WPS4815

POLICY RESEARCH WORKING PAPER 4815

Main Drivers of Income Inequality in Central European and Baltic Countries

Some Insights from Recent Household Survey Data

Salman Zaidi

The World Bank
Europe and Central Asia Region
Poverty Reduction and Economic Management Department
January 2009

Policy Research Working Paper 4815

Abstract

Present levels of income inequality in Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Slovakia, and Slovenia remain considerably higher than their pre-transition levels, although the relative pace of change over time has varied quite a bit across countries. Using data from the 2006 European Union Survey of Income and Living Conditions, this paper finds that prevailing levels of income inequality in these countries continue to be low by international standards, and that this is in large part due to the very high redistributive impact of direct taxes and public transfers. In addition to the instrumental role of tax and transfer policies in redistributing income, the paper highlights the important role played by differences in education levels and labor market participation rates in explaining observed inequalities across people and across different regions (although not in explaining observed differences across countries). The paper includes an analysis of key factors that help explain observed variation across countries in the level of public support for redistribution, including peoples' economic background and relative success in life, whether they perceive poverty to be associated with factors within or outside the control of those it afflicts (for example, laziness/lack of willpower vs. injustice in society).

This paper is a product of the Poverty Reduction and Economic Management Department, Europe and Central Asia Region. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at szaidi5@worldbank.org.

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Some Insights from Recent Household Survey Data

Salman Zaidi*

* World Bank, Washington DC. Misha Bontch-Osmolovski provided invaluable help though setting-up the EU-SILC data for analysis. This paper has benefited from the comments of numerous colleagues at the World Bank as well as in the EU8 countries covered in this paper. The opinions and views presented here are those of the author and should not be attributed to the Executive Directors of The World Bank. Correspondence: Salman Zaidi, World Bank, 1818 H Street NW, Washington DC 20433, USA. E. mail: szaidi5@worldbank.org. Phone: (202) 473 1976. Fax: (202) 522 2753.

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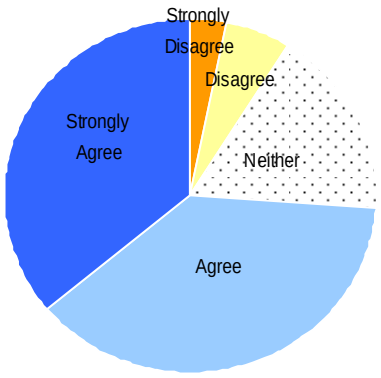
1. INTRODUCTION

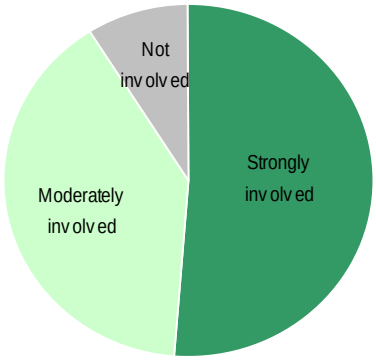
1. One of the earliest studies to systematically document changes in distributional outcomes in countries of Eastern Europe and Central Asia during their transition from planned to market economies was carried out by the World Bank in 2000.[1] This study found that although income disparities between the rich and the poor increased in virtually all transition economies during the 1990s, the extent of increase varied considerably across countries: for example, among Central European transition countries, the increase in inequality was considerably lower than that observed in the Commonwealth of Independent States (CIS). In explaining the main causes for the observed increase in income inequality, the study highlighted the role of increased inequality of labor earnings, which in turn could be traced to a rapid rise in returns to education. Government tax and transfer policies were found to have a powerful impact on the distribution of disposable incomes: for example taxes and transfers dampened the rises in income inequality due to increased dispersion of earnings in Central European countries to a considerably greater extent than in the CIS.

2. This paper focuses on selected Central European and Baltic countries—in particular, Poland, Hungary, Slovenia, Slovakia, the Czech Republic, Latvia, Lithuania, and Estonia (henceforth referred to as the EU8). Citizens of EU8 countries, it appears, have a high aversion to income inequality. Most respondents interviewed in these countries in the EBRD-World Bank Life in Transition Survey either "strongly agreed" (36 percent) or "agreed" (38 percent) with the statement "the gap between the rich and the poor in this country should be reduced".[2] Likewise, there seems to be very strong public support for direct state involvement in tackling inequality: an overwhelming majority of respondents thought the government should either be "strongly involved" (51 percent) or "moderately involved" (40 percent) in reducing the gap between the rich and the poor (Chart 1).

Chart 1. Strong Public Support for Reduced Income Inequality



Responses to the statement "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 EU EU8 countries.

3. Given these strong political preferences, one would expect public policy in these countries to play an important role in reducing income inequalities, both through the national taxation as well as

[1] *Making Transition Work for Everyone: Poverty and Inequality in Europe and Central Asia* , World Bank, Washington DC (2000).
[2] For more details about this survey, see Annex 1.

benefits systems. 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 U.S. or Western counterparts; however, these preferences are not necessarily confined to post-socialist countries alone, as many OECD countries (e.g. Norway, Italy) also exhibit similar such public preferences for high redistributive state spending.[3]

4. Using data from household surveys conducted in EU8 and other countries in the region that have recently become available—the European Union Surveys of Income and Living Conditions (EU-SILC) as well as the Life in Transition Survey (LiTS)[4]—this paper focuses on examining three main questions:[5]

- How high are income inequalities in EU8 countries, and how do they compare to prevailing levels in EU15 countries as well as other countries in the rest of the world?
- What role do income taxes and other such direct taxes as well as public transfers through the benefit systems play in redistributing incomes within these countries?
- To what extent can the income inequalities we observe across households and regions be explained by differences in factors like education levels and labor force participation rates?

5. Cross-country comparisons of income inequality are in general fraught with numerous comparability issues arising from the lack of a uniform basis to define key variables as well as differing methods of data collection. However, the EU-SILC data set provides an unprecedented opportunity for comparison of income inequality across a large set of countries, as it contains information on incomes, taxes paid, benefits and transfers received etc., based upon a common definition across all covered countries (see Box 1 for definitions of key variables used in the analysis).

6. Section 2 presents a snapshot of long-term trends in income inequality; in particular, it shows that there was considerable diversity across EU8 countries in pattern of change in income inequality: the Gini coefficient of income inequality fell in Estonia, remained unchanged in Poland, rose slightly in Slovenia and Lithuania, but rose sharply in Latvia and Hungary.

7. Section 3 compares prevailing levels of income inequality in EU8 countries with other countries, and shows that even though most EU8 countries have average incomes considerably lower than in EU15 countries, they have similar levels of inequality. While income inequality in EU countries is quite low compared to other countries in the rest of the world, this is in large part due to the very strong redistributive role of government tax and transfer policies.

8. Section 4 shows that even though the relative sizes of the respective national direct taxes and transfers systems may vary across member states, they all play an extremely important role in redistributing income from the relatively better-off to the poor.

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[3] For an excellent review of this literature, see Murthi, M & E. Tiongson "Attitudes to Equality: The "Socialist Legacy" Revisited", Policy Research Working Paper 4529, World Bank, Washington DC

[4] The two main household survey data sets used in this paper as well as the main variables used in the analysis are described in the Appendix.

[5] More details on these two household surveys are presented in Annex 1.

Box 1: Definitions of Key EU-SILC Variables Used in the Analysis

Total disposable household income is the sum for all household members of gross personal income components (including gross employee cash or near cash income, gross non-cash employee income, gross cash benefits or losses from self-employment, value of goods produced for own consumption, unemployment benefits, old-age benefits, survivor benefits, sickness benefits, disability benefits, and education-related allowances) plus gross income components at the household level (including imputed rent, income from rental of a property or land, family/children related allowances, social exclusion not elsewhere classified, housing allowances, regular inter-household cash transfers received, interest dividends, profit from capital investments in unincorporated business, income received by people aged under 16) minus interest paid on mortgage, regular taxes on wealth, regular inter-household cash transfers paid, tax on income and social insurance contributions (including tax adjustments-repayment/receipt on income, income tax at source, and social insurance contributions).

Equivalent household size is computed assigning a weight of 1 to the first household member aged 14 years and older, 0.5 to each additional household member aged 14 years and older, and 0.3 to each household member aged 13 years or less.

Equivalized disposable income is computes as total disposable household income / equivalent household size.

Benefits include unemployment, old-age, survivors, sickness, disability, education, family benefits, other social exclusion, and housing allowances.

Taxes include regular taxes on wealth, taxes on income and social insurance contributions, as well as employer's social contributions.

Post tax-benefit incomes (Table 4) are the same as equivalized disposable incomes

Post tax incomes (Table 4) = Equivalized disposable incomes – equivalized benefits

Pre-tax benefit incomes (Table 4) = Equivalized disposable incomes – equivalized benefits + equivalized taxes

Pre-transfer incomes (Chart 7) = Pre-tax benefit incomes

Post-transfer incomes (Chart 7) = Equivalized disposable incomes

9. Section 5 analyzes key factors that help explain the observed variation across EU8 countries in level of public support for redistribution, highlighting the important role of factors like peoples' economic background and relative success, whether they associate poverty with factors within / outside the control of those afflicted (e.g. laziness/lack of willpower vs. injustice in society).

