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Redistribution

HOW VALUES, VOTERS AND INSTITUTIONS SHAPE THE SECONDARY DISTRIBUTION OF INCOMES

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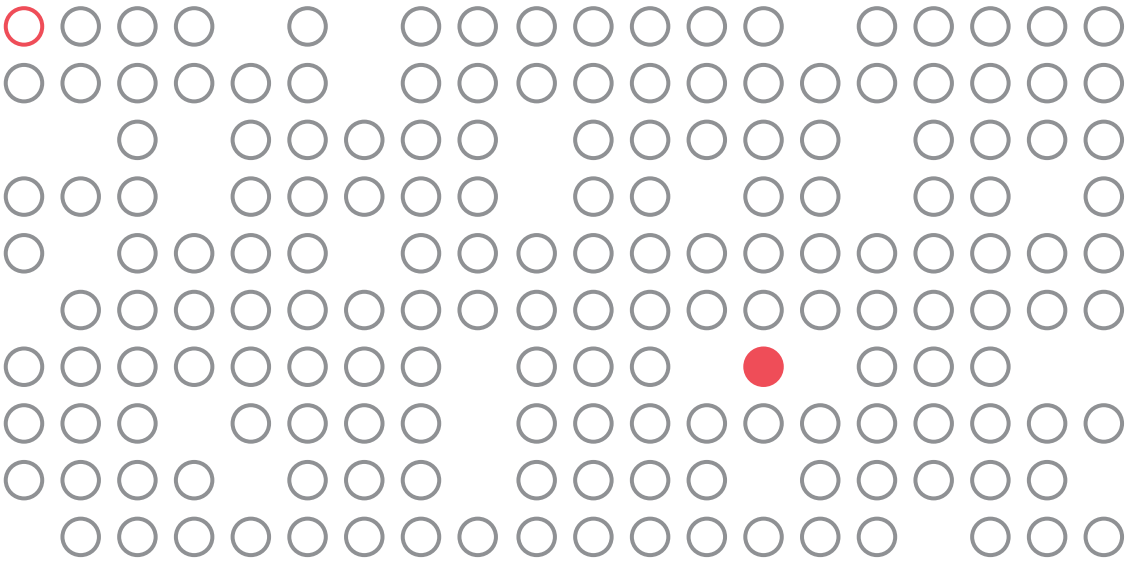

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Redistribution

How values, voters and institutions shape the secondary distribution of incomes

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Framework paper **Redistribution**

How values, voters and institutions shape the secondary distribution of incomes

This is a previously unpublished paper that provides the thesis with an overall theoretical context.

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Redistribution

How values, voters and institutions shape the secondary distribution of incomes

Malte Luebker

Why does the extent of fiscal redistribution differ so dramatically across countries and time? This thesis looks at the role that values, voters and institutions play in the complex causal chain that leads from inequality to redistribution. It argues that the institutions of modern democracies have been relatively successful in aligning public policy with voters' preferences for redistribution. Understanding how these preferences are formed therefore holds part of the explanation for policy divergence across the developed world. Crucially, preferences for redistribution cannot be reduced to the individual cost-benefit calculations. Instead, they draw on people's evaluation of income inequality: when electorates perceive income differences as too large, they are also more likely to call on policy-makers to reduce them through the tax and transfer system. Whether or not inequality is perceived as 'too large' is, of course, an inherently value-based judgement; it relies on normative concepts of what would constitute a fair and just distribution of incomes. Purely economic models of voting fail to account for systematic differences in inequity aversion between different types of welfare states, and hence arrive at unreliable predictions. A meaningful analysis of redistribution therefore has to take account of voters' value orientations, how they influence their preferences, and how democratic institutions aggregate them into policy.

To make this argument, this thesis engages with a large body of literature from across the social sciences. This introductory framework paper systematizes how the literature has sought to conceptualize the causal links. It also translates an influential macro-level proposition that connects greater inequality to more redistribution into a model of system behaviour (Coleman, 1990). This makes the micro-foundations that underpin the model explicit and allows engaging with them in a systematic manner. This is the main objective of this thesis. It consists of four papers (see Table 1). Between them, they test the macro-level proposition and the micro-foundations by tracing each of the steps involved. The first paper provides a comprehensive

introduction to the topic, defines key terms, and introduces measurement approaches (Luebker, 2015; henceforth cited as Paper A).[1] The second paper tracks the causal paths from macro-level inequality to voters' evaluation of income differences, and how these in turn influence support for redistribution (Luebker, 2007; Paper B). The third paper discusses how the dependent variable, redistribution, should be defined and then tests both the macro-level proposition that links inequality to redistribution, and the micro-to-macro transition from support for redistribution to actual redistribution (Luebker, 2014; Paper C). Finally, the fourth paper investigates whether replacing the independent variable, the extent of inequality, by a measure for the structure of inequality offers a feasible alternative (Luebker, 2018; Paper D).

Table 1. List of papers that are part of the cumulative thesis

Paper A.	Redistribution policies
Paper B.	Inequality and the demand for redistribution: Are the assumptions of the new growth theory valid
Paper C.	Income inequality, redistribution, and poverty: Contrasting rational choice and behavioral perspectives
Paper D.	Can the structure of inequality explain fiscal redistribution? Revisiting the social affinity hypothesis

Note: For full bibliographical references, please see cover pages for each chapter.

This framework paper will provide an overall theoretical context and show how the parts of the thesis complement each other and, as a whole, form a coherent research project. Its starts in Section 1 by introducing the macro-level proposition that greater inequality leads to more redistribution, an idea that was first advanced by Romer (1975) and Meltzer and Richard (1981) in the tradition of classical rational choice. The same section will also introduce Coleman's (1990) model of system analysis that will be used as a theoretical foundation to structure the remainder of this framework paper. Sections 2 to 4 then outline how the independent and dependent variables – inequality and redistribution – can be defined, and whether the macro-level proposition that connects them holds. Following this, Section 5 discusses the reduced-form relationship between inequality and support for redistribution and Sections 6 to 8 then turn to each of the three elements of micro-foundations. Finally, Section 9 summarizes the main findings and concludes by highlighting the complexity of each of the steps that is involved in the long causal chain from inequality to redistribution.

[1] Details on prior publication are and full bibliographical references are found on the cover pages for each chapter.

1. Macro-level propositions and their micro-foundations

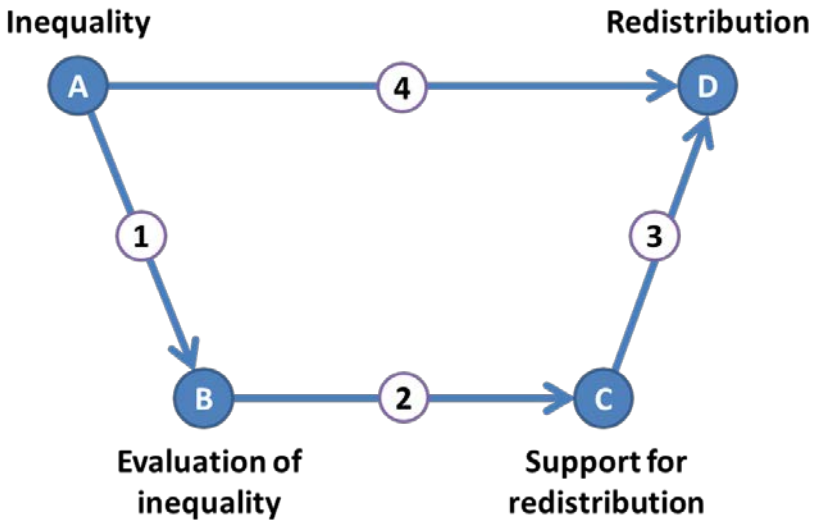
Much of the literature on redistribution shares the notion that initial inequality holds the key to explain differences in redistribution. The most prominent example is the public choice model developed by Romer (1975) and Meltzer and Richard (1981) that has become a central reference point for the literature. Meltzer and Richard propose a simple model of redistribution where all individuals are taxed at a linear tax rate by government and the proceeds are redistributed as equal lump sums among all citizens. Following Hotelling (1929) and Downs (1957), they argue that the median voter casts the decisive vote and hence her or his preference for redistribution is decisive in democracies. Assuming that this voter strives to maximize her or his utility (as measured by material gain), they can then show that the median voter's choice of the tax rate depends on two parameters: median pre-tax income (which, multiplied by the tax rate, gives the median voter's tax payment) and mean pre-tax income (which, multiplied by the tax rate, gives her lump-sum receipt). However, as Romer (1975) had argued before, there is a constraint that keeps the tax rate from approaching unity: The higher the tax rate, the more people will prefer leisure over work. This shrinks the tax base, exposing an external constraint. The rational voter anticipates this effect and accordingly adjusts her preferred tax rate downwards (Meltzer and Richard, 1981: 918f.).

This gives rise to the conclusion that "[w]hen the mean income rises relative to the income of the decisive voter, taxes rise, and vice versa" (ibid.: 924). Since tax preferences are ordered by income, the decisive voter is the median voter (and her income is equivalent to the median income). In other words, the higher the ratio of mean income over median income is, the higher taxes and lump-sum benefits will be. Conveniently enough, the ratio of median over mean income is a common metric for inequality. Meltzer and Richard (1981) therefore propose that higher initial inequality will entail greater subsequent redistribution. This intuitive argument has become the most influential macro-level proposition in the literature on redistribution (henceforth RMR model, after Romer / Meltzer and Richard). It is not only a logical conclusion from a public choice perspective, but also intuitive from a broader stand-point of public policy. It implies that a greater intensity of the problem (an uneven primary distribution of income perceived as problematic) leads public policy to employ a bigger dose of the remedy (redistribution that produces a more egalitarian secondary distribution of income). The question is, of course, whether this simple and elegant model holds and provides us with an adequate understanding of the political dynamics of distributional conflict.

To engage with the macro-level proposition in a systematic manner, it can be translated into a model of system behaviour that makes its micro-foundations explicit (see Coleman, 1990: Ch. 1). Figure 1 does this and links the independent variable inequality (Node A) and the dependent variable redistribution (Node D) both through a macro-level relationship (Arrow 4) and a more complex micro-level mechanism. The macro-to-micro transition (Arrow 1)

captures the situational mechanisms through which individuals perceive and evaluate income inequality (Node B). The micro-to-micro transition in Arrow 2 represents the action-formation mechanism that links these perceptions to support for redistribution (Node C). Finally, the transformational mechanism in Arrow 3 aggregates these preferences into the macro-level outcome (for terminology, see Hedström and Ylikoski, 2010: 59f.).

Figure 1. Diagram of the macro- and micro-level propositions that link income inequality to fiscal redistribution



Source: Own adaptation, based on Coleman (1990: 10) and Hedström and Ylikoski (2010: 59).

Using Coleman's (1990) approach as an analytical frame naturally raises the question in how far this thesis accepts its underlying axioms, and how it positions itself towards methodological individualism (ibid., 5). In agreement with Coleman, this thesis starts from the premise that the macro-level link from income inequality to fiscal redistribution needs a solid micro-foundation. It also shares one of the assumptions made by him and rational choice theory more generally: people, or more precisely voters, act purposefully to achieve their objectives (ibid.: 16). However, this thesis does not follow the classical rational choice literature in one important respect, namely in making the *a priori* assumption that humans are motivated by narrowly defined utility maximization. The framework paper instead argues in Section 6 that there are three main alternatives to explain human preferences for redistribution: (i) narrowly defined material gain, as assumed in the dominant rational choice model; (ii) insurance motives, which have been discussed as a distinct rationale in the literature; and (iii) altruism and the pursuit of social justice. So rather than fixing these crucial aspects of the action-formation mechanism by assumption, the objectives that humans pursue become a central analytical question that motivates Papers B and C.

Placing this thesis within the same broad frame of reference – as opposed to, say, adopting a structuralist perspective – also allows criticising the RMR model from within. If all the

assumptions of the RMR model are accepted, then how should it be tested against data? How should the dependent macro-variable be defined? Do the conclusions hold when we allow for other motivations besides material gain? Organizing the canonical rational choice model as a question of system behaviour also allows contrasting it with alternative explanations that focus on different sections of the (complex) causal chain, exposing weaknesses of the underlying assumptions. From within the rational choice framework, these are entirely unproblematic: voters are fully informed (Meltzer and Richard, 1981: 924), the micro-to-micro transition is a simple utility maximization problem (ibid.: 920) and the transformational mechanism in Arrow 3 depends only on majority rule (ibid.: 916). While the transitions detailed in Figure 1 are perfectly consistent with the logic of the RMR model, the assumption of perfect information explains why Meltzer and Richard (1981) and much of the economic literature that followed them do not recognize the situational mechanism (Arrow 1) as a separate step that precedes the action-formation mechanism (Arrow 2). Hence, the literature often departs from the logic of Figure 1 and models support for redistribution as a direct function of inequality, combining Arrows 1 and 2 into a single step. As is argued in more detail in Paper B, the failure to consider the cultural specificity of the situational mechanism is a crucial weakness.

Table 2. Structure of the thesis and links to the analytical framework

Paper A.	Introduction to the measurement of inequality and redistribution (Node A and D)
	Discussion of the theoretical justifications for redistribution
	Comparative summary of recent trends in redistribution
Paper B.	Test of the reduced-form relationship from Node A to Node C
	Test of the macro-to-micro transition (Arrow 1)
	Test of the micro-to-micro transition (Arrow 2)
Paper C.	Deduction of the valid specification of redistribution (Node D) from RMR model
	Test of the micro-to-macro transition (Arrow 3)
	Test of the macro-level proposition (Arrow 4)
Paper D.	Replication of an alternative macro-level proposition (Arrow 4)
	that redefines Node A as “Structure of inequality” (instead of “Level of inequality”)

Note: For full bibliographical references, please see cover pages for each chapter.

