitude to the United Kingdom, Ireland, and Spain). The second group includes Slovakia, Poland, and Hungary (higher redistribution than in the Baltic countries, but a bit lower than in other continental European countries). Finally, the third group comprises the Czech Republic and Slovenia, where income redistribution through taxes and benefits is similar in magnitude to that in Sweden, Denmark, Finland, and the Netherlands. Data from the 2006 LiTS provide some useful insights into public attitudes towards the government’s role in tackling income inequality. Responses to the question “Do you think the state should be involved in reducing the gap between the rich and the poor?” illustrate the strong public support for redistribution: overall, only about 9 percent of respondents in EU8 countries felt the state should “not be involved” in reducing the income-gap (Figure 8), while an overwhelming majority favored either moderate or strong state involvement in reducing the income-gap between the rich and the poor (see also Box 1 for why citizens of EU8 countries may have high aversion to income inequality). What are the main reasons why the extent of redistribution taking place through the tax and benefit systems is so different across countries?

Box 1. High Aversion to Income Inequality in Transition Countries

Citizens of the EU8 countries have, it seems, a high aversion to income inequality. Most respondents interviewed in the 2006 LiTS either “strongly agreed” or “agreed” that “the gap between the rich and the poor in this country should be reduced”. Likewise, there seems to be very strong public support for direct state involvement in tackling inequality: an overwhelming majority of respondents thought the government

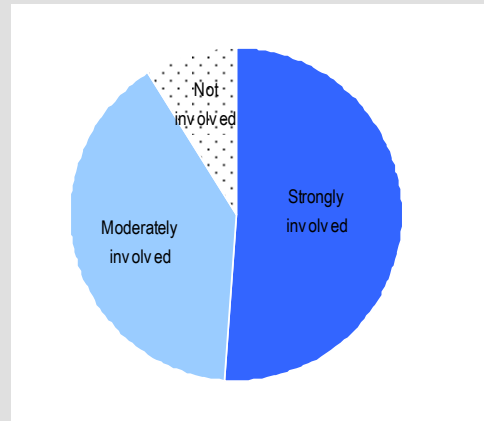
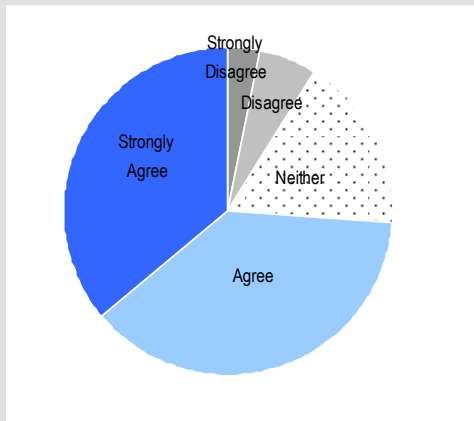
⁵ Latvia likely belongs to the same group also, though as noted earlier comparable tax and benefit data are not available.

should either be “strongly involved” or “moderately involved” in reducing the gap between the rich and the poor (Figure 7).

Figure 7. Strong Public Support in EU8 Countries for Reduced Income Inequality

Responses to “The gap between the rich and the poor in this country should be reduced”

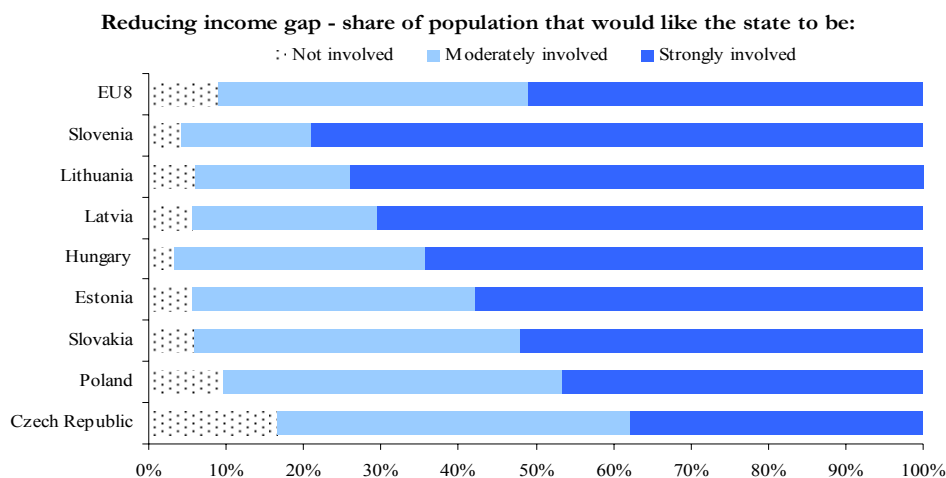
Desired extent of state involvement in reducing income gap between rich and poor



Source: 2006 EBRD-World Bank Life in Transition Survey data for EU8 countries

Analyzing variations across countries in peoples’ preferences for redistributive state spending, many studies have found that respondents in post-socialist countries profess greater support for such spending than their western counterparts. This preference may be due to the sharp increase in income inequality in virtually all transition countries (including in the EU8, albeit to a lesser extent) during the early years of transition, when output and employment contracted sharply. This rise in income inequality has been attributed in varying degrees to a diverse set of contributory factors, such as greater wage decompression, higher unemployment rates, building-up of wage arrears, reduced public spending on transfers, and spells of rapid inflation. Given this backdrop, it is not surprising that public policy plays an important role in reducing income inequality, both through the national taxation as well as benefits systems.