10. Section 6 examines the role played by differences in education levels and labor force participation rates in explaining income inequality: in particular the analysis shows that while these factors play an important role in explaining observed regional disparities within countries, they fail to explain the large differences in living standards observed between EU countries.

11. Finally, Section 7 concludes with a discussion of some of the main policy implications of the findings presented in the paper.

2. HAS INCOME INEQUALITY CONTINUED TO RISE IN EU8 COUNTRIES?

12. During the early years of transition, income inequality rose sharply in virtually all transition countries (including in EU8 countries, albeit to a lesser extent), and has been attributed in varying degrees on a diverse set of contributory factors, such as greater wage decompression, higher unemployment rates, building-up of wage arrears, reduced public spending on transfers, rapid inflation, etc.[6] Following the severe contraction in output and employment in the early years of transition, has the steady improvement in economic performance since the mid-1990s been accompanied by continued increases in income inequality in EU8 countries?

13. Table 1 compares income inequality estimates for EU8 countries derived from the 2006 EU-SILC data with those reported in World Bank (2000).[7] While all Gini coefficients reported here are based on the distribution of equivalized disposable incomes which were standardized to the extent possible to aid comparability,[8] differences nonetheless remain as it is impossible to completely eliminate these. These estimates should therefore be seen as broadly indicative (i.e. rather than definitive evidence *per se*) of long-term trends in inequality.[9]

Table 1: Long-term Trends in Income Inequality

	Gini coefficient for income per capita			
Country	**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.

14. These estimates show that between 1996-99 and 2006, there was considerable diversity across EU8 countries in pattern of change in income inequality. In particular, the Gini coefficient of income inequality fell in Estonia, remained unchanged in Poland, rose slightly in Slovenia and Lithuania, but rose sharply in Latvia and Hungary.[10] At the same time, the table confirms that present levels of income inequality in all EU8 countries continue to be considerably higher than prevailing levels in the mid-1980s before the onset of transition. The overall rise in income inequality has been lowest in Slovenia and the Czech Republic, and highest in the Baltic countries.

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[6] See for e.g., Milanovic (1999) Flemming & Micklewright (1999) Aghion & Commander (1999) Mitra & Yemtsov (2006).

[7] *Making Transition Work for Everyone: Poverty and Inequality in Europe and Central Asia* , Washington D.C.

[8] See World Bank (2000), appendix B for a more detailed description of the data sources used in the study.

[9] Disposable income in the EU-SILC does not, in general, include in-kind incomes. Hence, to the extent that in-kind income constitutes a larger share of incomes of the poor, income inequality measures based on disposable incomes will tend to overstate inequality compared to those based on wider income measures (i.e. including in-kind incomes).

[10] According to analysis published by the Ministry of Finance, the Gini coefficient for Slovakia in 1988 was 0.19 (http://www.finance.gov.sk/Documents/Ifp/Publikacie/Makro/EA11_ZIVOTNA_UROVEN.pdf, considerably lower than the 2006 Gini in the above table, indicating that income inequality in Slovakia also rose over this period.

3. THE EU8 AND EU15 COUNTRIES HAVE SIMILAR LEVELS OF INCOME INEQUALITY

15. Using 2006 EU-SILC data, Table 2 presents average equivalized disposable incomes and four commonly-used summary inequality measures for the various countries. Several interesting points regarding the distribution of incomes in EU countries are evident from these summary statistics. First, country rankings based on prevailing level of income inequality within the broad set of countries surveyed are fairly robust to the choice of income inequality indicator—based on nearly all inequality measures presented in the above table, Slovenia, Sweden, and Denmark have the lowest income inequality among EU countries, while, conversely, Latvia, Portugal, and Lithuania have the highest level of income inequality.

Table 2: Various Summary Measures of Income Inequality

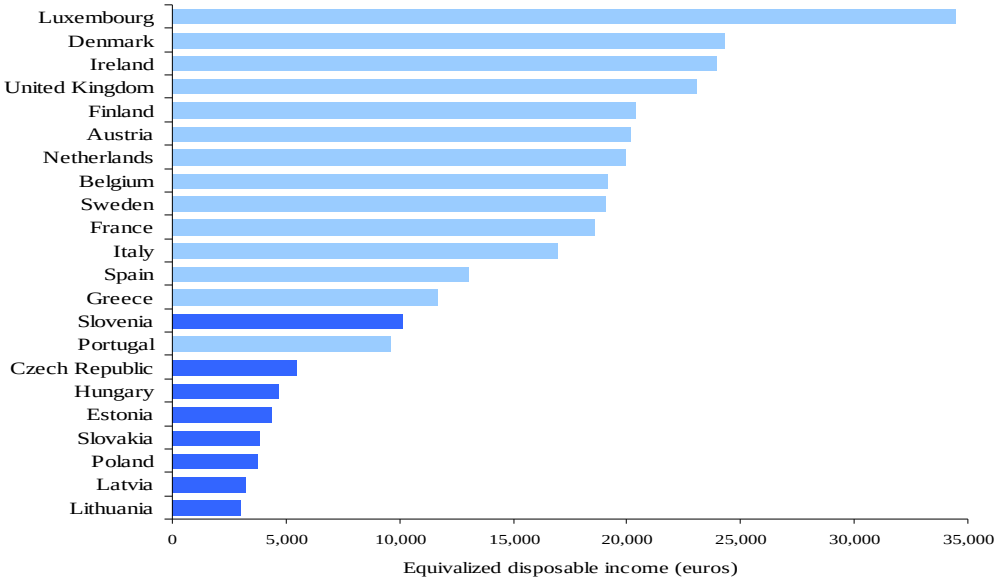
	Mean	Summary Inequality Measures			
Country	Income (Euros)	Gini coefficient	Coefficient of variation	Relative deviation	Theil index
Slovenia	10,176	0.239	0.466	0.167	0.097
Sweden	19,088	0.240	0.519	0.166	0.109
Denmark	24,272	0.241	0.541	0.167	0.112
Czech Republic	5,497	0.249	0.595	0.175	0.119
Austria	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 based on data from the 2006 EU-SILC. Gini coefficient is a measure of statistical dispersion used as a measure of inequality of income distribution, with values between 0 and 1 (0 corresponds to perfect equality whereby everyone has exactly the same income, and 1 corresponds to perfect inequality where one person has all the income, while everyone else has zero income). Coefficient of variation is a measure of statistical dispersion obtained by dividing the standard deviation by the mean. Relative mean deviation is a measure of statistical dispersion defined such that $I_R = \sum | \mu - x_i | / N\mu$. Theil index is a measure of statistical dispersion defined such that $I_T = 1 / N \sum x_i / \mu \ln (x_i / \mu)$. I_T lies between 0 (everyone's incomes are equal) and ln N (one person has all the income).

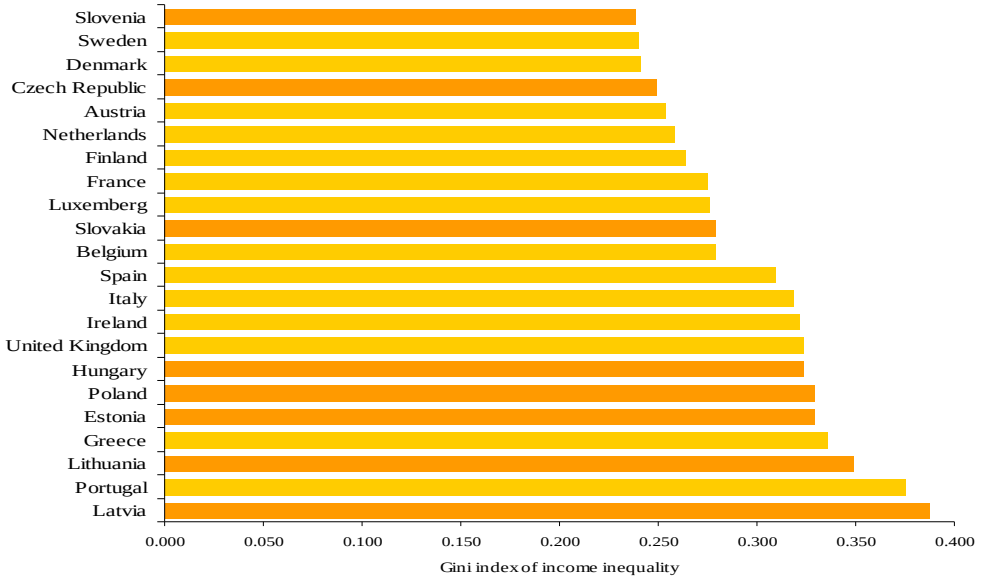
16. Second, while most EU8 countries (except Slovenia) have average incomes considerably lower than those in EU15 countries, the extent of income inequality is in fact quite similar to that in EU15 countries (Chart 2). Finally, while we do observe some variation in the levels of inequality across countries (the Gini coefficient varies from a low of 0.24 in Slovenia to 0.39 in Latvia), most of the income inequality in the European Union is in fact between rather than within countries (average incomes vary by a factor of eleven across countries, from ~3,000 euros in Lithuania to 34,000 euros/equivalent adult/year in Luxembourg). Among EU8 countries, at the top end of the rankings are Slovenia and the Czech Republic (i.e. countries with greatest equality of incomes), which are quite similar to low-inequality Nordic countries like Sweden and Denmark (Gini coefficient ~ 0.24). Slovakia has slightly higher income inequality (Gini coefficient 0.28) similar in level to that in many

other central European countries. At the bottom end, Hungary, Poland and the Baltic countries (Latvia, Lithuania, and Estonia) have fairly high income inequality (Gini coefficient ~ 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. The 2006 Gini coefficient of income inequality in Latvia (0.38) was the same as that in the United States (Gini coefficient of 0.38 in 2000), but lower than that in Thailand (Gini coefficient 0.40 in 2002), Chile (Gini coefficient 0.51 in 2000), and Brazil (Gini coefficient 0.59 in 2001).[11]

Chart 2. Most EU8 countries have average incomes much lower than in the EU15 countries



…but have similar levels of income inequality



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

[11] See World Development Report (2006) for details.