The remainder of this framework paper uses Figure 1 as a heuristic device to organize the discussion of the broader theoretical and empirical literature on redistribution. The structure given by Figure 1 is also useful to demonstrate how the parts of this thesis contribute to the literature and complement each other (see Table 2). This is done cognizant of the fact that this analytical framework achieves clarity by sacrificing complexity. Importantly, Figure 1 is an

acyclic graph that starts at inequality and ends at redistribution. This presentation has three main shortcomings: (1) It treats the inequality in primary income distribution (Node A) as exogenous, something that we know to be wrong. Public policy does not only concern redistribution, but importantly also shapes the distribution of market incomes (Bradley et al., 2003; see also Paper D). (2) Likewise, the diagram does not allow for a feedback loop that runs from redistribution (i.e. system output) back to shared beliefs and cultural norms that shape the situational mechanisms of the macro-to-micro transition (Arrow 1). The component parts of this thesis therefore, at times, depart from the abstraction implied by Figure 1. For example, Papers A and D argue that public policy, notably labour market regulation, shapes the primary distribution of incomes (which then becomes endogenous to the political system). Paper B borrows from Easton (1965) to argue that successful welfare states generate support for redistribution by shaping social justice orientations, whereas Paper C uses the notion of "embedded preferences" (Brooks and Manza, 2007) to make a similar argument. (3) While this thesis argues that the macro-to-micro transition and the micro-to micro transition are best analysed separately, this position is (as mentioned above) not universally shared in the literature on redistribution. In order to reflect the contributions that model support for redistribution (Node C) as a direct function of the macro-level phenomenon inequality (Node A), the framework paper departs from the logical flow implied by Figure 1 to discuss results pertaining to the reduced-form relationship.

Before embarking on the detailed discussion of the public choice argument and its micro-foundations, it is useful considering briefly whether the endeavour is worthwhile. This concerns both the contribution of the thesis to the literature and its broader political relevance. Meltzer and Richard (1981) are of course fully aware of the limitations of their assumptions. Neither do they claimed that actual welfare states resemble the simplified version of the state used in their model (where inflation does not exist, governments provide no public goods, and their budget is always balanced; ibid.: 915). However, Meltzer and Richard do not propose their model as a mere thought experiment, but as an explanation for real-world phenomena (ibid.: 914f., 924f.). One could of course argue that their assumptions are so peculiar, and their conclusions so outlandish, that the RMR model is best ignored. There are, however, at least three reasons why their model of redistribution warrants discussion: Firstly, as far as classical rational choice theory is concerned, the underlying assumptions are widely shared and anything but extravagant (Green and Shapiro, 1996; Scott, 1999). Engaging with the details of the proposed causal links therefore holds lessons that extend beyond the study of redistribution. Secondly, the RMR model has been a central reference point for the literature on redistribution. Many of the subsequent contributions can be understood alternatively as attempts to extend and refine the model or as challenges to its basic premises. It is therefore a natural starting point to structure the discussion of the literature. Thirdly, having modified

Coleman's model of system analysis by relaxing one of its central assumptions, it provides a sufficiently general framework to accommodate an alternative understanding that emphasizes the roles that values, voters and institutions play in shaping redistribution.

The question how differences in redistribution emerge has also substantial political relevance, given the impact that tax and transfer systems have on social outcomes such as poverty (see the data assembled by Thewissen, Nolan, and Roser, 2016). If there is a quasi-automatic link between rising inequality and more redistribution, the RMR model could be interpreted as a hopeful message for those interested in equity and poverty eradication (Paper C: 134). There then is neither room for political agency nor the need for political debate since the logic of electoral competition reliably produces a more equitable secondary income distribution. This benign view of redistribution is of course contested. The new growth theory is one area of study where the debate on the beneficial or detrimental effects of inequality and redistribution has been particularly heated. A common point of departure is the stylized fact that higher inequality goes hand-in-hand with lower growth; the contentious aspect is how the two are causally connected. One side of the debate has built on the RMR model and argued that higher inequality first leads to more redistribution, and that more redistribution then depresses growth (Alesina and Rodrik, 1994). A similar argument is already contained in in Meltzer and Richard (1981) who, however, apply it in a more limited way to constrain the choice of the tax rate by the decisive voter. In other words, the novelty of this strand of the new growth theory is to append a second macro-level proposition to the existing RMR model. The other side of the debate has argued, often from the perspective of development economics, that inequality in itself is detrimental to growth. For instance, lower growth in more unequal countries is attributed to capital market imperfections and subsequent under-investment by the poor (Aghion, Caroli, and García-Peñalosa, 1999: 1616). Depending on which side one takes, redistribution has the potential to foster growth by reducing income inequality – or it is itself the reason why inequality holds back growth (see also Ostry, Berg, and Tsangarides, 2014; Thewissen, 2014; Jäntti, Pirttilä, and Rönkkö, 2016).

2. Inequality as an explanatory macro-level variable (Node A)

There are a number of conceptual choices that researchers face when measuring inequality (Node A), the main explanatory macro-variable of the RMR model and alternative explanations (see also Paper A: 218). The first choice concerns the *income concept*. The logic of Figure 1 implies that income inequality needs to be measured before fiscal redistribution has taken place (Milanovic, 2000: 370). In other words, the income concept for the independent variable must be market incomes (a terms that will be used interchangeably with primary or factor incomes). While this seems like a self-evident point, early contributions that extended the RMR model to study the impact of inequality on growth paid little attention to

underlying income concepts (see Alesina and Rodrik, 1994).[2] Using post-tax and post-transfer incomes (a term used synonymously with secondary or disposable incomes) to explain redistribution leads to obvious endogeneity problems: all else being equal, more redistribution should be associated with greater equality in disposable incomes. A related question is whether to use earnings (i.e. labour income) or total household incomes (i.e. primary incomes from labour and capital). While the RMR model makes the assumption that individuals receive only labour income (Meltzer and Richard, 1981: 917f.), real-world distributional conflict concerns income from all sources (including from capital). Hence, as argued in greater detail in Paper D, the relevant income concept is total market household income.

A second choice is whether to capture the *level* or the *structure of inequality*. The overwhelming majority of the literature has settled on the level of inequality, generally using the Gini coefficient as the preferred metric. This is in contrast to the RMR model which, as noted above, refers to the ratio of mean over median income. However, this substitution is unproblematic since the latter is monotonically related to the Gini coefficient as long as the distribution of incomes is lognormal (see Aitchison and Brown, 1957; see also Paper C: 137). The lognormal assumption is derived from the law of proportionate effect and is generally seen as an uncontroversial approximation for the distribution of incomes (see Lopez and Servén, 2006).[3] By contrast, the measure for the *structure of inequality* proposed by Lupu and Pontusson (2011) relies on departures from the lognormal pattern and maps relative income distances from of the median income vis-à-vis the poor and the affluent in a metric called "skew" (for details, see Paper D).

The third major choice concerns the *reference population*. Whereas a comprehensive coverage of the population is traditionally seen as a hallmark of data quality (Deininger and Squire, 1996: 568), some authors have deliberately restricted their data to households headed by a person within the main working-age bracket (Bradley et al., 2003: 208; Kenworthy and Pontusson, 2005: 449). The main argument made in favour of the latter approach is that the inclusion of pensioners "distorts the pre-tax and [pre]-transfer inequality" (Bradley et al., 2003: 208) in countries with public pension schemes. Here, people make fewer private provisions for retirement and frequently have low market incomes in old age, arguably

[2] Alesina and Rodrik (1994) relied on Jain (1975) and Fields (1989) for their income distribution data. Jain (1975: xi) compiled data without stating the income concept, advising readers to consult the original sources for details. However, the World Income Inequality Database (WIID 3.4) shows that Jain's data included observations that variously referred to gross earnings, net incomes and gross incomes, along with data of unknown income concept. The same applies to Fields (1989) who, moreover, also included data based on consumption (see UNU-WIDER, 2017).

[3] Note, however, that Paper D argues that the earnings distribution departs for the lognormal pattern where minimum wages and other labour market institutions compress the lower part of the earnings distribution.

inflating both initial inequality and subsequent redistribution. The main argument in favour of including the elderly is that public pension systems are politically contentious and have substantial redistributive impacts. As Mahler and Jesuit (2006) argue,

> "it is in our view questionable simply to exclude from consideration the single social group that has made the greatest income gains over the last half century as a result of state redistribution, having been transformed from one of the most deprived groups in society to a group experiencing average levels of economic well-being" (ibid.: 499).

In a sense, the debate boils down to whether the effects of pension systems are noise or signal. For reasons discussed in greater detail in Paper C (144f.), this thesis sides with the Mahler and Jesuit (2006) and treats pensions as a substantively interesting feature of welfare states (see also Korpi and Palme, 1998: 678f.). Hence, it uses the entire population as a reference when measuring income inequality in Papers A, B, and C. However, Paper D departs from this approach to stay in line with the measurement preferences in Lupu and Pontusson (2011: 320).[4]

3. Redistribution as a dependent macro-level variable (Node D)

Apart from defining the explanatory macro-level variable, empirical work on the relationship between inequality and redistribution must also derive a theoretically valid measure for the main outcome variable (Node D). According to a common dictionary definition, to redistribute means to "alter the distribution of something".[5] Extending on this definition, Hicks and Swank (1984: 266f.) propose a typology of redistributive government interventions that encompasses all fiscal and regulatory policies that change the distribution of incomes. Under this concept, labour market regulation qualifies as 'direct normative redistribution' due to its (intended) distributive impacts. Further, given that the configuration of property rights and contract law has long-term distributive consequences, Hicks and Swank include them under the heading 'indirect normative redistribution' (for further examples, see Paper A: 214f.). Likewise, by affecting growth and employment, fiscal policies can have indirect distributive consequences. As argued in Paper A (214f.), policy choices can have substantial impacts on the primary distribution of incomes (both with regard to the functional distribution and the inter-personal distribution). However, the redistributive consequences of trade liberalization or labour market de-regulation are notoriously difficult to measure. The literature on redistribution has therefore mostly confined itself to quantifying the redistributive outcomes of *direct fiscal redistribution* through the tax and transfer system (including Hicks and Swank, 1984, themselves).

[4] Hence, it restricts measures of the independent and the dependent variable to the population to households with a household head in the main working-age bracket when measuring the structure of income inequality.

[5] See, for instance, http://www.merriam-webster.com/dictionary/redistribute.

If one takes the paper "A Rational Theory of the Size of Government" by Meltzer and Richard (1981) as a point of departure, the title offers an easy clue on how the dependent variable should be measured: as the *size of the government intervention* into the income distribution. Since Meltzer and Richard are concerned with the tax rate that is levied on incomes, a natural indicator would be the share of primary incomes that households pay in taxes and social contributions. Recall that under the RMR model, all proceeds from taxation are disbursed as lump-sum transfers, so the size of government could equivalently be captured by measuring the size of benefits (an approach used in de Mello and Tiongson, 2006). As Paper A (227ff.) explains in greater detail, data for flows in both directions between households and the state are available from the System of National Accounts (SNA).[6] Beginning with the 1993 revision of the SNA, they are compiled in the Secondary Distribution of Income Account (Account II.2). Consulting the data reveals that, contrary to the assumptions of the RMR model, the tax take of real welfare states exceeds the amount of benefits disbursed (Paper A: 227). A natural solution, proposed in Paper A (229), is to construct a composite indicator for the size of government by adding both measures (or, alternatively, averaging them). Although they provide the most intuitive way to measure the size of government from the perspective of households, the SNA data have rarely been used in the literature on redistribution – possibly due to the evolution of national accounting into a highly insular branch of economics that is "relatively inaccessible to outsiders" (Bos, 1997: 174).

Instead of capturing the size of government directly, the literature has measured redistribution in terms of the impact that taxes and transfers have on income inequality. This approach relies on comparing the Gini coefficient for secondary incomes (i.e. after taxes and transfers) to the Gini coefficient for primary incomes (i.e. before taxes and transfers). The absolute difference gives a measure that is commonly called *absolute redistribution*, while the proportionate reduction in inequality is known as *relative redistribution* (and can be obtained by dividing the absolute measure by the Gini coefficient for market incomes; for details, see Paper A: 217). Both measures have been used to test the predictions of the RMR model. A well-known study that uses the relative measure is Bradley et al. (2003: 206), whereas examples for studies that use the absolute measure include Kenworthy and Pontusson (2005: 458) and Ostry, Berg, and Tsangarides (2014: 15). The choice of measure is often *ad hoc* and relies on arguments such as that absolute measures are "easier to interpret than relative measures and also more substantively sensible" (Kenworthy and Pontusson, 2005: 450).[7] Even where the

[6] In line with a common practice, this thesis cites the SNA by giving the year of the revision and the number of the relevant paragraph in the corresponding SNA manual.

[7] They illustrate this argument by comparing Denmark and the United Kingdom, which both achieved a reduction of inequality of just under 0.11 Gini points through taxes and transfers (using the absolute measure). However, given that Denmark achieved this from a much lower initial Gini coefficient than the United Kingdom, the relative measure would indicate that the Danish welfare state achieved

RMR model is a reference (ibid.: 456f.), the literature has not discussed explicitly what theory implies for the specification of the dependent variable when undertaking a formal test.

Paper C fills this gap and argues that the lack of attention to detail is surprising: One of the key advantages of the RMR model (and classical rational choice more generally) is that the theory is mathematically precise in its implications. Indeed, Coleman (1990) justifies the narrow concept of utility maximisation as necessary for the "mathematical modelling and for the quantitative research which makes use of these models" (ibid.: 18). Section 2 of Paper C therefore deducts what the premises of the RMR model imply for the specification of the dependent variable. Recall that Meltzer and Richard (1981) argue that the (linear) tax rate preferred by the median voter rises as the ratio of median over mean income grows (see Section 1). Accepting all their model assumptions (and making the additional assumption that incomes follow a lognormal distribution), it can be shown that the tax rate is equivalent to relative redistribution (for details, see Paper C: 137). By contrast, within the RMR model, absolute redistribution should rise as a function of the Gini coefficient for market incomes even when the tax rate is held constant (ibid.). This implies that the dependent variable must not be specified as absolute redistribution when testing the predictions of the RMR model. Papers A, C and D therefore all use the relative measure for redistribution.[8] Paper A (221ff.) provides descriptive statistics for level differences across countries and trends in redistribution over time.