Figure 8. Strong public support for redistribution in EU8 countries



Source: 2006 EBRD-World Bank Life in Transition Survey.

Clearly a multitude of factors come into play in this regard; however, it seems an important issue is whether the general public associates poverty with factors within or outside the control of those afflicted by it. The LiTS data show that, overall, about 44 percent of people in EU8 countries feel that people are in need because of “injustice in society”, with the ratio varying from 28 percent in Estonia to 61 percent in Hungary (Table 6). By contrast, 33 percent of respondents in Estonia felt that people were needy because they were “lazy / lacked willpower”, almost twice as high as the share of such responses in Hungary. This in turn may help explain why the level of benefits provision in Hungary is much higher than that in Estonia.

Table 6. Perceptions regarding why people are in need

Country	Main reason why people are in need in your country				Overall
	Injustice in society	Inevitable part of life	Un-lucky	Lazy/lack of willpower	
Hungary	61	16	7	17	100
Poland	48	22	14	16	100
Slovenia	38	32	11	19	100
Czech Republic	27	30	18	25	100
Latvia	48	20	7	25	100
Slovakia	32	20	17	31	100
Estonia	28	28	10	33	100
Lithuania	38	14	5	42	100
EU8 countries	44	22	13	21	100

Source: 2006: World Bank staff calculations based on 2006 LiTS

The results of an ordered probit model to analyze public support for redistribution in EU8 countries confirm the following hypotheses:⁶

- Support for redistribution is inversely correlated with economic background: other things being equal, a person in the poorest income decile is half as likely as someone in the richest income decile to respond that the state should not be involved in reducing the income gap between the rich and the poor (plus about 20 percent more likely to be in favor of strong involvement);
- Other things being equal, people who have done relatively well during transition are less likely to be in favor of state involvement in redistribution than to those that have not.
- A person who thinks that people are in need because of “injustice in society” is over 25 percent more likely to favor strong state involvement in redistribution as compared to one who thinks other factors help explain why people are in need;
- Support for redistribution is stronger among rural compared to urban residents.

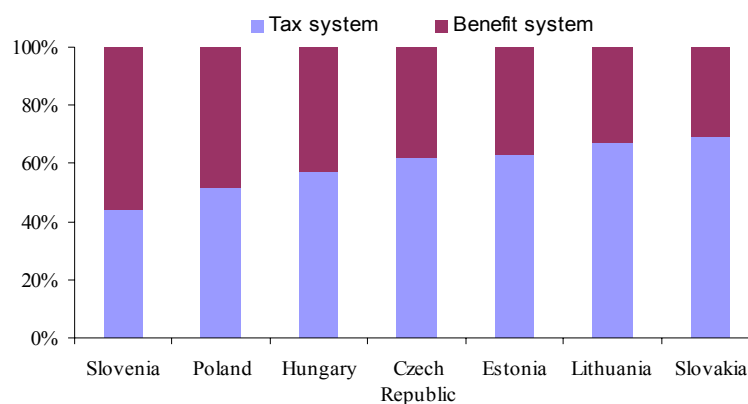
⁶ See Annex 2 in the background study (Zaidi, 2008) for details.

CONCLUDING OBSERVATIONS

Steady improvement in economic performance of the EU8 countries since the mid-1990s has had varying impacts on income inequality in these countries. While most EU8 countries continue to have average incomes much lower than in the EU15, they nonetheless have similar levels of income inequality. The level of income inequality in most countries is in general quite low, especially in comparison to countries in other parts of the world, which in large part is due to the strong redistributive role played by direct taxes and public transfers. In the European Union as a whole, most of the income inequality observed is in fact between rather than within countries.

The findings of our analysis suggest that direct taxes in all EU8 countries are very progressive in nature, including in those countries that have a flat-rate tax system. Moreover, a comparative analysis of the relative contributions of the tax and benefit system to the overall decrease in income inequality within the country shows that the taxation system in countries with flat taxes (Slovakia, Lithuania and Estonia) in fact contributes more to the overall decrease in income inequality than in other EU8 countries (Figure 9.).

Figure 9. Contribution of tax and benefit systems in reducing income inequality



Source: World Bank staff calculations based on 2006 EU-SILC data.

Further analytic work is needed to understand better whether the progressivity of the direct tax system in the former group is due to differences in the composition of incomes across various income groups or, alternately, if the observed progressivity is due to other design features (e.g. level of overall exemption threshold / exemption of certain types of incomes from taxation, etc.). The answer to this question will have important bearing on the relative benefits and costs of introducing flat-rate taxes (Box 2).

Box 2: Introduction of Flat-Rate Taxes in Selected EU8 Countries

Among the EU8 countries, the Baltic countries were the first to introduce a flat rate personal income tax system in the 1990s, while Slovakia followed suit in 2004. Hungary, the Czech Republic, Slovenia, and Poland continue to implement a multi-rate tax system, but several political parties in these countries have announced that introduction of a flat-rate tax system is an important element of their political platform, and the pros and cons of the introducing such a system are the subject of considerable public debate.