4. TAX AND TRANSFER POLICIES PLAY A VERY IMPORTANT REDISTRIBUTIVE ROLE

17. While income inequality in EU countries is in general quite low compared to other countries in the world, this is in large part due to the strong redistributive roles of their national tax and benefit systems. General government spending in EU countries averages close to half their total 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 like old-age disability and survivors' benefits, unemployment and other labor market programs as a share of GDP is considerably higher than in the United States. The importance of social programs in redistributing incomes in Europe is well-known, and has been the subject of considerable scholarly attention. While less is known about the structure of personal taxes in these countries, broad comparisons undertaken earlier suggest that the income tax system in European countries is also considerably more progressive than in the United States.[12]

18. Using data from the EU-SILC, this section analyzes the progressivity of the tax and benefit systems in different EU countries, with a particular emphasis on EU8 countries. A key advantage of using unit-record survey data to examine the incidence of the respective tax and benefits systems across different countries is that the analysis can move beyond comparing simple averages to analyzing variations in tax incidence across different income groups. We start first by presenting some summary statistics on the relative size of the tax and benefit system in the various EU member countries. Average total taxes and benefits in EU countries, expressed as shares of total equivalized disposable incomes, are presented in Table 3.

Table 3: Average taxes and benefits as a share of disposable incomes

Country	Average disposable income	Average taxes	Average benefits	Average tax share	Average benefit share
Denmark	26,801	14,538	4,491	52	21
Netherlands	21,327	10,892	3,091	46	17
Sweden	20,407	9,383	4,288	42	25
Poland	4,019	1,405	886	33	27
Belgium	20,136	7,510	4,404	32	30
Finland	22,072	7,827	4,479	32	26
Austria	20,933	6,955	4,365	31	24
United Kingdom	25,144	8,948	3,718	31	21
Slovenia	10,493	3,390	2,797	27	31
Luxembourg	36,094	9,715	6,429	24	20
Czech Republic	5,837	1,393	1,140	21	25
Hungary	4,960	1,236	1,294	21	33
Estonia	4,675	969	786	18	24
Lithuania	3,213	706	640	18	28
Slovakia	4,085	775	862	17	23
Ireland	24,404	4,815	5,205	15	32
Spain	13,192	2,119	2,756	14	28

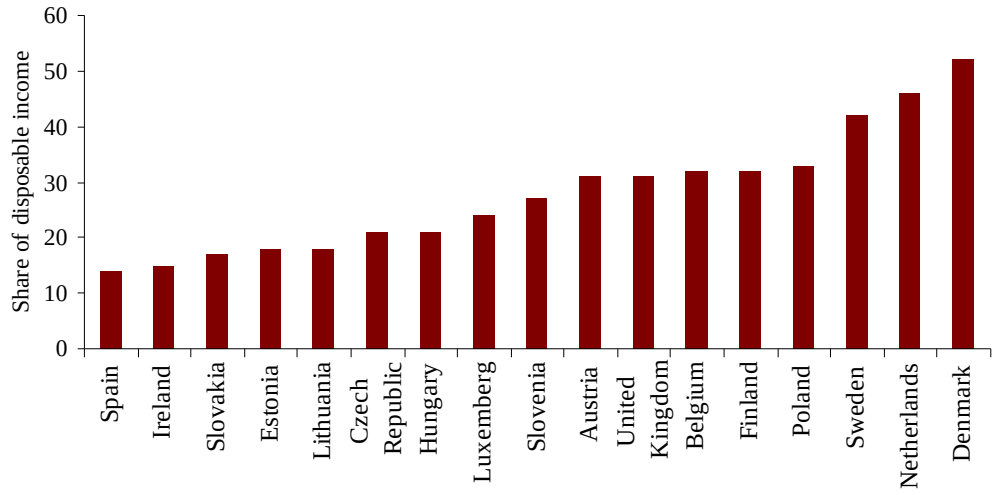
Source: World Bank staff calculations based on 2006 EU-SILC data. Countries are sorted in descending order of the average tax share (tax share computed for each household as total taxes paid / total disposable income)

19. Among EU members, the tax share varies from a low of 14 percent in Spain to over 50 percent in Denmark. Among the EU8 group, tax shares are in general considerably lower than in other EU15

[12] For instance, see Alesina, Glaeser, and Sacerdote "Why Doesn't the United States have a European-style Welfare State?", Bookings Papers on Economic Activity, Vol. 2001, No. 2, pp. 187-254.

countries (Poland, however, is a notable exception—see Chart 3). Slovakia, Lithuania and Estonia have relatively low tax shares (around 17-18 percent of equivalized disposable incomes).[13] Next are Hungary and the Czech Republic (21 percent), followed by Slovenia (27 percent). Finally, taxes as a share of equivalized disposable incomes are highest in Poland (33 percent), close to twice the average shares in Slovakia and the Baltic countries.

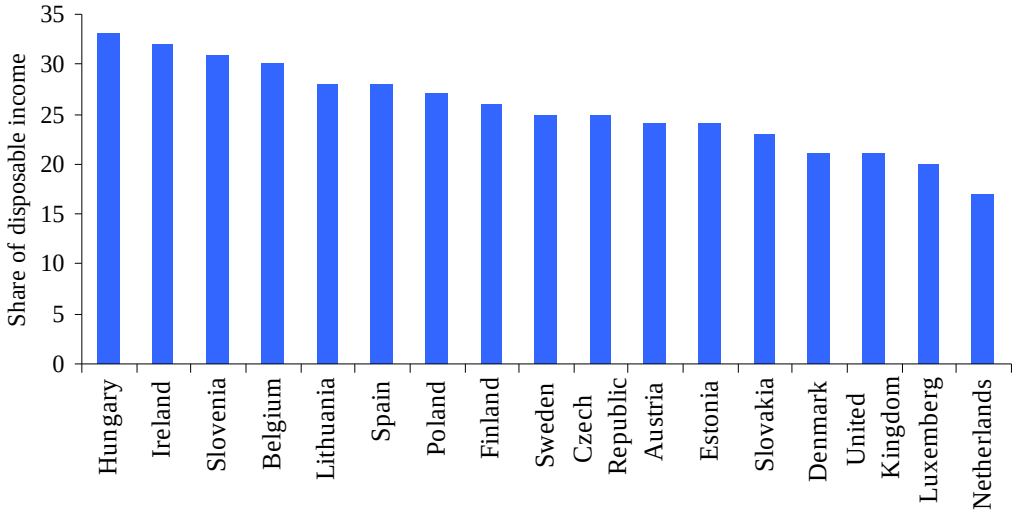
Chart 3: Taxes as a share of disposable incomes



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

20. Chart 4 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 EU15 countries—it is lowest in Estonia and Slovakia (23 percent) followed by the Czech Republic (25 percent), Poland (27 percent), Slovenia (30 percent) and Hungary (33 percent).