The size measure of government intervention and the relative and absolute measures for redistribution have a common shortcoming: they limit themselves to monetary flows, and hence exclude the *provision of public services* (see e.g. Bradley et al., 2003: 211). Yet, the public provision of free healthcare and education (or the lack of such provision) clearly influences individual welfare. Moreover, universal provision of such services has distributive impacts that are akin to lump-sum transfers in the RMR model.[9] Hence, the study of redistribution could be fruitfully extended to include non-cash benefits. While this point is almost universally acknowledged, measurement of tertiary incomes generally runs into severe problems (Paper A: 213). At the aggregate level, the SNA has extended the analysis of the redistribution process to the tertiary distribution under the Redistribution of Income in Kind Account (Account II.3; see also SNA-2008: 2.98-2.100). However, while the conceptual

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greater redistribution than its British counterpart. Kenworthy and Pontusson (2005: 467) conclude that "it seems unfair to 'penalize' the welfare state for the high level of market inequality in the United Kingdom". While such appeals to fairness are intuitively compelling, they are not a particularly convincing way to derive valid hypothesis tests from precise mathematical models.

[8] Paper B does not use redistribution as a dependent variable, but support for redistribution.

[9] Meltzer and Richard (1981: 915) themselves do not consider these but set that "[p]ublic goods are neglected".

framework exists, few countries have implemented it.[10] Measurement problems are even more daunting when it comes to household incomes, given the challenge of attributing consumption of public services to specific households and subsequently valuing these services. Hence, efforts to quantify this aspect of modern welfare states have remained as elusive as they are theoretically valid.

The three measures introduced above also have in common that they measure the outcome of government policy, rather than government output. As Castles (2011) has argued, this can be seen as an advantage since outcomes, and not outputs, are what matter to citizens. Likewise, from the perspective of the RMR model, this is unproblematic since the tax rate adopted by government (a policy output) can readily by substituted by relative redistribution (the outcome) as long as model assumptions are accepted (see Paper C: 137). However, it is potentially problematic when real welfare states diverge from the simplifying assumptions of the RMR model. Specifically, taxes are generally progressive (rather than linear) and transfers are targeted at households with low market incomes (and not disbursed in equal lump sums). This means that relative redistribution might automatically increase as market inequality grows, for instance when both are driven by upturns in unemployment. This automatic stabilization mechanism does not require any changes in underlying policy in response to shifting preferences of the median voter (the causal mechanism of the RMR model). Measuring policy outputs directly (and not outcomes) is one way to address this problem. To measure policy change and the progressivity of tax systems (see Ganghof, 2006), an accessible indicator is the top marginal tax rate on personal income from the OECD Tax Database (OECD, 2017). Regarding the generosity of transfer policies, the most frequently used sources are the Comparative Welfare Entitlements Dataset (Scruggs, Jahn, and Kuitto, 2014) and unemployment replacement rates from the OECD Tax-Benefit Model (OECD, 2007).

At times, the literature on redistribution uses another traditional indicator of the welfare state literature: social spending or social transfer expenditure (see e.g. Huber, Ragin, and Stephens, 1993).[11] The indicator neither captures the size of the government intervention into household incomes (since it omits taxes), nor does it capture the effect that transfers have on the income distribution. Given these drawbacks and the increasing availability of data on the distributive impact of taxes and transfers, the indicator has fallen out of favour in the literature on

[10] The SNA uses "adjusted disposable incomes" as the balancing item in the Redistribution of Income in Kind Account. It is equivalent to the more common term "tertiary incomes".

[11] The main current data-sources are the OECD's Social Expenditure Database (SOCX) and the IMF's Government Finance Statistics (GFS) (series "Expenditure by Function of Government").

redistribution.[12] In any case, Paper D uses social spending as an alternative dependent variable to test the robustness of results obtained on relative redistribution.

4. Testing the macro-level proposition (Arrow 4)

Having discussed the appropriate definitions for both of the macro-level variables, a natural next step is to ask whether the macro-level relationship between more inequality and greater redistribution holds (Arrow 4). Empirical proof for the existence of a positive association between inequality and redistribution is a necessary, but not a sufficient condition towards confirming the causal mechanisms proposed by the RMR model. Since it presents a universal model of human motivation and government responsiveness, its predictions should be valid both within and between countries. The crucial condition for the model to hold is majority rule,[13] and there are two parameters that drive change: shifts in the inequality of primary incomes[14] and (historically) the extension of franchise. Since all contemporary OECD countries have universal suffrage and majority rule, changes in primary income inequality remain as the only relevant explanatory variable to test the predictions of the RMR model.[15] This section will provide a brief overview of how the literature has examined the macro-to-macro link from inequality to redistribution, and which contribution this thesis makes in Paper C and D.

The first generation of empirical tests of the RMR model relied heavily on inequality statistics from secondary data compilations (hence mixing observations with different income concepts).[16] Many of the most influential early papers on inequality and redistribution did not actually test the macro-level proposition itself, but the extension of the RMR model that links higher inequality to lower subsequent growth (attributing the effect to distortions caused by redistributive taxes). Examples include Alesina and Rodrik (1994), Persson and Tabellini (1994) and Clarke (1995). They generally find that higher inequality and lower growth go hand-in-hand. Within this body of literature, Perotti (1996) was the first to test the link from

[12] One of the more passionate defences of the social expenditure indicator holds that it is "less bad than its reputation" (see Jensen, 2011).

[13] Meltzer and Richard (1981) are explicit that the build a model where "the size of government […] is determined by majority rule" (ibid.: 914). Their application of the median voter theorem does not presuppose a majoritarian electoral system, although some authors have interpreted this as an implicit condition (e.g. Houle, 2017: 3). See also the discussion in Section 8.

[14] Meltzer and Richard (1981) use productivity, which corresponds to primary incomes if wages reflect productivity (a common but controversial assumption) and there are no capital incomes (from which the RMR model abstracts).

[15] Note, however, that some contributions to the new growth literature extended the argument to non-democracies (Clarke, 1995: 415). See also the discussion in Section 8.

[16] The most frequently used sources are Jain (1975), Fields (1989), Deininger and Squire (1996) and later the World Income Inequality Database (WIID) maintained by UNU-WIDER (2017).

inequality to redistribution, using both social spending and direct measures for tax policy as the dependent variable. His results upset the prevailing consensus: He found a "very weak, or even non-existing, negative relationship between equality and fiscal variables" and, contrary to expectations, also a "positive association between fiscal policy variables and growth" (ibid.: 172). Likewise, de Mello and Tiongson (2006) found a negative association between inequality and redistributive government spending, measured alternatively as government transfers to households from the SNA and as social spending from the IMF's Government Finance Statistics (GFS).

Given the shortcomings of the inequality data from secondary sources (Atkinson and Brandolini, 2001), the second generation of empirical papers has turned to micro-data from household surveys. By far the most widely used source for cross-national studies is the Luxembourg Income Study (henceforth LIS). The LIS harmonizes household income datasets and makes them accessible to researchers. The data have the key advantage that they allow extracting measures for primary and secondary income inequality that are in line with the theoretical requirements outlined in the two preceding sections. The first large and rigorous test of the macro-level proposition based on the LIS is Milanovic (2000). He uses the Gini for factor incomes as the explanatory variable and runs a set of fixed-effects regressions, finding that greater inequality is associated with a greater gain in the income shares of the bottom half and the bottom quintile (ibid.: 384). Since the regressions refer to changes within countries and do not control for cyclical effects, one cannot infer whether the association is due to automatic stabilization effects or due to policy changes made in accordance with the shifting preferences of the median voter. Milanovic (ibid.: 391) points to another oddity in his data, namely that redistribution generally leaves the median voter worse off (only the three lowest deciles gain in absolute terms). Against the assumptions of the RMR model, tax and transfer systems apparently do not maximize the utility of the median voter. Milanovic (ibid.: 395f.) advances two potential explanations, namely that the preferences of the median voter also reflect insurance motives (see Section 7 below) and that the process through which preferences are aggregated diverges from the median-voter model (see Section 8 below).

Table 3. Results for the macro-link from inequality to redistribution obtained by selected papers based on Luxembourg Income Study (LIS)

Study	Definition of inequality (independent variable)	Definition of redistribution (dependent variable)	Number of observations	Model	Result
Milanovic (2000)	Factor income inequality (Gini) (market income), entire population	Change in the income shares of the bottom half and the bottom quintile	79*	Fixed effects, controls for elderly population but not for economic cycle	Positive relationship
Kenworthy and Pontusson (2005)	Market inequality (Gini), main working-age bracket (25 to 59 years)	Absolute redistribution, main working-age bracket (25 to 59 years)	60	Scatter plots for between and within correlation / pooled regression without controls for economic cycle	No strong pattern between countries, but strong positive correlation for within countries / Positive relationship
Iversen and Soskice (2006)	Market inequality (Gini), main working-age bracket (25 to 59 years)	Relative redistribution, main working-age bracket (25 to 59 years)	47	Structural model for within-country changes, controls for unemployment and female LFPR	Negative relationship
Mahler and Jesuit (2006)	Market inequality (Gini), entire population	Absolute redistribution, entire population	59	Analysis of mean by LIS wave / pooled regression (without inequality)	Descriptive statistics only / unemployment and institutional-political variables explain redistribution
Mahler (2008)	Market inequality (Gini), entire population	Absolute redistribution, entire population	59	Pooled regression, no controls for economic cycle, control for elderly population in second model	Positive relationship
Kenworthy and McCall (2008)	Market inequality (Gini), entire population	Benefit generosity (four different indicators)	Time-series for eight countries	Descriptive comparison of within-country changes	No consistent relationship
Lupu and Pontusson (2011)	Earnings inequality (P90/P10 ratio), full-time full-year employees	Relative redistribution, main working-age bracket (25 to 59 years)	77*	LDV model with controls for economic cycle / Fixed effect regression without controls	No effect of earnings inequality on redistribution
Scervini (2012)	Market inequality (Gini), entire population	Relative redistribution, entire population	104	Fixed-effects regression / fixed-effects regression with controls for economic cycle; no control for elderly population	Positive relationship
Luebker (2014)	Market inequality (Gini), entire population	Relative redistribution, entire population	110	Pooled regression / between and with controls for unemployment and elderly population	No consistent relationship
Houle (2017), Annex	Market inequality (Gini), population not specified	Absolute redistribution, population not specified	111	Pooled regression, with control for elderly population, no controls for unemployment	Positive relationship

* Includes some net and/or mixed datasets (i.e. with insufficient information on pre-tax, pre-transfer income) form the LIS database that were disregarded by other studies.

Note: All cited studies derive their dependent variable from the LIS Database.

With the growth of the LIS database, other authors have revisited the macro-link between inequality and redistribution from time to time (see Table 3). Kenworthy and Pontusson (2005) find a consistent within-country association between market inequality and the absolute measure for redistribution,[17] limiting observations to households with a head in the main working-age bracket. They stop short of seeing their results as a confirmation of the RMR model (ibid.: 456), and argue that changes in employment – and not in underlying policy – are a likely explanation for within-country variation in both the dependent and independent variable. Mahler and Jesuit (2006: 488) cite the arguments made in Kenworthy and Pontusson (2005) in favour of defining the dependent variable as 'absolute redistribution', and present descriptive statistics that are broadly supportive of the idea that both inequality and redistribution have grown alongside each other from 1980 to 2000 (ibid.: 496ff.). However, when explaining changes in redistribution in a regression analysis, they do not include initial inequality as an independent variable. One important finding is that both cyclical effects (measured by unemployment) and political variables (voter turnout; Hicks's measure of neo-corporatism) are predictors for fiscal redistribution. Mahler (2008) expands on this and finds that market inequality is a significant predictor for absolute redistribution among the entire population in a pooled regression. However, given that he is primarily interested in the role of electoral turnout, he does not further investigate the confounding effect of the economic cycle (which drives changes in both inequality and redistribution). Scervini (2012) obtains a similar result in a fixed-effects model that remains robust when GDP growth, unemployment and institutional-political variables are entered. While this goes some way towards controlling for the confounding effects of the economic cycle, he does not consider whether the share of the elderly population drives both inequality and fiscal redistribution. Conversely, Houle (2017: Annex Table A1) controls for the share of the elderly population, but not for unemployment. He finds a positive correlation between inequality and absolute redistribution, both when using LIS data and the Standardized World Income Inequality Database (SWIID).

Iversen and Soskice (2006) use a natural approach to address omitted variable bias: they control for GDP per capita, female labour force participation and unemployment when estimating the effect of inequality on redistribution. Since they limit observations to the main working-age bracket, they do not need to control for the share of the elderly population. In contrast to the expectations of the RMR model, they now find a *negative* effect of inequality on relative redistribution in the working-age population (ibid.: 174). However, the coefficient on inequality drops from significance (and switches sign) when they also add political-institutional variables to their model. In any case, their analysis provides no support for the macro-link hypothesized by the RMR model. Kenworthy and McCall (2008) use another

[17] They rely mainly on scatter plots, rather than on econometric modelling.

strategy to side-step the confounding effect of the economic cycle: they operationalize the dependent variable in terms of policy outputs. As argued above, this is a valid approach to test the prediction of the RMR model that governments change their tax rate *t* when inequality rises (see Section 3). Hence, they look at the link from market income inequality to the intended generosity of social programmes in eight OECD countries. Their largely descriptive analysis reveals that market inequality generally increased, but that benefit generosity rose only in Italy, while it remained largely unchanged in two countries (Australia and Norway) and was cut back to different degrees in Sweden, Germany and the United States.[18]

In a nutshell, five of the studies that perform a formal test of the macro-level relationship show a positive relationship between inequality and redistribution. While these results could be read as broadly in line with the RMR model, arguably none of them provides a valid hypothesis test. Firstly, three out of the five studies measure redistribution as the absolute change in the Gini coefficient (Kenworthy and Pontusson, 2005; Mahler, 2008; Houle, 2017: Online Annex Table A1). As argued in Paper C and in Section 3 above, when accepting the assumptions of the RMR model, absolute redistribution is an invalid specification of the dependent variable since it should grow as a function of inequality even without any change in policy. Secondly, all of the five studies are vulnerable to omitted variable bias. The regression models in Milanovic (2000), Kenworthy and Pontusson (2005), Mahler (2008) and Houle (2017) all lack controls for the labour market effects of the economic cycle (which influence both dependent and independent variable); Scervini (2012) fails to control for the share of the elderly population (while using data that include the elderly). Most of the authors present cautious interpretation of the results or, as Kenworthy and Pontusson (2005), explicitly argue that the relationship is endogenous. Tellingly, the two papers that use adequate strategies to address endogeneity find no positive macro-level relationship between inequality and redistribution (Iversen and Soskice, 2006; Kenworthy and McCall, 2008).

Paper C (138ff.) further clarifies why the literature, despite using the same data source, has reached varying conclusions on the link between inequality and redistribution. Following Mahler and Jesuit (2006: 499), it uses data for the entire population to capture inequality and redistribution, specifying the dependent variable as relative redistribution (see Section 2 and 3). A regression on the pooled data shows no correlation between inequality and redistribution, regardless of whether the full dataset is used or the sample is restricted to OECD countries (Paper C: 141). The same finding emerges in a between-effects model, i.e. a regression on country means. Since the relationship postulated by the RMR model should hold universally and is not conditional on any conditions other than majority rule, Paper C (140) does not add any control variables. However, the null finding could plausibly be due to

[18] A mixed pattern across different benefit types was observed in Canada and the United Kingdom.

institutional variations that obscure the true relationship (ibid.: 140). Fixed effects (FE) are the standard approach to control for unobserved unit heterogeneity. When FE models are used (Model 3 in Paper C), they indeed produce a strong and highly significant within-country relationship between inequality and redistribution. While Scervini (2012: 537)[19] accepted a similar finding as evidence for the redistribution hypothesis ("more inequality leads to more redistribution"), Paper C considers whether the relationship is driven by omitted variable bias. It argues that demographic change and fluctuations in unemployment could be common causes behind within-country changes in inequality and redistribution. Model 4 therefore introduces two potential confounders as control variables, the unemployment rate and the share of the population aged 65 years and above. Both turn out to be highly significant predictors of redistribution, while the coefficient on market inequality drops from significance. It concludes that "within-country changes in redistribution offer no convincing support for the Meltzer and Richard hypothesis" (Paper C: 142).[20]

The literature has discussed the failure of the median voter to tax the rich as the "Robin Hood paradox" (Lindert, 2004). Lupu and Pontusson (2011) propose to solve it with a radical re-interpretation of the macro-level relationship between inequality and redistribution: they argue that the "structure of inequality [matters], not the level of inequality" (ibid.: 316). In their view, the relative income distance of the middle class towards the poor and the affluent (measured by skew) shapes their social affinity and their electoral allegiances, and ultimately government policy. The micro-foundations of the social affinity hypothesis thus depart from the narrow concept of individual utility maximization that is at the heart of the RMR model. Instead, they are driven by parochial altruism, or "altruism bounded by perceptions of common group membership or shared experience" (ibid.: 318). Their work has been lauded as a "significant contribution to the literature on redistribution" (Dimick, Rueda, and Stegmueller, 2017: 414) and been widely cited. This is not surprising, given the political salience of the theory in a context of growing income polarization and the finely textured theoretical argument made in the paper (see Paper D: 2f.). Last but not least, Lupu and Pontusson (2011) undertake a complex analysis that shows that redistribution co-varies with skew in the earnings distribution (their preferred measure for the structure of inequality). In their view, the findings amount to "robust evidence in support of the core hypotheses generated by this theory" (Lupu and Pontusson, 2011: 332).

[19] Scervini (2012: 545) obtains a coefficient of 0.585 (significant at the 0.01-level) that is virtually identical to the coefficient of 0.584 in Model 3a of Paper C (141).

[20] A replication on the current version of the LIS database leads to the same results: differences in market inequality cannot explain differences in redistribution between countries, but at first appear to be an excellent predictor for within-country changes in redistribution. The effect vanishes when controlling for unemployment, male labour force participation and the share of the elderly population. The same holds when using de-trended data (own analysis; results are available on request).

Given the sophistication of the econometrics in support of the social affinity hypothesis, the empirical foundations have so far not been questioned (for a partial exception, see Alt and Iversen, 2017: 22). Paper D devotes itself to this task, leading to three central findings: (1) Skew in the earnings distribution and redistribution are both outcomes of political processes and institutions. Namely, relative earnings differentials can be traced back to the influence of labour market regulation. This gives rise to endogeneity since governments that intervene heavily into labour markets are also more likely to redistribute incomes. (2) In addition, skew in the earnings distribution is not a valid measure for relative income distances, the concept of theoretical interest. Earnings and incomes diverge not only with respect to income concepts (see Section 2 above), but implicitly also regarding the reference population (full-year full-time wage earners vs. the entire population). Excluding those outside of full-time employment from the analysis of distributional conflict is an important omission since welfare states engage in significant redistribution from those in employment to those who are not. (3) This supports the argument that the predictions of the social affinity hypothesis should be tested against data that, as postulated by theory, capture the structure of income inequality. Paper D undertakes such a test, which fails to generate any support for a macro-link from the structure of income inequality to redistribution.

The finding that there is no robust macro-level relationship between inequality and redistribution has prompted a searching of hearts in the literature. Where had the intuitive logic of the RMR model gone wrong? The main thrust of the debate has been to examine the micro-foundations of the model, and to make their demanding nature explicit. In short, each of the three steps outlined in Figure 1 looks fragile (see e.g. Kenworthy and McCall, 2008).

5. Reduced-form relationship between inequality and the support for redistribution (Node A to Node C)

Under the system analysis approach, as stylized in Figure 1, the micro-foundations used to explain the behaviour of social systems consist of three separate transitions. However, under the RMR model, the median voter chooses the tax rate (which is equivalent to extent of redistribution) as a direct function of the ratio of mean over median income (or inequality at the macro-level) (Meltzer and Richard, 1981: 923). In other words, within the RMR model, there is only a single step that leads from inequality to support for redistribution. When using Figure 1 as a reference, the RMR model conflates the macro-to-micro transition (Arrow 1) with the action-formation mechanism (Arrow 2) and combines the two transitions into a reduced-form relationship that runs directly from Node A (inequality) to Node C (support for redistribution). Skipping the intermediate step – perceptions of inequality or Node B – is possible because Meltzer and Richard (1981) assume that "voters are fully informed" (ibid.: 924) and only maximize their individual utility (which is given by combinations of

consumption and income) (ibid.: 918). Preferences for redistribution can then be reduced to a simple utility maximization problem that is accessible to algebraic modelling. As argued in Paper B (118f.), their "proof" has largely been seen as unproblematic in the economic literature. In fact, the proposition "that higher inequality leads to a stronger preference for redistribution among citizens" (ibid: 118) has been used as a lemma in the new growth literature (Perotti, 1992; Persson and Tabellini, 1994). Hence, it has attracted little scrutiny – even though the model predictions can be tested empirically.

Paper B places itself within the new growth theory and performs such an empirical test. For a cross-section of 26 countries, it examines whether higher inequality correlates with greater support for redistribution, as measured by the International Social Survey Programme (ISSP). Against the expectations of the RMR model, it finds no significant association between inequality and the share of respondents who favour government redistribution (p-value = 0.475; see Model 1, Paper B: 139). Although it seems like an obvious question to ask, Kenworthy and McCall (2008) and Paper B were among the first to examine it systematically (see Finseraas, 2008: 95). Kenworthy and McCall (2008) complement the cross-section design of Paper B by studying time-series data; they find no systematic relationship between changes in inequality and shifts in support for redistribution. Likewise, Dallinger (2010: 341) finds no indication for a systematic correlation between inequality and average support for redistribution in a bivariate scatter plot.[21] However, "[a]fter controlling for the GDP and modelling the Gini index as a quadratic relation, inequality does have an effect" (ibid.: 346). Somewhat counterintuitively, her findings imply a U-shaped pattern: support for redistribution is relatively high at very low levels of inequality and then *falls* as inequality increases, then reaches an inflection point (at a Gini coefficient of about 0.32), and ultimately changes course to *rise* with inequality.[22] This holds both for the cross-section and a multi-level model. By contrast, Finseraas (2009) uses the European Social Survey (ESS) and finds in a multi-level model that aggregate inequality has a positive impact on individuals' support for redistribution. This result is confirmed by Olivera (2015), who re-visits the question based on a fixed effects model and a larger pool of ESS data. He finds that "changes in income inequality positively affect changes in preferences for redistribution over time" (ibid.: 1).

[21] The bivariate correlation between inequality and support for redistribution in Dallinger's dataset is $r = 0.098$ (p-value = 0.664) (replicated from Table A-2 in Dallinger, 2010: 349). This is even lower than the correlation of $r = 0.146$ (p-value: 0.478) reported in Table 2 of Paper B (133), and implies less than 1 per cent of explained variance.

[22] Dallinger (2010: 342) introduces the quadratic term to model a possible saturation effect. Models of this kind usually assume a positive (or negative) relationship throughout the relevant range, but allow the curve to flatten once a saturation point has been passed.

Are these findings mutually exclusive? Arguably, they are less contradictory than they appear at first. Studies of the reduced-form relationship differ both with respect to country coverage and estimation technique. Firstly, Paper B and Dallinger (2010) both use the ISSP and therefore include a broad cross-section of developed countries, whereas Finseraas (2009) and Olivera (2015) use the ESS and are hence limited to Europe. This excludes observations from the Anglo-Saxon world that combine high inequality with modest support for redistribution (see Appendix Table A1 in Paper B).[23] Secondly, whereas the RMR model proposes a universal mechanism that should hold true both over time and across countries (condition only on majority rule), studies differ in whether they utilize cross-sectional or inter-temporal variation (or both). Results seem to suggest that the model predictions hold within countries over time (Olivera, 2015), but not when comparing between countries (Paper B).

Why does the universal relationship between inequality and support for redistribution proposed by the RMR model not hold? Recall that it relies on two key assumptions – perfect information and the individual maximization of income and leisure – so its failure could be explained if at least one of them is unrealistic. This framework paper therefore returns to the logic of Figure 1 and discuss in how far perfect information is an adequate representation of the macro-to-micro transition (Arrow 1) and whether the action-formation mechanism can be reduced to narrowly defined utility maximization (Arrow 2).

6. Evaluation of inequality and the macro-to-micro transition (Arrow 1)

How do individuals perceive income inequality in their society – and how could differences in the macro-to-micro transition (Arrow 1) emerge when comparing between countries? The literature has followed two main lines of inquiry to explain why perceptions of income inequality might differ from actual inequality. The first argues that people are simply ill informed about income inequality and their own position within the income distribution. If misperceptions differ systematically between countries, this could explain why subsequent support for redistribution differs, too. The second line of inquiry suggests that people have a rough idea about inequality in their society, but that they do not reach the same conclusion about its social desirably because they evaluate it against different normative concepts of social justice. In turn, if these social justice orientations differ systematically between different types of welfare states, this would explain why the evaluation of inequality (and in the next step support for redistribution) can differ between two countries that share the same level of inequality. Although both approaches are not mutually exclusive, they question the assumption of perfect information on different levels. The first argument implies only a

[23] When Australia, Canada, New Zealand, and the United States are excluded from Dallinger's dataset, this produces a marginally significant bivariate correlation of $r = 0.439$ (p-value: 0.0685). Paper B discusses whey this should be the case, a point that Section 7 will return to.

'technical' failure of a simplifying model assumption (perfect information); the second argument is a more radical challenge because it introduces a consideration that is alien to the RMR model, namely the idea that value orientations matter. This section will address both lines of inquiry in turn.

The first line of argument maintains that people are subject to systematic misperceptions about income inequality and hence lack full and relevant information when forming preferences for redistribution – contrary to the assumption that "voters are fully informed" (Meltzer and Richard, 1981: 924). Perfect information indeed appears a demanding prerequisite, but it is arguably one of the three fundamental assumptions that define neoclassical economics (alongside rational preferences and individual utility maximization; see Weintraub, 2002). Within economics, the empirical validity of perfect information has long been questioned by heterodox-leaning economists who have shown how markets fail when the assumption is violated, such as in the case of markets for used cars (Akerlof, 1970) and insurance (Rothschild and Stiglitz, 1976) (see also Section 7). More recently, a number of survey experiments have sought to establish how well people are informed about income differences.

The main finding from this small body of literature is that people tend to have inaccurate ideas about their own position in the income distribution. Cruces, Perez-Truglia, and Tetaz (2013) show in a survey experiment that the poor in Greater Buenos Aires tend to overestimate their relative income position, whereas the rich tend to underestimate it. They also elicit preferences for redistribution and then inform part of their respondents about their true income status to see if this affects their stance on redistribution. Their analysis suggests "that those who had overestimated their relative position and thought that they were relatively richer than they were tend to demand higher levels of redistribution when informed of their true ranking" (ibid.: 100). Karadja, Möllerström, and Seim (2014) carry out a similar experiment in Sweden, where two-thirds initially underestimate their income status. When they update a subset of their respondents on their true income status, this has no effect on support for redistribution among those who held prior left-of-centre positions, whereas those who placed themselves towards the right of the political spectrum respond by becoming more hostile towards redistribution (ibid.: 16). Lastly, Engelhardt, and Wagener (2016) show for Germany that, like in Argentina, the poor tend to overestimate their relative income position, whereas the rich tend to underestimate it.[24] However, informing respondents about their real income position has no effect on their support for redistribution (ibid.: 9f.).

[24] This finding and similar results obtained in other studies are most likely in part a statistical artefact, given that the possible magnitude of bias is truncated asymmetrically for the poor and the rich. Those at the 10th percentile can only have a maximum negative bias of 10 percentage points (when they place themselves at the very bottom), but they can have a far larger positive biases. The reverse holds

While these single-country studies indicate that misperceptions may play a role in subsequent preference formation, they leave open whether they imply discrepancies between countries. To see whether there are systematic cross-national differences in the extent that people misperceive their income status, Bublitz (2016) draws on a survey that covers eight countries. With the exception of Brazil (where over- and underestimation balance out), she can show that people in the remaining countries tend to underestimate their economic position – albeit to somewhat different degrees (ibid.: 18f.). Her data follow the experimental design of the above-cited studies, and hence a sub-set of respondents is informed about their true income position. However, "[o]nly participants in Germany showed a statistically significant reaction to the treatment itself" (ibid.: 35) by adjusting their preferences for redistribution (contrary to the findings reported in Engelhardt and Wagner, 2016). Incidentally, Bublitz (2016) highlights that misperceptions in France and the United States almost exactly match each other (ibid.: 19). Differences in bias can therefore not explain why the French evaluate income inequality much more negatively (87.4 per cent agreed that income differences are too large) than US citizens (66.2 per cent agreement), despite a much lower Gini coefficient in France (0.288) than in the United States (0.370) (all data are from Table A1 in Paper B: 147). It appears that misperceived self-interest is insufficient to account for the lack of a reduced-form relationship between inequality and support for redistribution (Section 5 above).