Chart 4: Benefits as a share of disposable incomes

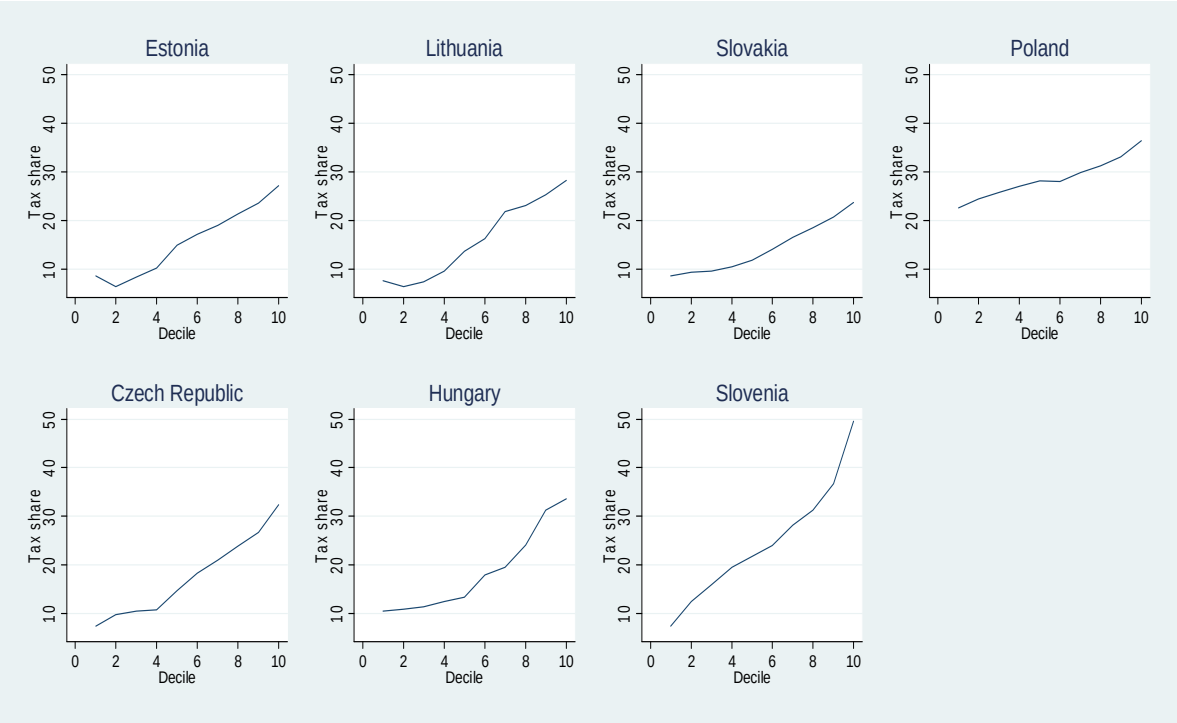


Source: World Bank staff calculations using 2006 EU-SILC data.

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

21. Chart 5 presents the average share of taxes compared to total disposable income by decile groups in each country, as ranked by their level of 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 quite 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 EU8 countries: for instance, the tax-incidence curve for Slovenia is considerably steeper than in other countries.

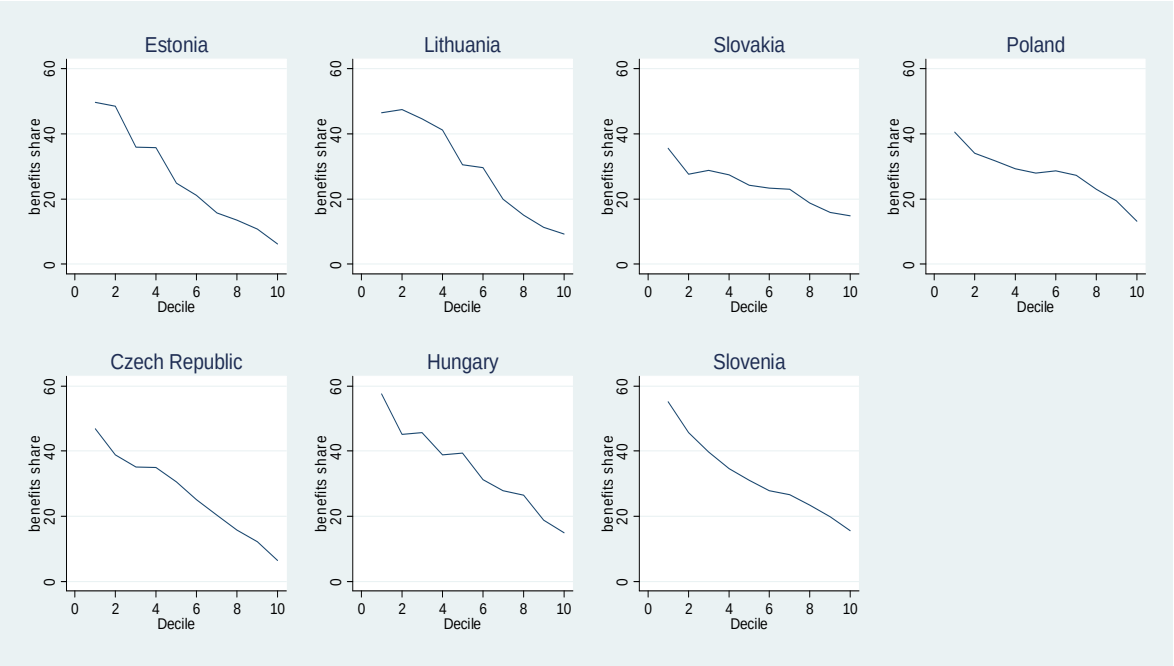
Chart 5: Tax incidence curves



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

22. In an analogous manner, Chart 6 presents the benefit-incidence curves for EU8 countries—in this case, the degree of progressivity of the benefit system is indicated by magnitude of the negative slope of the curves for each country. 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 rather than to 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.

Chart 6: Benefit incidence curves



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

23. The redistributive impacts of the tax and benefits systems by country are summarized in Table 4, which illustrates the extent of income redistribution attributable to its tax and benefit system.[14]

Table 4: Impact of tax and benefit systems on income inequality in EU countries

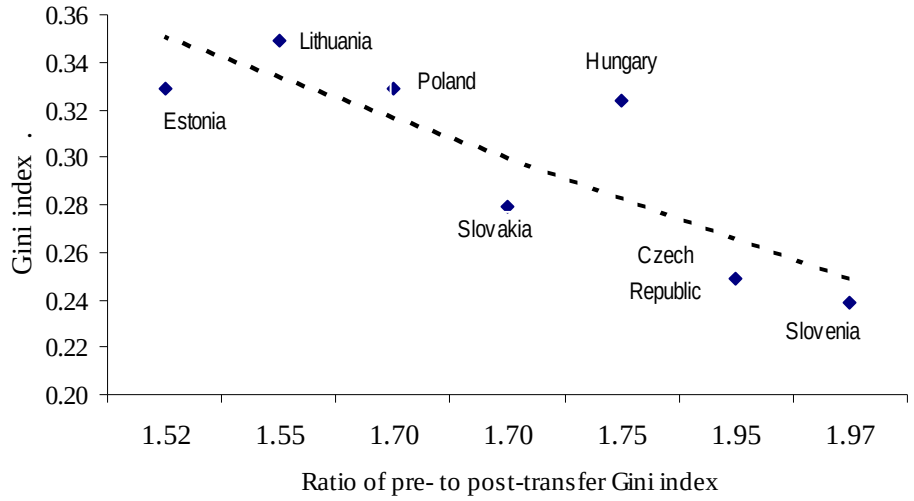
	Gini coefficient of income inequality				
Country	**Pre-tax-benefit incomes**	**Post tax incomes**	**Post tax-benefit incomes**	**Difference in pre / post tax Ginis**	**Ratio of pre-tax to post-tax / benefit Gini**
EU8 countries:					
Slovenia	0.471	0.369	0.239	0.232	1.97
Czech Republic	0.485	0.340	0.249	0.236	1.95
Hungary	0.568	0.429	0.324	0.244	1.75
Slovakia	0.474	0.339	0.279	0.195	1.70
Poland	0.558	0.440	0.329	0.229	1.70
Lithuania	0.540	0.413	0.349	0.191	1.55
Estonia	0.499	0.391	0.329	0.170	1.52
EU15 countries:					
Sweden	0.482	0.335	0.240	0.242	2.01
Denmark	0.481	0.316	0.241	0.240	2.00
Netherlands	0.503	0.330	0.258	0.245	1.95
Austria	0.492	0.336	0.254	0.238	1.94
Finland	0.507	0.372	0.264	0.243	1.92
Belgium	0.524	0.390	0.279	0.245	1.88
Luxembourg	0.486	0.362	0.276	0.210	1.76
United Kingdom	0.526	0.376	0.324	0.202	1.62
Ireland	0.520	0.386	0.322	0.198	1.61
Spain	0.478	0.372	0.310	0.168	1.54

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

[14] Two important caveat need to be borne in mind with regard to the analysis presented here. First, this tax and benefit incidence analysis does not take into account general equilibrium considerations arising from changes in the marginal tax or benefits rates. Second, even though tax and benefit systems play an important redistributive role, it is important to bear in mind that they impose efficiency costs too (e.g. through lowering labor force participation rates, greater informality in the economy, etc.)

24. The Gini coefficient of inequality based on pre-tax-benefit incomes is considerably higher than final equivalized disposable incomes—roughly 1.5 times in the case of Estonia to almost twice as high in Slovenia. Had it not been for the redistributive impact of taxes and public transfers, income inequality in EU countries would have been very high. Rather than low inherent (i.e. pre-tax) wage inequality *per se*, it is the tax and benefit systems that help explain the relatively low income inequality typically observed in these countries.

Chart 7. 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

25. Chart 7 illustrates the important role of public transfers in reducing income inequality. 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: not surprisingly, countries where governments actively redistribute incomes using the tax and benefit systems tend to have considerably lower inequality than those that do not. 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.