This brings the discussion to a second obvious factor why people from different countries might perceive similar income distributions differently: differences in value orientations. As stressed above, values and cultural specificity have no roles in the RMR model (see also Paper B: 120). However, they can readily be integrated into the macro-to-micro transition (Arrow 1). To use the terminology developed by Hedström and Swedberg (1996), the situational mechanism allows for "cultural environments [that] shape [individuals'] desires and beliefs" (Hedström and Ylikoski, 2010: 59). In this understanding, people evaluate income inequality against a notion of equity that is conditioned by their cultural context (see Paper B: 123). Paper A (233) cites Amartya Sen with a very similar argument:

> "People's attitudes towards, or reactions to, actual income distributions can be significantly influenced by the correspondence – or the lack thereof – between (1) their ideas of what is normatively tolerable, and (2) what they actually see in the society around them. Ideas of social justice can sway actual behaviour and actions." (Sen, 2000: 60)

The study of belief systems in shaping the preferences of electorates has of course long been a staple of political sociology (Converse, 1962; Sartori, 1969). When accepting their influence, it follows that, "[u]nlike the rational choice literature, this political sociology approach leaves room for social norms and individual belief systems as intervening factors to shape support

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for a respondent at the 90th percentile, who can overestimate her position by a maximum of 10 percentage points (placing herself at the very top), but has far larger scope for underestimating it.

for redistribution (that is no longer a direct function of initial market inequality)" (Paper C: 143). To be sure, this perspective does not deny that individual self-interest may play a (lesser or greater) role in how people perceive inequality (see Paper B: 122). It merely allows for notions of equity that are shared within a society, but differ between societies (see also Atkinson, 1999: 67). The evaluation of inequality might then diverge between societies, giving rise to subsequent differences in support for redistribution.[25]

Broadly speaking, the literature on values and social justice orientations has focused on three related aspects: (i) norms related to the fairness of the process; (ii) norms that pertain to the distributional outcomes themselves; and (iii) the endogeneity of these societal norms. With respect to (i), there is a relatively broad consensus from experimental research that people tend to perceive inequalities that reflect individual effort and achievements as fair, but not those that are the result of luck or illicit gains (see, for instance, Alves and Rossi, 1978, and, for the formation of preferences during adolescence, Almås et al., 2010). Survey research confirms that respondents who believe that hard work pays off also show greater acceptance of inequality; the opposite holds for those who think that luck determines income (Corneo and Grüner, 2005; Alesina and Angeletos, 2005). In particular, the perception of the United States as a 'land of opportunity' has often been linked to greater tolerance for inequality among its citizens (Alesina and la Ferrara, 2005; for details, see Paper B: 130f.). Conversely, Alesina and Fuchs-Schündeln (2007) show that East Germans are much more likely to attribute life achievements to luck than their compatriots who grew up in the West.

Regarding (ii), these findings are complemented by experimental research on inequity aversion (carried out on humans as well as on monkeys; see Brosnan and de Waal, 2003). Studies based on the ultimatum game has shown that inequity aversion (i.e. preferences regarding unequal outcomes) exists and varies with age and educational status (Fehr and Schmidt, 1999; Bellemare, Kröger, and van Soest, 2008). Likewise, papers based on the analysis of survey data conclude that happiness and social well-being are negatively affected by income inequality, again attributing the effect to inequity aversion (Ebert and Welsch, 2009; Verme, 2011). However, Alesina, di Tella, and MacCulloch (2004) report that the effect is larger in Europe than in the United States. This raises (iii) the question to which extent welfare state regimes have a formative effect on these social justice norms (see the summary in Meier Jæger, 2006b). Arts and Gelissen (2001) argue that "people's notions of solidarity and their choices of justice principles need to be understood in the context of the frames of reference and the forces of circumstances created by their welfare state regimes" (ibid.: 296). Paper B (130f.) discusses this literature in greater detail, arriving at a broad

[25] Interestingly, Sen (2000) also makes the link to subsequent action.

distinction between the transition countries of Eastern Europe, the welfare states of continental Europe, the Anglo-Saxon countries and the United States as a category on its own.

The likely endogeneity of social justice norms poses a problem in terms of the unidirectional causality implied by Figure 1, an issue that is discussed in greater detail in Paper C (144). As argued there, it is probably warranted to conclude that the causality runs both ways, and that welfare states sustain themselves by shaping people's preferences for equity. Paper B puts the proposition that the evaluation of inequality is influenced by the type of welfare state that people live in. Somewhat surprisingly, there is initially no significant correlation between the Gini coefficient and people's perception of income differences as "too large" when observations from all 26 countries covered by the ISSP are pooled (Paper B: 136, Model 1). However, the relationship becomes highly significant when introducing dummies for different regime types (Model 3). By allowing for different intercepts, the model can capture how much people from different types of welfare states diverge in evaluating the same objective level of inequality. As expected, tolerance for inequality is lowest in Eastern Europe (see also Corneo and Grüner, 2002) and highest in the Anglo-Saxon world, in particular the United States. The findings lead Paper B to conclude that a "given level of inequality will be evaluated differently across countries, contingent on dominant social justice norms" (Paper B: 141). Dallinger (2010) has criticized this inference on the grounds that "Lübker's study did not include further national characteristics that could plausibly influence redistribution preferences. Therefore, his conclusion, that social policy ideals institutionalized in welfare regimes could actually cause cross-national differences, is not secure" (ibid.: 335). While she is more cautious in interpreting the (significant) dummies for regime type, her finding that people from countries with higher social spending are more supportive of redistribution is in line with the notion that welfare states have a formative effect on people's preferences.[26]

The discussion so far has shown that people have difficulties in correctly assessing their own position in the income distribution and, more importantly, that there are significant differences in how electorates from different groups of countries evaluate income inequality in normative terms. The next section will, among other explanations, discuss whether different perceptions of inequality influence support for redistribution.

[26] Note that the difference in conclusions between Paper B and Dallinger (2010) are gradual in nature, rather than fundamentally opposed. While Dallinger writes that the "welfare regime approach is only partly confirmed by the results", she agrees that "assuming a direct impact of inequality is too simple, and instead a wider understanding of the social forces determining the degree of redistribution people want and are willing to pay for by taxes and contributions would be more appropriate" (ibid.: 346).

7. Support for redistribution and the action-formation mechanism (Arrow 2)

Once people have gained an understanding of the distribution of incomes in the society they live in, how does this affect their support for redistribution? Under what conditions do they call on politicians – through the ballot box or other means – to reduce income inequality? Within the theoretical framework developed by Coleman (1990), explaining individual action is a central to understanding the system behaviour as a whole. Coleman makes two explicit assumptions when developing his individual-level theory of action: he (i) proposes a theory of purposive action and hence assumes that actions are directed at achieving a goal, and he (ii) makes the more restrictive assumption that this goal can be described as individual utility maximization (ibid.: 16ff.). Both assumptions are central to how the action-formation mechanism is understood (Arrow 2 in Figure 1). Since this framework paper adopts his analytical lens, it is worth coming back to the question how the thesis positions itself towards these two core assumptions. As already indicated in the introduction, the thesis shares the notion that people (generally) act in a rational manner to advance their objectives.[27] However, it does not accept the postulate that people only pursue one objective, individual utility maximization (at least not when narrowly defined). In the dominant RMR model, individual utility maximization can be equated with the pursuit of material gain (and leisure; see Meltzer and Richard, 1981: 918). For instance, under this viewpoint, giving up income to enjoy the benefits of living in a more egalitarian society would not qualify as utility-maximizing behaviour. Limiting the range of possible objectives to a single objective has the key advantage that it permits mathematical modelling (Coleman, 1990: 18), but it does not acknowledge the complexity of human motivation. As detailed in Paper B (121), it is for this reason that this thesis does not accept the assumption that humans are solely driven by (narrowly defined) utility maximization.[28] Instead, it treats the possible goals that people pursue when they support or oppose redistribution as a substantively interesting research topic.

When accepting the possibility of multiple objectives, it follows that preferences for redistribution can no longer be modelled as a simple utility maximization problem. As Downs (1957) has argued, "[i]f multiple goals are allowed, means appropriate to one may block attainment

[27] Coleman (1990: 14) discusses one prominent challenge to the rationality assumption, namely that people have systematic behavioural biases (citing Kahneman, Slovic, and Tversky, 1982). While inconsistent preferences are clearly incompatible with rationality, loss aversion – or different weighting functions for gains and losses – is arguably reconcilable with rationality, but not with expected utility theory (see Kahneman and Tversky, 1979; Tversky and Kahneman, 1992). This section will return to this point when discussing insurance motives.

[28] As Coleman (1990: 18) points out "if purposive action is accepted as the appropriate principle of individual action for social theory, this does not imply the narrow specification of purpose as maximization of utility" (ibid.). Hence, accepting the first but not the second assumption is not in itself inconsistent.

of another; hence no unique course can be chartered for a rational decision-maker to follow. To avoid this impasse, theorists posit that firms maximize profits and consumers maximize utility" (ibid.: 3f.). In the paper by Meltzer and Richard (1981: 918), the relevant actors are voters, and their utility maximization problem takes the form of max $u(c, l)$. The utility function u has a strictly concave form for both consumption, denoted by c, and leisure, denoted by l.[29] This simplification then explains not only the intuitive power of the RMR model, but is also its greatest weakness: when other goals are introduced besides individual gain, the conclusions that can be derived from the model fall. Expressed more formally, if one were to enter equity considerations e in addition to c and l into the utility function and allowed e to differ between countries, it no longer follows that the median voter's preference for redistribution is a function of the ratio of mean over median income. Hence, there is an asymmetric burden of proof: for the RMR model to stand, self-interest must be shown to be the only motivation behind support for redistribution. To reject the RMR model, it is not necessary to show that self-interest plays no role in shaping people's views on redistribution, but merely to demonstrate that other motivations for redistribution (such as equity considerations) co-exist alongside individual utility maximization. Put differently, if e enters the decision-making process, this would be a sufficient violation of the model assumptions.

Broadly speaking, the literature has identified three general objectives that motivate people to support fiscal redistribution: (i) self-interest and individual utility maximization; (ii) insurance motives and risk aversion; and (iii) altruism and social justice orientations. This broad categorization is echoed in the social functions (or lack thereof) that are often ascribed to redistribution. In the tradition of the public choice literature, redistribution can be seen as a result of "self-interested use of the coercive power of the state" (Paper A: 220). By contrast, the arguments made by economists such as Rothschild and Stiglitz (1976) imply that public provision of social insurance can be efficiency-enhancing (see Paper A: 220). Lastly, as argued in greater detail in Paper A (218f.), there is a long tradition to posit that the state has a moral obligation to pursue social justice (with the *Rerum Novarum* as a notable example). However, keeping in line with the analytical framework summarized in Figure 1, this section will concentrate on the action-formation mechanism at the individual level. The remainder of this section will address each of the three main motivations from the perspective of individuals as actors, and ask in how far they can explain individual decision-making.

Regarding (i) the role of individual utility maximization, a substantial body of literature has engaged with a corollary that arises from the RMR model, namely that "the higher an individual's productivity, the lower is his preferred tax rate" (where productivity corresponds

[29] Meltzer and Richard (1981: 918f.) introduce the possible trade-off between consumption and leisure so that individuals can reduce the time they devote to labour as the tax rate rises. Both consumption and leisure are assumed to be normal goods.

to income) (Meltzer and Richard, 1981: 921). A recent example is Guillaud's (2013) analysis for 33 countries covered by the ISSP. She affirms the "supremacy of economic factors" (ibid.: 66f.), based on the finding that "[i]ndividual labour market position, as well as family income, is shown to outweigh all other factors shaping preferences for redistribution" (ibid.: 57). Likewise, Finseraas (2008) finds in his previously cited paper that an individual's "demand for redistribution decreases with income" across 22 European countries (ibid.: 96). Meier Jæger (2006a) shows that self-interest as measured by economic position plays a substantial role in explaining support for redistribution among Canadians. In a study based on the World Value Survey (WVS) and hence a global sample spanning 47 countries, Wulfgramm and Starke (2017: 14) demonstrate that incomes matter for an individual's support for redistribution. Further, public opinion is more divided along economic lines in more unequal societies. An anomalous finding comes from Japan, where Ohtake and Tomioka (2004) isolated only a weak effect of income on people's support for redistribution.

In a nutshell, the literature has produced almost unanimous support for the view that an economic status influences and individual's preferences for fiscal redistribution (see also Paper A: 231f). These findings have often been interpreted as lending support to the RMR model (typically with some caveats attached). However, the conclusions that can be drawn from this type of study are limited, since they do not show that narrowly defined utility maximization is the only factor that determines support for redistribution. Again, we are faced with the asymmetrical burden of proof. Put another way: while an empirical falsification of the corollary ("preference for redistribution decrease with income") would lead to a rejection of the theorem ("preferences for redistribution are strictly a function of income"), support for the corollary is in itself not sufficient to "validate" the theorem.