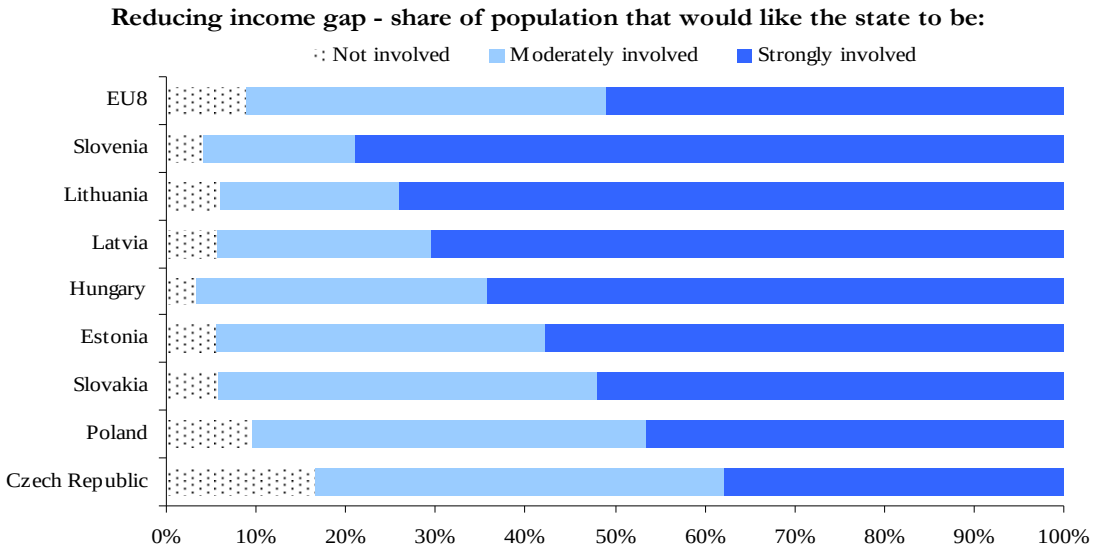
26. An interesting three-way classification of the EU8 countries emerges based on the relative roles played by their respective tax and benefit systems in reducing income inequality. The first group comprises Estonia and Lithuania,[15] with the lowest income redistribution among EU8 countries (similar 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 Sweden, Denmark, Finland, and the Netherlands.

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

5. WHAT EXPLAINS DIFFERING LEVELS OF PUBLIC SUPPORT FOR REDISTRIBUTION?

27. 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 (Chart 8), while an overwhelming majority favored either moderate or strong state involvement in reducing the income-gap between the rich and the poor.

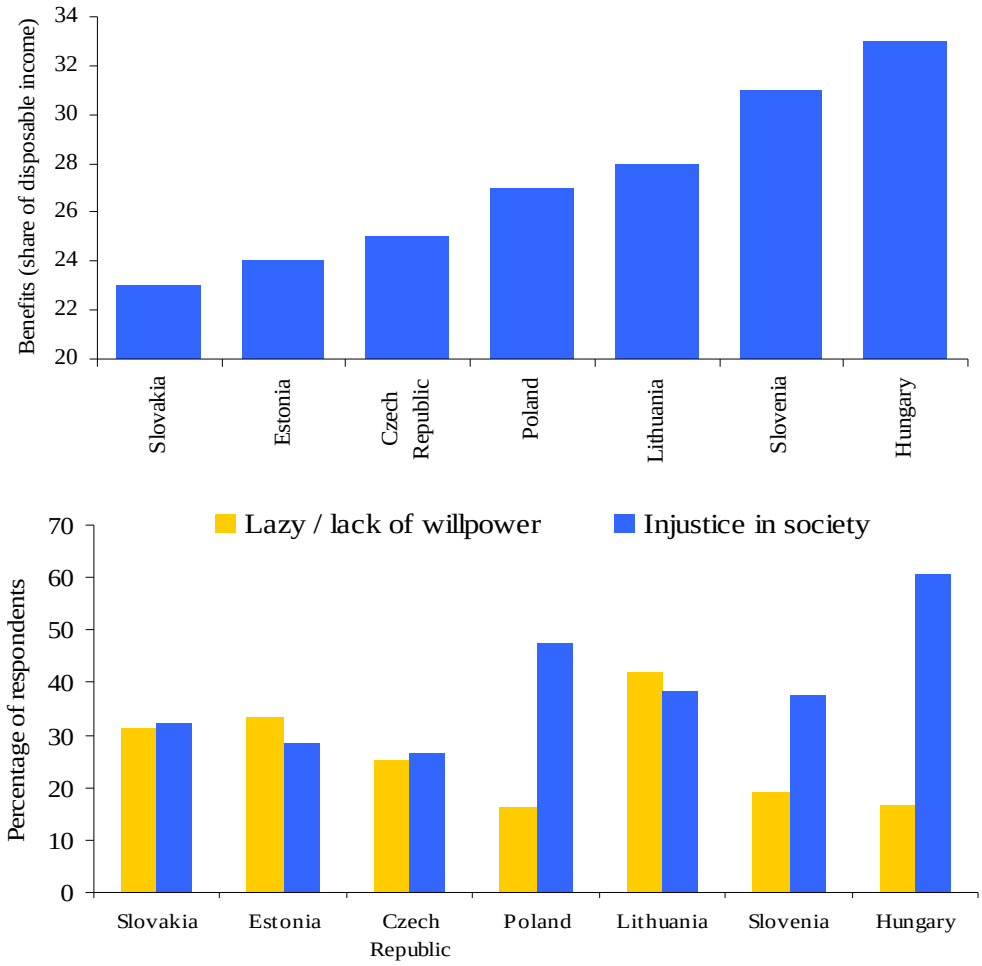
Chart 8: Strong public support for redistribution in EU8 countries



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

28. What are the main reasons why the extent of redistribution taking place through the tax and benefit systems is so different across countries? Clearly a multitude of factors come into play in this regard; however, an important issue is whether the general public associates poverty with factors within or outside the control of those afflicted by it. Chart 9 provides some clues why the level of public spending on benefits in Hungary and Slovenia is higher than in Slovakia and Estonia. Respondents who feel people are in need because of injustice in society are about 1.5 times as likely than others to be in favor of "strong state involvement" in reducing the income-gap between the rich and the poor (63 vs. 43 percent respectively); conversely, such respondents are only half as likely as the rest of the population to favor "no state involvement" in reducing the income-gap between the rich and poor (5 vs. 12 percent respectively).

Chart 9. Public support of redistribution is correlated with perceived level of economic injustice



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

29. The LiTS data also 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 5). 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.

Table 5: Perceptions regarding why people are in need

Country	Main reason why people are in need in your country				
	Injustice in society	Inevitable part of life	Unlucky	Lazy/lack of willpower	Overall
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: World Bank staff calculations based on 2006 LiTS

30. The results of an ordered probit model to analyze public support for redistribution in EU8 countries (see Annex 2 for details) confirm the following hypotheses:

- 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 compared 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 be in favor of strong involvement of the state in redistribution as compared to someone who thinks other factors help explain why people are in need in their country; a similar contrast can be seen between those that think the most important factors to succeed in life today are criminal / corrupt ties, as opposed to those thinking otherwise.
- Support for redistribution is stronger among rural residents compared to those in urban areas.

Table 6: Simulated Probabilities Derived from Ordered Probit Model

Ideal Type		Predicted Probability of Response: Not involved (Govt_role = 1)	Moderately involved (Govt_role = 2)	Strongly involved (Govt_role = 3)
"Average" respondent in EU8 countries:		0.04	0.35	0.61
Economic background:	Poorest decile	0.03	0.30	0.67
	Richest decile	0.06	0.39	0.55
Moved from 3rd to 7th decile between 1989 and 2006		0.08	0.43	0.49
Moved from 7th to 3rd decile between 1989 and 2006		0.03	0.29	0.68
Why are people in need?	Injustice in society	0.03	0.28	0.70
	Other reasons	0.06	0.39	0.55
Most important factor to succeed in life today:	Criminal / corrupt ties	0.03	0.30	0.67
	Other reasons	0.05	0.36	0.58
Lives in urban areas		0.05	0.36	0.59
Lives in rural areas		0.04	0.32	0.64
Respondent from poorest decile living in rural areas, thinks people are in need because of injustice in society, most important factor to succeed in life today is criminal / corrupt ties, has moved from 7th to 3rd decile between 1989 and 2006.		0.01	0.12	0.87
Respondent from richest decile living in urban areas, thinks people are in need because "other reasons", most important factor to succeed in life today is "other reasons", has moved from 3rd to 7th decile between 1989 and 2006.		0.16	0.50	0.33

See Annex 2 for more details on the regression results.

6. THE ROLE OF EDUCATION AND LABOR MARKET PARTICIPATION RATES

31. So far, our analysis has focused mainly on the role of public policy in redistributing incomes across people. In this section, we examine the role of two other key variables, namely differences in (i) labor force participation rates and (ii) differences in education levels, in explaining differences in inequality across households, regions, and countries. We start first by illustrating in more detail some of the main differences in income distributions across EU8 countries (Table 7).