So, do other motives matter as well? The literature has increasingly stressed (ii) insurance motives behind support for redistribution (starting with Moene and Wallerstein, 2001). The basic argument holds that individuals face uncertainty about their future income position and become more supportive to redistribution with greater exposure to risks (i.e. uncertainty about adverse future events). Within the literature, it is disputed how readily insurance motives can be integrated into utility maximization framework (a point that the discussion will return to shortly). However, it is clear that they imply a significant departure from the RMR model since Meltzer and Richard (1981) assume that "[t]here is […] no uncertainty" (ibid.: 917). Their model of a linear tax rate and lump-sum transfer payments in essence conceptualizes redistribution as a 'Robin Hood'-type process where winners and losers are known beforehand (see Paper C: 136). Once uncertainty and social insurance are introduced, it is no longer clear in advance who will benefit: Everybody pays the insurance premium, but only those for whom a certain risk – such as an occupational accident – materializes receive a pay-out in form of benefits. When this arrangement is analysed *a posteriori*, it appears as a

strongly redistributive transfer from those who did not suffer an accident to those who did (see the detailed discussion in Paper A: 216). The same logic holds for social insurance more generally. Nonetheless, they are arguably at the heart of modern welfare states and responsible for much of the redistribution they achieve (see also Korpi and Palme, 1998).[30]

However, when analysed from an *a priori* perspective (i.e. under uncertainty), the same arrangements has less resemblance to redistribution à la Robin Hood. In fact, they might only be mildly redistributive: The expected gain from the insurance contract depends on the level of premiums and benefits, and importantly the probability of events that trigger the insurance pay-out. Notably, given risk aversion, people willingly enter insurance contracts where the expected payoff (weighting for event probabilities) is lower than an alternative without insurance (see ibid.). Fully informed that private insurance markets fail due to adverse self-selection (see Rothschild and Stiglitz, 1976), they might also support the public provision of insurance through mandatory schemes. What is contested, however, is in how far these considerations can be integrated into the standard utility maximization framework. Modelling insurance contracts according to the expected monetary payoff is of course slightly simplistic, and re-stating them in terms of expected utility by taking into account the concavity of utility functions is an obvious refinement (Bernoulli, 1954 [1738]). Expected utility theory does precisely this.[31] However, the insights gathered by Kahneman and Tversky (1979) imply that, when making decision under risk, people attach decision weights to losses and gains that differ from their respective probabilities and "systematically violate the axioms of expected utility theory" (ibid.: 263; see also Tversky and Kahneman, 1992). So their work does not only question the notion of consistent preferences and hence purposive action (as noted by Coleman, 1990: 14), but more importantly challenges the standard assumptions used by economists to model individual utility maximization (von Neumann and Morgenstern, 1953).

Empirical studies have predominantly looked at the risks people face in labour markets, such as those related to unemployment and technical change that can render job-specific skills obsolete (Moene and Wallerstein, 2001; Cusack, Iversen, and Rehm, 2006; Alt and Iversen, 2017). Iversen and Soskice (2001) have argued that "workers who have made heavy investments in asset-specific skills stand a greater risk of losing a substantial portion of their income than do workers who have portable skills" (ibid.: 889). They device a measure for skill-specificity, and show that respondents with more specific skills are also more likely to support social spending (ibid.: 884). In related work, Cusack, Iversen, and Rehm (2006) show that risk and income position are complementary explanations and conclude that

[30] For a snapshot of the magnitude of social contributions paid by households across the European Union see Paper A (228).

[31] In sophisticated form, these can be found in entropic risk measures in mathematical finance (see Frittelli and Rosazza Gianin, 2002).

"[p]oor people as well as individuals exposed to high risk favour governmental redistribution, while the rich and those in secure labour-market positions tend to be less supportive of such policies" (ibid.: 375). Rehm (2009) provides further evidence "that individuals not only demand redistribution because they are poor but also because they are exposed to risks in the labor market" (ibid.: 872), and that risk exposure at the occupational level matters. Alt and Iversen (2017) extent the insurance logic and incorporate the effects of labour market segmentation. Under their argument, highly segmented labour markets correspond to a high polarization of risk. Their findings confirm that support for redistribution falls steeply with income under these conditions, whereas it extends well into the middle class when labour markets show little segmentation and risk is more evenly distributed (ibid.: 32). Their results echo the idea that the middle class is supportive of an extensive welfare state when it provides universal insurance, and benefits are not targeted at the poor (Korpi and Palme, 1998).

Blekesaune and Quadagno (2003) highlight the role of situational factors, namely that higher unemployment rates increase support for welfare state policies. In their view, "[o]ne reason may be that unemployment makes citizens of modern industrialized countries aware of the fact that they are vulnerable to risks beyond their control" (ibid.: 424). The notion that the subjective awareness of risks – and not only the objective event probability – matters is also supported by Guillaud's finding that people who experienced downward mobility are more favourable to redistribution, even after controlling for current income (Guillaud, 2013: 70). The opposite holds when today's poor (correctly or incorrectly)[32] believe in their own prospect of upward mobility and count themselves among tomorrow's rich. Hence, they oppose redistribution in a situation where a static framework (such as the RMR model) would lead to the opposite conclusion (Benabou and Ok, 2001).

While pooling risks through mandatory social insurance entails an unequal exchange, a separate body of literature argues that people do not primarily judge social insurance schemes according to their expected individual payoff. Instead, social insurance establishes a mutual bond of reciprocity among participants. Mau (2004) argues that this feature is key to understanding their legitimacy. In his words, "[r]eciprocity refers to exchanges that are neither reducible to people's generosity nor to their self-regarding preference defined by beneficial outcomes. Rather, people's deliberations are based upon moral assumptions that determine whether people regard a certain distribution of costs and benefits as fair" (ibid.: 54). If one accepts these arguments, the provision of social insurance by welfare states draws both self-interest and concepts of fairness: it offers protection against risk where a competitive market would leave even low-risk individuals unable to buy insurance; and by invoking reciprocity norms social insurance has a moral appeal grounded in perceptions of reciprocal

[32] See, for example, Björklund and Jäntti (1997) for the finding that intergenerational mobility in the United States is not higher than in Sweden.

fairness. Nonetheless, demand for social insurance is arguably difficult to reconcile with the standard utility maximization framework; it is also distinct from pure altruism. Looked at this way, social insurance motives are a *tertium datur* and more than just a compromise between the two other explanatory frameworks.

The final strand of literature has (iii) advanced social justice orientations, altruism or, more generally, "other-regarding preferences" as an explanation for people's support for redistribution. While biologists have long argued that altruistic behaviour is a successful evolutionary strategy for a given species (see Trivers, 1971), considering altruism is an unusual thought for economists, who are "used to concentrating on the net pecuniary gain accruing to individuals from redistribution" (Corneo and Grüner, 2002: 84). However, the behavioural revolution has re-discovered the topic in the 1990s for economic theory.[33] This work has produced two important findings. Firstly, while there is strong evidence for reciprocal altruism (exchanges that potentially create future benefits for the benefactor), not all altruistic behaviour can be explained with reciprocity. For instance, double-blind dictator games without repeated interaction show that individuals make voluntary contributions. These increase when the recipient is portrayed as deserving, something that Eckel and Grossmann (1996) interpret as evidence for genuine altruism. Secondly, it appears that altruistic behaviour is at least in part a product of socialization and that its prevalence differs between societies. As Fehr and Fischbacher (2003) argue, "there is fairly convincing evidence that cultural forces exert a significant impact on human altruism" (ibid.: 790). While it is possible to argue that "[a]ltruistic individual[s] derive utility not only from their own material gains but also from those of other people" (Rueda and Pontusson, 2010: 3), the notion of altruism is not inherent in the standard utility maximization framework[34] (and certainly not foreseen in the RMR model). In the words of Gintis et al. (2003), altruistic behaviour "is fundamentally incompatible with the economist's model of the self-interested actor" (ibid.: 169).

This brings the argument back to inequality aversion and social justice orientations, which were already discussed in the previous section. Paper B, in particular, has argued that altruistic support for redistribution presupposes that "inequality is seen as a problem in need of remedy" and that "value judgements on income differences are a step logically prior to the call on governments to redistribute income" (ibid.: 123). In other words, the relationship

[33] The emphasis here is on *re-discovered*, since classical economists were fully aware that humans are not only motivated by self-interest. Notably, Adam Smith fully recognized that altruistic behaviour exists: "How selfish soever man may be supposed, there are evidently some principles in his nature, which interest him in the fortune of others, and render their happiness necessary to him, though he derives nothing from it except the pleasure of seeing it." (Smith 1790 [1723]: I.I.1.)

[34] For a paper that integrates income inequality into an individual utility function, see Alesina and Giuliano (2009: 6f.). Paper A (219) provides another example of how redistribution can be re-cast as a Pareto-efficient process that entails utility gains for rich and poor alike.

between inequality and support for redistribution is mediated by the evaluation of inequality (ibid.). The literature has produced a number of results that support this view. For instance, Fong (2001) highlights the importance of social preferences in predicting support for redistribution and Pirttilä and Uusitalo (2010) conclude that "[n]o matter how measured, the revealed inequality aversion predicts opinions on a wide range of questions related to the welfare state, such as the level of taxation, tax progressivity and the structure of unemployment benefits" (ibid.: 60). For the case of Germany, Bandau, Luebker and Rixen (2017) show that attitudes towards inequality offer a better explanation for the willingness to finance the welfare state through higher taxes than an individual's income position. Altruism is also an obvious explanation for the fact that some of the rich support redistribution, especially when inequality is high (Rueda and Pontusson, 2010). Alesina and Giuliano (2009) conclude from their analysis of the US General Social Survey and the WVS that preferences for redistribution are also a function of "culture, political ideology and a perception of fairness" (ibid.: 22).

Likewise, Paper B finds that the evaluation of inequality is a powerful predictor for public support for redistribution. Analysing data from the ISSP for a cross-section of 26 countries, it shows that differences in the evaluation of inequality can account for almost three-quarters of the observed variance in support for redistribution (see ibid.: 138f.). This finding holds when controlling for the level of actual inequality (as measured by the Gini index), which has no explanatory power of its own. Paper B also tests whether the aggregate link from evaluation of inequality to support for redistribution holds across different types of welfare states. It finds no systematic differences – albeit with one important exception: "The American public is unsupportive of state-sponsored redistribution over and above what can be predicted from their already favourable evaluation of inequality" (ibid., 140). Moreover, the gap in support for redistribution is sizable: If the United States were a typical organized market economy, "the regression would predict 57.0% of all Americans to favour redistribution, but the actual share is only 35.3%" (ibid.). This finding suggests that social norms do not only sway the evaluation of inequality (i.e. come into play as part of the situational mechanism in Arrow 1), but can again exert influence in the action-formation mechanism (Arrow 2).

A number of recent contributions have proposed that altruism in relation to support for redistribution is best understood as "parochial altruism", or as "altruism bounded by perceptions of common group membership or shared experience" (Lupu and Pontusson, 2011: 318). For instance, Luttmer (2001) has argued that the "taste for redistribution" is a function of group loyalty, and that consequently racial heterogeneity leads to lower support for redistribution. Shayo (2009) has coined the term "social identity" to explain these (conditional) other-regarding preferences and their effect on the support for redistribution. In a similar vein, Alesina, Glaeser, and Sacerdote (2001) argue that "disproportionate representation of ethnic minorities among the poor clearly played a major role in limiting redistribution" in the United

States (ibid.: 247).[35] However, subsequent studies have contested that ethnic diversity can be generalized as an explanation. Looking at the link between several indicators for immigration (an alternative measure for "out groups"), they fail to find a robust link to social welfare attitudes – and indications that more immigration might even increase public demand for welfare provision (Brady and Finnigan, 2014; Steele, 2016).

As discussed in Section 4, Lupu and Pontusson (2011) have applied a similar argument to the structure of income inequality. Their causal mechanism rests on the idea that relative income distances of the middle class vis-à-vis the rich and the poor (as measured by skew) shape their preferences for redistribution. In a scatter plot, they show "a positive association between skew [in the earnings distribution] and middle-income support for redistribution" (ibid.: 329). However, it is questionable whether this can be interpreted as a causal link that runs from skew to support for redistribution. As argued in Paper D, earnings skew is itself to a large extent the outcome of government interventions into the labour market, notably minimum wages. It is likely that governments set these in response to public preferences for equity, and that the causal link hence runs from public preferences to policy. In other words, the association between skew and support for redistribution is most likely driven be reverse causation.

In sum, there is very solid evidence that self-interest is one factor that shapes preferences for redistribution, but equally solid evidence that it is not the only explanatory factor – insurance motives and altruism matter as well. While this might seem to be a rather unspectacular finding, it has important implications for the reliability of the RMR model. As argued in Paper B, if "dominant social justice norms differ between countries, it no longer follows that the demand for redistribution closely mirrors actual inequality" (ibid.: 122). This view offers a possible reconciliation of the three core findings discussed so far, namely the (i) absence of a cross-sectional relationship between inequality and support for redistribution, (ii) the possible presence of a positive link within countries over time (assuming that values remain constant), and (iii) the influence of self-interest on the support for redistribution at the individual level.

8. Redistribution and the micro-to-macro transition (Arrow 3)

Do people's preferences for redistribution translate into actual government policy? Meltzer and Richard (1981) acknowledge that "[t]he political process determines the share of national income taxed and redistributed" (ibid.: 920). However, for them the aggregation of preferences in democracies is seen as an unproblematic step: "Under majority rule, the voter with median income is decisive […]" (ibid.). While Meltzer and Richard can refer to Roberts (1977) and the earlier work by Hotelling (1929) and Downs (1957) to support this assumption,

[35] This tallies well with the finding by Alesina and Giuliano (2009) that African-Americans are more supportive of redistribution than Whites, controlling for other factors.

many authors have subsequently seen this as the weakest link in the RMR model (i.e. Arrow 3 in Figure 1). For instance, Alesina and Giuliano (2009) argue that the "relative failure of the model probably relies on the failure of the median voter assumption as an aggregator of social preferences" (ibid.: 13). Likewise, Milanovic (2000) concludes from his findings (discussed in Section 4 above) that the "median-voter hypothesis may not be the appropriate collective-decision making mechanism to explain redistribution decisions" (ibid.: 396). Generally speaking, economists have been far more eager to doubt the functioning of democratic institutions than to question their own assumptions about voters' preferences. Without having consulted data on actual preferences, Milanovic further suggests that "the institutions of representative democracy do not result in the redistribution that *would be sought* by the median voter" (ibid., emphasis added). To explain the perceived failure of the democracies to aggregate voters' preferences and to translate them into policy, the literature has examined two main aspects: (i) the effects of different electoral systems, and (ii) the problem of unequal influence and the implicit assumption that all individuals vote. A much smaller number of papers have (iii) looked at the correspondence between actual preferences and the provision of redistribution by the state.

(i) Electoral systems are indeed an aspect that Meltzer and Richard (1981) ignore. They simply refer to majority rule (as opposed to decision-making under dictatorship or limited franchise) and place themselves in the literature on the "determination of equilibrium choice […] under voting rules that do not require unanimity" (ibid.: 915). Likewise, Alesina and Rodrik (1994) are confident that their "model should be directly applicable to democracies, where voting plays a significant role in policy-making", and consider that it might even hold for dictatorships (ibid.: 478).[36] Given this bold simplification, the literature has emphasized differences between majoritarian systems and those with proportional representation. In the economic literature, this has given rise to several models that essentially argue that politicians in first-past-the-post systems have incentives to direct funding to their own constituencies to secure their re-election (resulting in non-transfer expenditure), whereas parliamentarians in systems with proportional representation channel funds towards specific social groups in the form of transfers to secure their electoral loyalty (Lizzeri and Persico, 2001; Milesi-Ferretti, Perotti, and Rostagno, 2002; Persson and Tabellini, 2004: 85f.). While these models generally "ignore […] the possibility that politicians can be driven by ideological considerations" (Lizzeri and Persico, 2001: 238), Austen-Smith (2000) includes policy-motivated political parties and a legislative bargaining process.

[36] Their confidence in the responsiveness of authoritarian regimes rests on the argument that "dictator's policy decisions are also influenced by social demands and social conflicts. For instance, a large group of impoverished workers or landless peasants may threaten the stability of the regime and force the leadership to implement growth-retarding policies." (Alesina and Rodrik, 1994: 478)

These are of course also at the heart of the political science literature on the topic. Iversen and Soskice (2006) propose that the middle class faces a dilemma between its desire to tax the rich and its fear to be exploited by the poor. These two forces play out differently under different electoral rules: in a majoritarian two-party system, the middle class refrains from supporting a centre-left party because it is afraid that the party will turn against its interests once in power. The problem of policy commitment is solved under proportional representation with a three-party system, where the middle class is represented by its own party that remains committed to middle-class interest when it enters a coalition government. Iversen and Soskice conclude that, "to a very considerable extent, redistribution is the result of electoral systems and the class coalitions they engender" (ibid.: 178). Their empirical work suggests that the effect is mediated by the partisan composition of government (ibid.: 177). Subsequent papers have tended to confirm that proportional representation is associated with greater redistribution (Scervini, 2012: 545; Houle, 2017: 16). An exception is Lupu and Pontusson (2011: 325ff.), who report no association between proportionality and redistribution and a negative relationship with social spending. Paper D (Table 5) follows them and introduces proportionality as a "rival cause" in Table 5. Given the limited variation of standard measures of proportionality over time, it finds no association with redistribution in a fixed-effects model that only exploits variation within countries. However, it finds a positive association in a between-effects model that utilizes variation between countries. A limitation of the literature (Paper D included) is that it has generally treated proportionality of electoral systems as an explanatory variable in its own right. It hence offers little insights into the question how different electoral systems translate actual preferences for redistribution into policy outputs (but see Kang and Powell, 2010, as discussed below).

The second strand of literature has (ii) focused on the implicit assumption of median-voter models that all individuals vote.[37] Since the model also assumes that preferences for redistribution are inversely ordered by income, it is problematic when the rich and the poor have different propensities to vote. The standard resource model of participation suggests precisely this, namely that the "resources [that facilitate political participation] are distributed differentially among groups defined by socioeconomic status" (Brady, Verba, and Lehman Schlozman, 1995: 271). In a meta-analysis, Smets and van Ham (2013: 349) find that about half of the studies they review show a positive effect of income on the likelihood to vote. Moreover, they find even stronger evidence that correlates of income, such as education, enhance participation. Mahler (2008: 176) provides descriptive statistics about turnout by quintile, confirming the expected income bias in voter turnout. He argues that turnout should be used alongside inequality of market incomes to predict fiscal redistribution, and runs a

[37] See, for instance, Roberts (1977) who looks at preference aggregation when "voting over income tax schedules" without considering who votes and who does not.

number of regressions to substantiate his argument (ibid.: 169). As Mahler (ibid.: 164) points out, turnout can also be seen as a measure of class mobilization and hence offers a link to power resource theory. Other studies have argued that falling turnout decreases the electoral base for redistributive policies (Arawatari, 2009), and that making voting compulsory would change electoral incentives for policy-makers (Chong and Olivera, 2008). Again, the empirical literature has been eager to add voter turnout as an explanatory variable to omnibus regressions, usually affirming a positive association with redistribution (Houle, 2017: 16; Lupu and Pontusson, 2011: 325).[38]

Surprisingly few studies have (iii) looked at the question to what extent policy outcomes correspond to voters' actual (rather than their presumed) preferences. Kenworthy and McCall (2008) are one exception, although they find little support for a systematic co-variation of public support for redistribution and their measures of policy outputs over time. This is not entirely unexpected, given that both variables show relatively little variation within countries.[39] By contrast, Lupu and Pontusson (2011) pool observations and find that "the relationship between middle-income preferences and redistributive policy outputs is reasonably strong" (ibid.: 238). Likewise, Paper C (147) finds that support for redistribution (as measured in opinion surveys) is a very good predictor for actual redistribution (at least once the sample is restricted to OECD countries). By contrast, the Gini coefficient for market incomes – which is entered to capture the hypothetical preferences derived from the RMR model – shows a *negative* association with actual redistribution. Kang and Powell (2010) arrive at similar results and conclude that "the expressed left-right preferences of the median voters significantly affect comparative welfare spending" (ibid.: 1014). Moreover, contrary to their initial expectations, they find that policy responsiveness does not differ between countries with proportional representation and those with first-past-the-post systems (ibid.: 1023ff.).

To summarize, a frequent assumption in the literature is that deficiencies in the preference aggregation process through the electoral institutions can explain the failure of the macro-level proposition made by the RMR model. Studies that look at the effect of electoral systems on redistribution seem to lend overwhelming support to these arguments, finding that countries with majoritarian electoral systems tend to redistribute less than those with proportional representation. Studies that point to differential turnout by socio-economic status lend these arguments additional support. However, it turns out that redistributive policy

[38] A related, but neglected point is that the population of potential tax-payers and eligible voters do not match. While all OECD countries have universal suffrage, voting right are generally limited to citizens. Foreign nationals therefore have no right to vote (save some exceptions, like certain local elections), but are subject to taxation and are potential recipients of benefits.

[39] This is the reason why Paper C (146) does not run a within-country (fixed-effects) regression for the relationship between support for redistribution and actual redistribution.

diverges in particular from the *presumed* preferences of electorates, whereas there is a much closer correspondence to their *actual* preferences. Against the grain of much of the literature, there are no sharp differences in how majoritarian electoral systems and those with proportional representation translate preferences into policy. However, two caveats must be added to qualify this finding: Firstly, it may well be that all of the old OECD countries over- or undersupply redistribution, given the need to balance equity concerns with other objectives (and voters' unwillingness to finance the welfare state). Secondly, policy responsiveness appears to be much weaker outside the established democracies. For instance, governments in Latin America and East Asia only make limited use of taxes and transfers to reduce inequality, despite electorates that are supportive of redistribution (see Paper A: 235; Paper C: 148f.).

9. Conclusions: How values, voters and institutions shape the secondary distribution of incomes

In a context of rising inequality throughout the developed world, the question how welfare states can contribute to more equitable outcomes has gained political salience. Unsurprisingly, the academic literature on inequality and redistribution has grown substantially over the past two decades (after a long period of neglect; see Atkinson, 1997). This holds for contributions from political science and political sociology, but in particular for the economic literature that has often dominated the debate. However, economists have conceded early on that economic forces alone are insufficient to explain changes in income inequality and acknowledged the importance of the "institutional and political framework" in determining tax levels and benefits (Kuznets, 1955: 25 and 18f.). Political mechanisms have therefore been central across the disciplines to explain redistribution. As outlined above, a central reference point for the comparative political economy literature is the RMR model that contends that higher inequality leads to more redistribution (Meltzer and Richard, 1981). The causal chain that links the two macro-level phenomena runs through the preferences of the median voter, and her or his decisive influence on policy. Within the model, policy responsiveness is conditional only on majority rule, although some have argued that the basic logic can be extended to authoritarian regimes (Alesina and Rodrik, 1994; Clarke, 1995).

This thesis has positioned itself in relation to this literature, albeit at a critical distance. As outlined in Box 1, it arguably makes some distinct contributions to this body of literature. This concluding section will not discuss these contributions in any detail, but instead try to tie the threads of argument made in this framework paper together. As stated at the onset in Section 1, the rational choice model of redistribution has the key advantage that it is mathematically precise and makes its micro-foundations explicit. It can therefore be readily converted into a model of system behaviour. This treats the macro-level proposition as an abstraction that is supported by formal claims about the actions of micro-level actors (see

Coleman, 1990; Hedström and Swedberg, 1996). This step is useful to make the assumptions explicit that support each of the transitions: perfect information; individual utility maximization (defined as individual gain in income or leisure) as the only motivation for action; and policy responsiveness under conditions of majority rule (see above). If one is prepared to accept these assumptions, the model proposes a universal law that is valid across space and time. If one considers them demanding, the conclusions look much less deterministic.

But even when allowing for some random noise, the failure of the model to explain real-world differences in redistribution is spectacular: when using an adequate definition of the dependent variable (see Section 3) and controlling for confounders (namely cyclical effects), the model does not explain any of the variation in redistribution (see Section 4). Consider a simple but instructive example: In 2013, market incomes were distributed more unevenly in

Box 1. Three contributions this thesis makes to advance the literature on redistribution

Since the turn of the Millennium, the literature on redistribution has proliferated. This framework paper has sought to place the thesis in this literature, and to show how the component parts of the thesis complement each other. By way of summary, this box highlights three contributions of this thesis that – in an increasingly crowded field – advance the literature on redistribution.

Does higher inequality lead to greater support for redistribution? In the New Growth Theory, the proposition that demand for redistribution grows with income inequality had long been accepted as a stylized fact. This was largely based on the algebraic proof provided by Meltzer and Richard (1981). Paper B was the first to put this to a systematic test, finding that the hypothesized relationship does not hold across a sample of 26 countries. It was followed by a large number of studies who re-tested the same proposition on alternative data-sets or in multi-level models, such as Finseraas (2009), Dallinger (2010) and Olivera (2015).

How should redistribution be measured when testing the Meltzer-Richard hypothesis? Making narrow assumptions regarding human motivation is commonly defended as necessary to enable mathematical modelling and to generate falsifiable predictions (Coleman, 1990: 18). The macro-level proposition of the RMR model that redistribution increases with inequality is a good example for this. Milanovic (2000) forcefully argued how the independent variable should be defined when putting it to an empirical test, but the literature has largely relied on ad hoc arguments to defend a given definition of the dependent variable. Paper C fills this gap and shows that the model implies that the relative definition of redistribution must be used. This argument has since been accepted by some authors (see Higgins et al., 2016: S32).

Can the structure of inequality explain redistribution? One of the most innovative theoretical advances was the proposition that relative income distances can explain the allegiance of the middle class and the coalitions it enters in distributive conflict (Lupu and Pontusson, 2011). The so-called "social affinity"-hypothesis has given rise to a small but growing sub-branch of the literature that further explores the argument. An example is the recent replication study by Hansen and Jensen (2017) who model interactions of social affinity with politicized multiculturalism. By contrast, Paper D shows that the results in Lupu and Pontusson (2011) are driven by omitted variable bias and that a valid hypothesis test provides no support for the predictions generated by the theory.

Germany (with a Gini coefficient of 0.522) than in the United States (Gini: 0.511). From a similar starting point, the German welfare state engaged in substantial redistribution, reducing the Gini coefficient for disposable incomes to 0.291. In the United States, the tax and transfer system achieved a far more modest reduction of inequality, resulting in a Gini coefficient of 0.377 for disposable incomes.[40] The median voter model is at a loss to explain why.

In a sense, the empirical literature that followed Meltzer and Richard (1981) can be seen as a debate about where the causal chain had broken down. An obvious starting point is the preference-aggregation mechanism (see Section 8). The argument that the "the institutions of representative democracy do not result in the redistribution that would be sought by the median voter" (Milanovic, 2000: 396), already cited above, is characteristic for the literature in two respects: it takes the hypothetical preferences of the median voter as a benchmark; and it casts a general doubt on the functioning of democracy. Contributions from political science have lent weight to the latter aspect. They have highlighted that majoritarian systems imply a different logic of party competition than systems with proportional representation, and that voter turnout declines with socio-economic status (effectively meaning that the median voter and the individual with median income are not one and the same person). While acknowledging the validity of these arguments, this thesis has taken a minority position and argued that – despite all the imperfections of the political process – there is in fact a rough correspondence between policy outcomes and the policy preferences of voters. By contrast, the median voter's hypothetical preferences for redistribution explain nothing.

This implies that the main failure of the RMR model must be at an earlier step of the causal chain. For much of the literature, this is an unpalatable prospect since it requires the rejection of at least one of two core assumptions, namely perfect information or individual utility maximization (defined as maximization of individual income and leisure). Indeed, there is a large body of literature that affirms the "supremacy of economic factors" in explaining individual preferences for redistribution (Guillaud, 2013: 66f.). However, empirical support for the corollary that preferences for redistribution decrease with income is insufficient to validate the theorem. For it to hold, no other motives besides utility maximization must be admitted – and relatively minor violations are sufficient to explain why aggregate demand for redistribution is not a direct function of inequality (Paper B: 138). As Section 7 has argued, self-interest, insurance motives and value orientations all play a role in shaping people's preferences for redistribution.