Table 7: Distribution of equivalized disposable incomes in EU8 countries

Population	Total disposable income accruing to the group (expressed as a share of the national average)								
Sub-group	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: World Bank staff calculations based on data from the 2006 EU Survey of Income and Living Conditions

32. A few words are in order to describe the content of this table. The EU8 countries are presented in order, from left to right, based on their prevailing level of income inequality (Gini coefficient)—i.e. Slovenia in the first column has the lowest inequality while Latvia in the next-to-last column has the highest income inequality. 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 the population of each country, p10 the next 5 percent, and so on. 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) to 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.

33. There are several interesting points to note. First, the table clearly illustrates the relatively large size of the middle class in each country—defined as people earning between 75 percent and 125 percent of the national average. For example, among EU8 countries taken as a group (last column), roughly 40 percent of the population (from p45 to p80 inclusive) has total disposable incomes falling within this range (the respective country shares range from 30 percent in Latvia to 50 percent in Slovenia). Second, average incomes of the poorest 5 percent in Hungary, Poland, and the Baltic

countries (Latvia in particular) are very low—typically 20 percent or even lower, when expressed as a share of the prevailing national averages. By contrast, the poorest 5 percent in Slovakia, Czech Republic, and Slovenia have considerably higher incomes. Third, 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).

34. The distribution of the population aged 16 years and older by level of education is presented in Table 8. In addition to illustrating differences in educational attainment across countries, the table also shows how, within each country, those with higher education tend to be concentrated among the top income groups. Educational attainment in most EU8 countries is, in general, quite high. However, the Baltic countries stand out in that a higher share of their adult population has completed post-secondary or tertiary education than in other countries. This in turn helps explain (at least in part) why average incomes of the top deciles are higher than in other countries.

Table 8: 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-secondary / tertiary	16	12	15	19	34	19	41	29
Poorest decile group:								
Primary or less	47	0	4	16	9	29	9	4
Post-secondary / tertiary	4	3	6	5	23	5	21	13
Richest decile group:								
Primary or less	4	0	0	1	0	4	1	0
Post-secondary / tertiary	56	38	37	55	63	56	77	58

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

35. In Slovenia and Poland, between one-fifth and one-fourth of the adult population has only primary or lesser education. However, as shown in the earlier section, the respective national benefits systems redistribute a much higher share of incomes to poor households in Slovenia as compared to Poland, as a result of which average incomes of even these disadvantaged groups in the former are much more equally distributed than in the case of the latter. In other words, a person with primary education or less is much better-off in Slovenia compared to a person with similar qualifications in Poland, both in absolute as well as relative terms. The Czech Republic and Slovakia stand out in that educational attainment in these countries appears to be more egalitarian than in other EU8 countries. This in turn is probably why inequality of disposable incomes is quite low in these two countries, despite the relatively smaller role that the national benefits systems play in redistributing incomes within these countries. To sum, much of the observed inequality of disposable incomes within countries can be attributed to differences in human capital of individuals.

36. Table 9 presents the distribution of the working age population aged 18 to 64 years by employment status. 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); as Table 9 clearly shows, average work intensity scores for the richest deciles are much higher than the poorest decile group.

Table 9: 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: World Bank staff calculations based on data from the 2006 EU Survey of Income and Living Conditions

Explaining Regional Differences Within and Across EU countries

37. For some of the larger EU8 countries (Czech Republic, Hungary, and Poland) regionally disaggregated statistics can also be computed using the SILC data set.[16] As Table 10 shows, the average standard-of-living varies quite a bit across regions: average equivalized disposable incomes in the richest regions are about 33–42 percent higher than in the respective poorest regions.

Table 10: Regional variation in standard-of-living within selected EU member states

	Average equivalized disposable income by region		
Region	**Czech Republic**	**Hungary**	**Poland**
1	7,089	5,516	4,310
2	5,846	4,648	3,959
3	5,550	4,134	3,227
4	5,210		3,595
5	5,241		4,013
6	5,149		3,504
7	5,069		
8	4,995		
Ratio of max / min	1.42	1.33	1.34

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

38. The observed differences across regions give rise to an important question: are the poor people who live in a particular region poor because they have unfavorable endowments of education and other such individual-level attributes linked to low income status, or are their low incomes primarily due to region-specific attributes of their place of residence—for example, inadequate infrastructure, poor access to basic services, etc.? We use multivariate regression analysis applied to the EU-SILC data to help answer the above question, plus to examine more systematically the link between education, work status and work intensity and observed differences in (log) equivalized incomes across households. The explanatory variables used are summarized in the table below.

	Obs.	**Mean**	**Std. Deviation**	**Min**	**Max**
Share of 0–17 yr olds	59,300	.135	.203	0	1
Share of 18-64 yr olds	59,300	.636	.366	0	1
Share of 18+ unemployed	59,300	.061	.169	0	1
Share of 18+ retired	59,300	.273	.403	0	1
Work intensity status	59,300	2.52	1.28	1	4
Share with lower-secondary	59,300	.108	.246	0	1
… Upper-secondary	59,300	.550	.407	0	1
… Post-secondary / tertiary	59,300	.193	.339	0	1

[16] Czech Republic: Eight NUTS-2 regions; Hungary: Three NUTS-1 regions; Poland: Six NUTS-1 regions.

39. Regressions were run on the pooled data set comprising observations from all EU8 countries (with dummy variables for each country), as well as separately for each country (with dummy variables for regions in the case of the Czech Republic, Hungary, and Poland). Regression coefficients for the variables used in the analysis are presented in Table 11.

Table 11: Regression Analysis: (log) Equivalized Disposable Income

	Coefficient								
	EU8	**Slovenia**	**Czech**	**Slovakia**	**Hungary**	**Estonia**	**Poland**	**Lithuania**	**Latvia**
Demographic composition of household:									
Share of 0–17 yr olds	-0.635***	-0.295***	-0.486***	-0.531***	-0.610***	-0.518***	-0.690***	-0.730***	-0.627***
Share of 18-64 yr olds	-0.088***	0.106***	0.019	0.061***	-0.111***	-0.241***	-0.136***	-0.209***	-0.205***
Share of 65+ yr olds	*omitted variable*								
Employment status:									
Share of 18+ unemployed	-0.785***	-0.588***	-0.508***	-0.805***	-0.641***	-0.875***	-0.842***	-0.981***	-1.005***
Share of 18+ retired	0.128***	0.264***	0.074***	0.095***	0.208***	-0.071**	0.187***	0.067	-0.271***
Work intensity status	0.166***	0.196***	0.184***	0.146***	0.199***	0.272***	0.135***	0.277***	0.216***
Education: share of 16+ with:									
Primary education or less	*omitted variable*								
Lower-secondary	0.007	0.099***	-0.039	0.027	0.065**	-0.005	0.017	-0.086**	0.004
Upper-secondary	0.253***	0.358***	0.132	0.214***	0.305***	0.127***	0.283***	0.090**	0.235***
Post-secondary / tertiary	0.727***	0.811***	0.470***	0.519***	0.735***	0.394***	0.838***	0.488***	0.645***
Regression constant	7.9***	8.1***	8.0***	7.5***	7.6***	7.5***	7.7***	7.0***	7.2***
	country / regional dummies included in regression specification, but excluded from output reported here								
Number of observations	59,161	7,482	5,603	7,691	4,642	4,266	14,896	9,478	5,103
R-squared	0.42	0.45	0.37	0.37	0.39	0.37	0.35	0.41	0.32

*Significance level of reported coefficients: 0.01 - ***; 0.05 - **; 0.1 - **

40. In EU8 countries overall (as well as in each country), we find disposable incomes to be negatively correlated with share of household members aged 0-17 years.[17] Correlation of incomes with share of people aged 18-64 years is positive in Slovenia, Slovakia, and the Czech Republic (not statistically significant in the case of the latter), but negative in other countries. Employment status is a strong predictor of welfare in all EU8 countries, with disposable incomes negatively correlated with share of unemployed household members, and positively correlated with work intensity status. The size of the association is relatively more pronounced in the Baltic countries, which is consistent with our earlier finding regarding the relatively smaller size of redistributive public transfers in these countries. Similarly, disposable incomes are positively correlated with level of educational attainment of household members in all countries, 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).

Differences in human capital and labor force participation rates across regions explain a large part of the observed differences in living conditions within countries

41. Controlling for differences in demographic composition, employment, and education status across regions, how important are unobservable location-specific factors in explaining regional differences in living standards? The regression coefficients of virtually all regional dummies included in the country-level regressions are statistically significant, indicating the presence of unexplained region-specific factors impacting living standards. However, as shown in Table 12, after one has accounted for differences in income levels attributable to differences in work status, demographic

[17] This is not quite as obvious a finding as may initially appear, since equivalized incomes in EU countries incorporate very high equivalence / economies-of-scale adjustment factors.

and educational endowments across regions, regional differentials between the richest and poorest region are considerably lower than at first sight (i.e. before accounting for differences in endowments). Differences in endowments account for roughly one-half (Poland) to two-thirds (Hungary) of the observed differences in disposable incomes across regions (Table 12). Similarly, differences in demographic and educational endowments help explain a good deal of the observed differences in disposable incomes across urban and rural areas within all EU8 countries.

Table 12: Unadjusted vs. adjusted regional variation in standard-of-living

	Ratio		
Equivalized Disposable Incomes	**Czech Republic**	**Hungary**	**Poland**
Ratio of richest region / poorest region:			
Unadjusted:	1.42	1.33	1.34
Controlling for demographic, employment, and educational differences	1.16	1.11	1.18

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

… but do not help much in explaining differences in living standards across countries

42. How much of the observed differences in average living standards between EU8 vs. EU15 countries can be explained by differences in human capital and labor market outcomes? We run a pooled regression on data for all EU22 countries to assess the extent to which differences in the independent variables [i.e. demographic composition, employment status, and educational attainment] help explain observed differences in living standards across these countries. However, in contrast to our earlier findings that differences in endowments account for a fair share of observed regional income difference within countries, accounting for such differences exacerbates unexplained differences in living conditions between countries.

43. So far our main focus has been on examining inequality of incomes within countries—in closing, we turn briefly to examining income disparities within the EU-as-a-whole. As noted earlier, much of the income inequality in the European Union is between rather than within countries: average incomes in Lithuania (the poorest member) and Luxembourg (the richest) differ by the same order of magnitude as the income differences between the poorest and richest deciles within these countries. Analysis of income inequality across 22 EU countries in Table 1 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 coefficient of 0.41[18] in the United States (see also Box 2). [19]

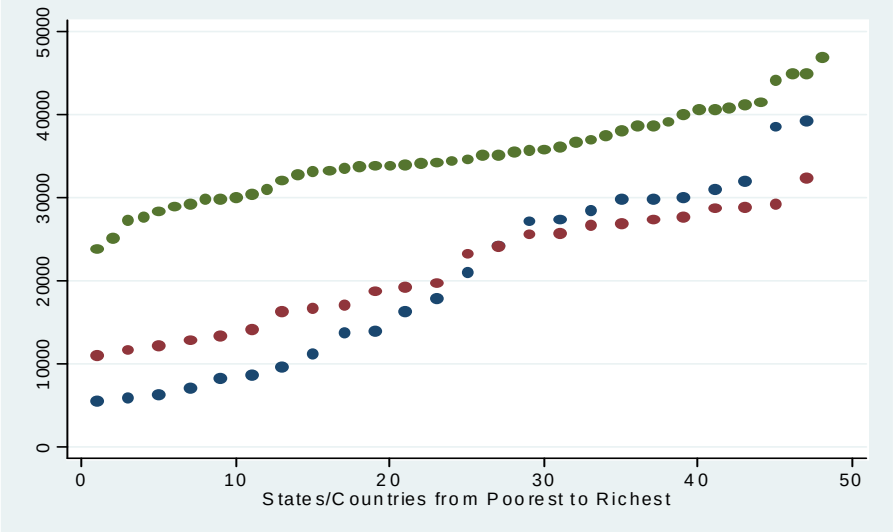
[18] 2007 UNDP Human Development Report.

[19] Inclusion of Germany, Bulgaria, and Romania would further exacerbate observed aggregate EU income inequality.

Box 2: Is Income Inequality in Europe Much Lower Than in the United States?

Conventional wisdom suggests that the United States, with its relatively small size of government and lower share of expenditures on public transfers than comparator European OECD countries, has much higher income inequality than Europe. Indeed most cross-country comparisons of income inequality show the United States to have higher inequality than any individual country in Europe. For instance, the 2007/08 UN Human Development Report shows the Gini Coefficient in United States to be 0.41, considerably higher than the corresponding estimate for Latvia (0.38)—the EU member state with the highest income inequality. Similarly, the LIS data also confirm that income inequality in European countries is in general quite low (Gini of around 0.25 – 0.32) and considerably lower than in the United States. When making such comparisons, however, it is important to bear in mind the much larger size of the United States compared to the typical EU member state—the population of the US is more than three times as large as Germany, the largest EU member. While inequality within European countries is lower than in the United States—indeed considerably lower in some cases—this isn't necessarily true for Europe as-a-whole, since between-country inequality in Europe is higher than between-states inequality in the US (Chart).

Per-Capita Output: States in the US vs. European Countries



Note: 2005 US$ GSP per capita of the 50 US states is represented by green dots; 2005 GDP per capita of the 25 EU members is represented by blue (in Euros) and red (PPS) dots.

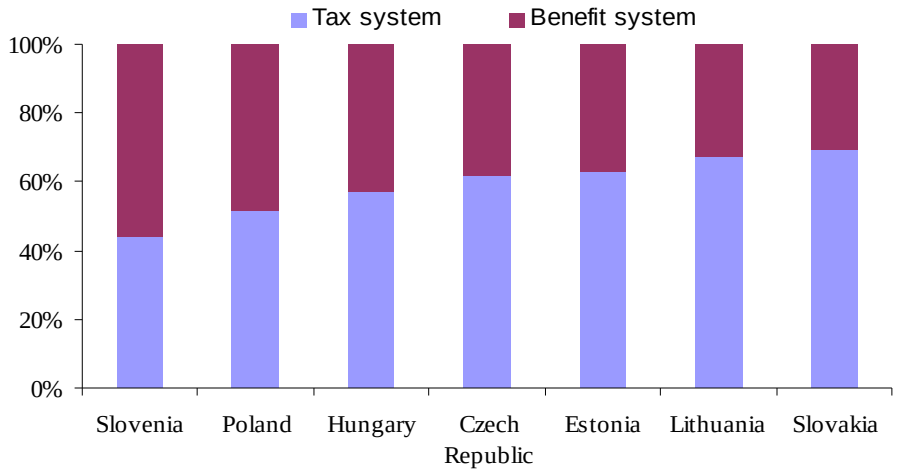
How is this possible, given that virtually all EU member states devote a considerably larger share of GDP to social transfers, which in turn are widely accepted to be quite well-targeted to the poor within these countries? A number of factors help explain this apparently paradoxical finding. First, most of social assistance in the United States is provided through federal welfare programs targeted at the country's poorest regions. In Europe, by contrast, comparable transfers to the poorest regions would require substantially greater inter-governmental transfers within the European Union than is presently the case. Second, despite the relatively recent (and limited) opening-up of cross-border employment within the European Union, labor mobility is still considerably lower than in the US, and so plays a much smaller role in equalizing incomes across countries. Third, employment rates in the US are considerably higher than in the EU, and also play a major role in equalizing incomes across families.

7. CONCLUDING OBSERVATIONS

44. Among EU8 countries, the Baltic countries were the first to introduce a flat rate personal income tax system,[20] starting with Estonia (1994), Lithuania (1994), and then Latvia (1997), while Slovakia also followed suit in 2004. While Hungary, the Czech Republic, Slovenia, and Poland continue to implement a multi-rate tax system, 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.[21] While the main motivating factor for introducing flat rate taxes has been a desire to simplify the tax system and lower tax rates to spur investment and growth, opposition against their introduction in many countries has tended to mainly be on equity grounds, as opponents argue that phasing-out the existing multi-rate tax rate structure would adversely impact the progressivity of the taxation system.

45. The findings of this paper show that direct taxes in all EU8 countries, including those that have a flat-rate tax system, are very progressive in nature. 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 the taxation system in flat-rate tax countries (i.e. Estonia, Lithuania, and Slovakia) in fact contributes a larger share of the overall decrease in income inequality attributable to the national tax and benefit system than in other EU8 countries (i.e. Slovenia, Poland, Hungary, and the Czech Republic – see Chart 10).[22] Further analytic work is needed to better-understand whether the

Chart 10. Contribution of tax and benefit systems in reducing income inequality



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

[20] A flat rate tax is a tax system with a constant rate applied to household income, typically with income below a statutorily determined level (that in turn depends on household demographics) exempt from taxation.

[21] For instance, Prime Minister Donald Tusk in Poland was recently quoted as saying that the ruling Civic Platform hopes to introduce a flax-tax by 2011 (Reuters, 29th April 2008); while Hungary's Socialist Party has consistently opposed the idea of a flat tax, a number of opposition parties are in favor of its introduction; when simplifying the tax code in Slovenia in 2006, the government eventually dropped the idea of introducing a flat tax rate in the face of strong political and public opposition. Finally, while the Czech Republic operates a progressive-rate tax system of individual taxation that differs from the flat-tax rate in neighboring Slovakia, the government has continued lowering the amount of tax paid by individuals through introducing a series of tax cuts since 1999.

[22] Among EU15 countries, the relative contribution of the national benefits systems are generally a bit lower than in the EU8 countries, and vary from a high of 46 percent in Belgium to only 27 percent in the United Kingdom.

progressivity of the direct tax system in the former group is mainly due to differences in composition of incomes (i.e. shares attributable to labor income, rental income, dividends and other earnings, benefits and transfers, etc.) 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.), as the answer to this question will have important bearing on the relative benefits and costs of introducing flat-rate taxation systems.

46. Another area where the findings of this paper may have important policy implications concerns regional policy in the European Union. As shown in this paper, prevailing levels of income inequality within EU countries are in general quite low by international standards. By contrast, inequality between EU countries is quite large. Thus, whether one thinks of inequality in Europe as being low compared to—for instance—the United States depends upon the perspective taken. At the level of each individual country, this is certainly true, but not so for the EU-overall: income disparities between Lithuania and Denmark are in fact much larger than between Mississippi and Connecticut.[23]

47. In the period 2007-2013, the EU has allocated 347 billion euros (over one-third of its budget) to transfers for regional policy with the objective of reducing economic and social disparities among member states. About four-fifths of the total earmarked resources are directed toward the "convergence objective"—i.e. to "promote growth-enhancing conditions and factors leading to real convergence for the least-developed member states and regions".[24] However, it is unlikely this objective can be met through fiscal means alone, at least not without increasing inter-country transfers far beyond what seems politically or administratively feasible at present. Instead, reducing economic disparities within the EU will require action on other fronts as well. The experience of the United States, with its highly mobile labor force and the important role this plays in helping to equalize incomes across different states, is again relevant. Clearly, greater labor mobility has an important role to play in reducing income inequalities within the European Union, though our analysis suggests that much of these welfare gains are likely to arise with greater labor mobility between rather than within countries.

[23] The poorest and richest countries / states in the two regions (excluding Luxembourg, Delaware, and the District of Columbia due to their unique economic status; their inclusion would not, however, alter the main point being made here.

[24] See http://ec.europa.eu/regional_policy/policy/object/index_en.htm. The other two main objectives of regional policy are to promote (i) Regional competitiveness and employment, and (ii) European territorial cooperation.

ANNEX 1: DATA SOURCES

EU-SILC data

48. The EU-SILC is an instrument aiming at collecting timely and comparable micro data on income poverty and social exclusion in countries of the European Union. This instrument is anchored in the European Statistical System, and aims to provide two types of data: (i) cross-sectional data pertaining to a given time or a certain time period with variables on income, poverty, social exclusion and other living conditions, and (ii) longitudinal data pertaining to individual-level changes over time, observed periodically typically over a four years period. The reference population of EU-SILC is all private households and their current members residing in the territory of the member states at the time of data collection. Persons living in collective households and in institutions are generally excluded from the target population, but in general the excluded population in each country is no more than 2 percent of the total national population. All 25 EU member states[25], along with Norway and Iceland, were covered in the 2005 and 2006 rounds.

49. Four main types of data are gathered in EU-SILC: (i) variables measured at the household level; (ii) information on household size and composition and basic characteristics of household members; (iii) income and other more complex variables termed 'basic variables' (education, basic labor information and second job) measured at the personal level, but aggregated to construct household-level variables; and (iv) variables collected and analyzed at the person-level 'the detailed variables' (health, access to health care, detailed labor information, activity history and calendar of activities'). This paper utilizes data from the 2005 and 2006 EU-SILC cross-sectional rounds, but not from the longitudinal component (which is not yet available in the public domain). The main EU-SILC variables used in our analysis are equivalized disposable income as well as data on taxes and benefits (see Box 1). Further details pertaining to the specific variables included in the micro data sets, as well as the specific sample selection procedures followed in each country covered in the survey, can be found in the EU-SILC user database descriptions for the respective years.[1]

EBRD-World Bank Life in Transition Survey

50. This paper also uses data for the EU8 countries from the 2006 Life in Transition Survey (LiTS), carried out between August and October 2006. This survey provides a snapshot of welfare of people in the ECA region. In each country, the questionnaire was administered to a nationally representative sample of 1,000 households using face-to-face interviews.[26]

51. The survey's main objective was to assess the impact of transition on people, and the questionnaire covered four main themes. First, it collected personal information on aspects of material well-being, including household expenditures, possession of various consumer durable goods. Second, the survey included measures of satisfaction and attitudes towards economic and political reforms and public service delivery. Third, the LiTS captured individual "histories" through

[25] Bulgaria and Romania were not then EU members. Data for Germany was not included in the databases we obtained from Eurostat. In addition, Cyprus, Norway, and Iceland have been excluded from the tables and figures in this paper.

[26] Please see EBRD, *Life in Transition, a Survey of People's Experience and Attitudes* May 2007, for a more detailed description of the survey as well as a summary of some of its main findings. The countries covered in the survey are Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Former Yugoslav Republic of Macedonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Moldova, Mongolia (not in ECA, but included because its an EBRD client country), Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Tajikistan, Turkey, Ukraine, and Uzbekistan.

transition—i.e. from 1989 to the present, especially key events and episodes that may have influenced their attitudes towards reforms, and collected information on individuals; family background, on their employment situation, and on coping strategies during transition. Finally, the survey also attempted to capture the extent to which crime and corruption are affecting peoples' lives, and the extent to which individuals' trust in other people and in state institutions has changed over time.[27]

52. The LiTS data set also includes several key questions of special interest for this paper. Respondents were asked to what extent they agreed with the statement: "The gap between the rich and the poor in this country should be reduced", with responses coded using a 5-point scale (1=strongly disagree, 5=strongly agree). In addition, respondents were also asked if they thought the state should be involved in reducing the gap between the rich and the poor (1=not involved, 2=moderately involved, and 3=strongly involved), the factors they felt were most important to succeed in life (1=effort and hard work, 2=intelligence and skills, 3=political connections, 4=criminal/corrupt ties, 5=other), and finally also about their opinions regarding the main reason why there are some people in need in the country (1=unlucky, 2=lazy/lack willpower, 3=injustice in society, 4=inevitable part of modern life, and 5=other).

[27] For more details on the LiTS as well as the preliminary survey findings, see Life in Transition: A survey of people's experience and attitudes, European Bank for Reconstruction and Development, London, 2007.

ANNEX 2: PUBLIC SUPPORT FOR REDISTRIBUTION

53. To better understand the observed variation in level of public support for government involvement in redistribution, we apply an ordered probit model to the LiTS data to analyze respondents' expressed level of support for state involvement in reducing the income-gap between the rich and poor, according to the following model specification:

$$y_i^* = \beta' x_i + \varepsilon_i$$

54. We do not observe y_i^* directly, but rather only observe whether $y_i =$ 1, 2, and 3 if $\alpha_{j-1} < y_i^* < \alpha_j$ (j= 1, 2, and 3 respectively)—i.e. the responses are "Not involved", "Moderately involved" and "Strongly involved" respectively. A relatively parsimonious set of factors that we think influence the level of support for redistribution of the respondent is summarized in the table below.

Variable	Obs.	Mean	Std. Dev.	Min	Max
Govt_role	8,001	2.55	0.61	1	3
Lnpcexp	7,988	8.98	0.66	4.08	11.14
Unjust	8,002	0.38	0.49	0	1
Crim_corr	8,002	0.27	0.44	0	1
Diff	8,002	-0.82	2.08	-9	9
Urban	8,002	0.63	0.48	0	1

Govt_role: Do you think the state should be involved in reducing the gap between the rich and the poor? coded as 1 = Not involved, 2 = Moderately involved, 3 = Strongly involved.
Lnpcexp: (Log) per equivalent adult (using OECD scales) annual expenditures (in PPP$)
Unjust: Dummy variable indicating response to "Why are some people in need today?" is "injustice in our society" vs. "because they are unlucky", "laziness / lack of willpower", "inevitable part of modern life", or "other".
Crim_corr: Dummy variable indicating response to "Which of the factors in the list is the most important to succeed in life in this country now?" is either "Criminal/corrupt ties" or "Political connections" as opposed to "effort and hard work", "intelligence and skills", or "other".
Diff: Change in self-perceived decile group ranking between 1989 and present
Urban: Dummy variable indicating respondent lives in urban areas

55. The results of the ordered probit regression are as summarized below

```
Ordered probit regression                         Number of obs   =   7987
                                                  LR chi2(12)     =   983.18
                                                  Prob > chi2     =   0.0000
Log likelihood      = -6897.2434                  Pseudo R2       =   0.0665
Dependent variable: Govt_role
```

	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
Lnpcexp	-.141359	.0226207	-6.25	0.000	-.1856947	-.0970233
Unjust	.3861695	.0284654	13.57	0.000	.3303784	.4419607
Crim_corr	.2399325	.0292308	8.21	0.000	.1826413	.2972238
Diff	-.0616844	.0064181	-9.61	0.000	-.0742636	-.0491052
Urban	-.1211775	.0282053	-4.30	0.000	-.1764589	-.065896
Czech Republic	(omitted country)					
Poland	.0673337	.0398107	1.69	0.091	-.0106939	.1453612
Slovakia	.3627363	.0597159	6.07	0.000	.2456953	.4797772
Estonia	.5002743	.1050907	4.76	0.000	.2943003	.7062482
Hungary	.5140795	.0515831	9.97	0.000	.4129785	.6151804
Latvia	.6754206	.0882011	7.66	0.000	.5025497	.8482916
Lithuania	.7862243	.0772582	10.18	0.000	.6348009	.9376476
Slovenia	1.019498	.0980691	10.40	0.000	.8272863	1.21171