In the literature on the analysis of system behaviour, the situational mechanisms through which people perceive the macro-phenomenon in question allows for the formative impact of

[40] All data are based on the Luxembourg Income Study (LIS), using standard equivalence scales and routines for top- and bottom-coding. Data extracted on 29 May 2017.

the cultural environment (see Hedström and Ylikoski, 2010). Drawing on findings from political sociology, this Section 6 has argued that welfare states themselves generate a specific frame of reference against which people evaluate income differences (see also Trump, 2017). Incorporating these into the analysis – and separating the macro-to-micro transition from the action-formation mechanism – is therefore one way to enrich the understanding of how inequality influences demand for redistribution. Paper B has put it this way:

> "Rather than denying that inequality influences the demand for redistribution, the political sociology approach therefore conceptualizes the link in a different way: As mediated, i.e. that actual inequality matters only insofar as it – in conjunction with value orientations – influences the evaluation of inequality, which will in turn influence the demand for redistribution. What might seem like splitting hairs at first has, however, consequences for the predictions theory allows us to make: It is conceivable that countries with low inequality happen to subscribe to egalitarian views (and thus evaluate even low levels of inequality negatively) and those with high inequality to individualistic principles (which would make them more tolerant of high levels of inequality). As a result, the demand for redistribution might no longer correlate with actual inequality at the bivariate [cross-sectional] level. The finding of a bivariate non-correlation would thus be reconcilable with the idea of a mediated relationship between inequality and the demand for redistribution. Contrary to this, the rational choice argument does not allow for an interaction with social justice principles." (Paper B: 124)

The likely endogeneity of social justice norms produces a new set of problems. It runs counter to the acyclic causal framework that is inherent in Coleman's (1990) system behaviour analysis, and leads us to the question how differences in welfare state trajectories first emerged. This thesis has little to say on this, a limitation that is perhaps inherent in quantitative comparative political economy.[41] However, regardless of whether or not social justice norms are endogenous, the insight that they matter at least allows reconciling several findings that, at first, seem mutually contradictory: That narrowly defined self-interest is insufficient to explain differences in support for redistribution – despite overwhelming evidence that income shapes individual preferences; why the aggregate relationship between inequality and support for redistribution holds when culturally homogenous countries from Europe are considered, but not on a broad sample of OECD countries; and why the actual policy preferences of voters offer a much better guide to policy outcomes than the hypothetical preferences derived from model assumptions.

[41] It points to the usefulness of examining how the historical configuration of social forces helped to shape welfare states, an endeavour that motivates power resource theory (see for instance Korpi, 1983).

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Paper A. Redistribution policies

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Redistribution Policies

Malte Luebker

1. Introduction

As the preceding chapters in Part I and II of this volume have documented, labour markets are central to understanding the evolution of income inequality (see also ILO, 2008, and UNRISD, 2011: Ch. 1). Labour market institutions and the bargaining power of workers and their trade unions help to shape the functional distribution of income and hence how much of the value added in an economy finds its way into the pockets of workers in the form of wages. Workers will generally be in a weaker position to demand pay rises in the face of high unemployment, which also leaves the jobless without any wage-income. As Y. Islam and M. Hengge have argued in Chapter 3, full employment policies are therefore equity-enhancing in multiple ways. Labour market institutions also shape inequality between wage earners. By setting a floor to the wage distribution, minimum wages can contain wage inequality (Chapter 5 by P. Belser and U. Rani). Likewise, strong trade unions and collective bargaining institutions usually benefits workers at the bottom end of the pay scale more than those near the top (Chapter 4 by S. Hayter).

Policy makers are re-discovering the role of sound labour market institutions in protecting the weak. However, while institutions can make societies more equitable, achieving true equality of opportunity often remains an elusive goal. Further, levelling the playing field does not address other sources of inequality, such as the – sometimes grotesquely uneven – distribution of initial wealth. Institutions often fail to eliminate discrimination along the lines of sex and race and they cannot prevent some workers from losing their jobs. Governments across the world hence routinely intervene into the income distribution that emerges from the market. The intention is often not outright redistribution in a 'Robin Hood'-sense, but takes the form of social security transfers such as old-age pensions for those who no longer work (see Chapter 9 by C. Behrendt and J. Woodall) or income support to the unemployed and those in need (see Chapter 10 by J. Berg). However, the combined effect of these transfers and the taxes that are levied to finance them (as well as general public expenditure) is that inequality of disposable incomes can be much lower than the initial inequality of market incomes.

The global financial and economic crisis – and the excess income inequality that preceded it during the bubble years – has brought the role of fiscal redistribution further into the public debate. In the immediate aftermath of the crisis, many countries responded to rising unemployment by expanding existing security schemes or, to a lesser extent, creating new programmes. Such counter-cyclical, expansionary measures were taken by 69 out of the 77 countries surveyed by the International Labour Organization and the World Bank (ILO/World Bank, 2012) in an inventory of policy responses to the crisis. Combined with the automatic stabilization of existing social security schemes, this explains why, across the European Union, social benefits paid to households increased sharply from 2007 to 2010. However, some of the temporary measures have since expired, many countries have since course come under intense fiscal pressure (often after taking on the debt of their failing banking sector) and adopted austerity measures. Hence,

the crisis has brought into the spotlight both the scope and constraints of fiscal redistribution.

As this chapter will show, the redistributive impact of tax and transfer systems (as well as their overall size) varies widely between countries. The principal aim of the chapter is to provide an overview of the tools available to policy makers in shaping the secondary distribution of incomes, and to map the extent to which they have been used to address inequities produced by the market. The chapter starts by defining some basic concepts – what is meant by the terms primary, secondary and tertiary distribution, as well as redistribution itself – before discussing how redistribution is commonly measured. It then documents trends in redistribution over time and differences across countries, and asks how these differences can be explained (devoting some attention to two of the principal answers given in the literature). In its conclusion, the chapter argues that tax and transfer system can have a significant effect on inequality. Inequality is therefore not an unavoidable outcome of market forces, but – to some degree – a matter of political choice. While some cases might entail trade-offs between equity and efficiency, the question whether a more equitable development path can also be good for growth is addressed elsewhere in this volume (see Chapter 2 by S. Lee and M. Gerecke).

2. Some basic concepts: Primary, secondary and tertiary distribution

When analysing the distribution of incomes among households and individuals (the so-called 'size distribution'), it is helpful to distinguish between different stages in the distribution process. The *primary distribution of incomes* is what emerges from the market, i.e. before direct taxes are levied and transfers are disbursed. The primary distribution of incomes is sometimes portrayed as an 'apolitical' outcome of market forces that has some inherent fairness, as long as everybody had a fair chance to emerge as a winner. Inequality in primary incomes can then be justified as a result of differences in skills and individual efforts that lead to unequal rewards. However, markets themselves require institutions, and institutional choices have implications for distributive outcomes (see Part II of this volume). Moreover, people enter life from such vastly different starting points that equality of opportunity itself is often no more than an illusion.

Governments across the world have therefore – albeit to different degrees – introduced institutions and programmes that alter the initial income distribution. Tax systems are usually progressive in design, requiring those with higher incomes (or greater wealth) to contribute a greater share of their incomes to general government revenues.[1] Conversely, transfer payments often target those who are in need due to unemployment, old age or invalidity, so that they often disproportionately benefit those with lower incomes. The term *secondary distribution of incomes* refers to incomes after this process has taken place; or in other words, to disposable incomes after taxes and mandatory social security contributions have been deducted and transfers payments have been added.

Both the primary and secondary distributions of incomes are concerned with incomes in money terms. However, money is not an end in itself, but only a means to meeting human needs. In some countries, people have to pay (and sometimes cannot pay) considerable amounts to satisfy needs such as healthcare or quality education, while governments in other countries provide these services free of charge. Cash incomes are therefore only a partial proxy for individual welfare or – to use Amartya Sen's term – human capabilities, and comparisons of cash incomes can be misleading. The concept of a *tertiary distribution of incomes* aims at addressing this shortcoming by adding in-kind

[1] Note, however, that 'quirks' in the tax code and 'tax optimization' strategies sometimes mean that the very rich can evade high taxes.

benefits and entitlements to disposable incomes. However, while the analytical validity of the concept is apparent, the tertiary distribution is notoriously difficult to measure and the present chapter will leave the provision of public social services to Chapter 11 (by J. Martínez Franzoni and D. Sanchéz-Ancochea).

The primary and secondary distributions are usually discussed from the standpoint of households, often by analysing the distribution of the different income components and how taxes and transfers alter the personal distribution of incomes. However, the distribution of income accounts under the System of National Accounts (SNA-2008: para. 2.90ff.) describe the same process from an aggregate perspective, using a similar terminology. Here, the *primary distribution of income account* shows the functional distribution of gross value added between labour and capital (and government, that receives taxes on production and imports at this stage of the distribution process). The *secondary distribution of income account* starts from the balance of primary incomes and records current transfers, current taxes on income and wealth, net social contributions, and social benefits to arrive at disposable incomes. Finally, in order to map the tertiary distribution of incomes, the *redistribution of income in kind account* captures the provision of goods and services to individual households by governments.

3. Defining redistribution

In dictionaries, redistribution is defined as "to alter the distribution of" something.[2] This is a useful starting point: what follows is that income redistribution policies encompass all *government interventions that alter the distribution of incomes*, including those that affect the primary distribution of incomes. As argued in Part II of this volume, granting collective bargaining rights (or denying them) has consequences for the functional distribution of incomes and for wage inequality, as do minimum wages. However, governments alter the primary distribution of incomes in other, often even less visible ways. For instance, the liberalization of financial markets since the 1980s is widely believed to have contributed to a concentration of incomes at the top, and to a shift away from wages and towards profits (see Stiglitz, 2012; ILO, 2012). Likewise, trade liberalization has differential impacts on the incomes of various groups in society (see Jansen and Lee, 2007).

Such a broad definition of redistribution underlines the fact that most government action has redistributive consequences. To gain support for unpopular decisions such as the opening of trade, governments sometimes try to compensate the losers and impose a corresponding tax on the winners (ibid.). At this stage, redistribution becomes more apparent since it directly alters the primary distribution of incomes. This direct intervention in the form of taxes and transfers is commonly at the heart of public debates over redistribution, simply because it is more visible, even though the impact can be minuscule when compared the original policy decision. For example, trade compensation schemes are commonly thought to redistribute less than 5 per cent of the gains from trade (ibid.: 75).

The concept of *fiscal redistribution* captures these direct interventions that governments make through taxes and transfers. A key policy concern is often their net effect on income inequality, usually expressed as the change in a summary measure such as the Gini coefficient between the primary and secondary distribution. The impact can be further disaggregated into the direct effect of taxes and mandatory social contributions and the contribution of transfers (see section 6).

[2] See, for example, the Merriam-Webster online dictionary at http://www.merriam-webster.com/dictionary/redistribute

Tax policies play a crucial role for both aspects: They determine how much resources are at the disposal of governments for social policies, but the structure of the tax code by itself has an impact on inequality. At one extreme, income taxes can be regressive, i.e. the tax rates are lower for those with higher incomes. An example for a tax that widens inequality is the 'poll tax', an equal lump sum paid by every resident. However, although the top marginal tax rates have fallen substantially across the industrialized world since the 1970s, modern tax systems are still typically progressive and tax rates increase with incomes.[3] The result is that the rich pay (or are expected to pay) a greater share of their income as taxes, and that inequality after taxes is lower than before taxes. Between these two models lie distribution-neutral regimes with flat tax rates, where everybody pays the same proportion of her or his income in tax.

However, the structure of tax rates often given an incomplete picture of their redistributive impact since the rich, in particular, often take advantage of tax exemptions or find other ways to avoid paying taxes in full. This practice, euphemistically known as 'tax optimization' or 'aggressive tax planning', can undermine the intended redistributive effects of the tax code – and has re-ignited the public debate about the fairness of tax systems in many countries.[4] Another facet of tax codes is that income from capital (be it in the form of interest, dividends or realized capital gains) is often taxed at a different, generally lower rate than income from labour (or is exempt from taxation altogether).[5] To the extent that the capital incomes accrue to those at the top of the income pyramid, this further undermines the progressiveness of taxation (see also Atkinson et al., 2011).

On the whole, the redistributive impact of direct taxes on income and wealth is relatively well understood, based on the analysis of household survey datasets or national accounts (see section 4 below).[6] However, countries have increasingly shifted towards indirect taxes such as a general sales tax (GST) or a value added tax (VAT).[7] By taxing general consumption, these taxes have a bigger relative impact on those who consume a larger part of their incomes – generally the poor – and are hence often regressive (see Emran and Stiglitz, 2007). However, while households effectively pay these taxes, they affect

[3] Note, however, that the marginal tax rates have declined significantly since the 1970s in many advanced countries, making the tax code less progressive than it used to be (see Alvaredo et al., 2013)

[4] The debate on the fairness of tax systems itself has of course a long heritage. A frequently cited contribution was made by Adam Smith who argued in the Wealth of Nations that "[t]he subjects of every state ought to contribute towards the support of the government, as nearly as possible, in proportion to their respective abilities; that is, in proportion to the revenue which they respectively enjoy under the protection of the state" (Smith, 1904 [1776]: Book V, Chapter II, para. 25). This has sometimes been read to imply that Smith advocated flat tax regimes (and opposed fiscal redistribution though the tax system). In fact, he invoked the maxim to condemn regressive taxes, such as the "poll-tax upon freemen" that in his view was "either altogether arbitrary or altogether unequal, and in most cases is both the one and the other" (ibid., para. 110). By contrast, he was sympathetic to a "tax upon house-rents" which "would in general fall heaviest upon the rich" and argued that "in this sort of inequality there would not, perhaps, be any thing very unreasonable" (ibid., para. 71). Smith extended this argument to conclude that "[i]t is not very unreasonable that the rich should contribute to the public expence [sic], not only in proportion to their revenue, but something more than in that proportion" (ibid.). Although not entirely consistent with his previously sated maxim, this sentence is, of course, a neat summary of the rationale for progressive taxation.

[5] More specifically, tax on capital incomes are often flat-rate and lower than the top marginal income tax rate. For example, since 2009 Germany levies a flat 25 per cent tax on capital incomes (that is deducted at source), which is substantially lower than the top marginal income tax rate of 42 per cent.

[6] The analysis of tax records has some additional insights to offer, see in particular the work carried out by F. Alvaredo, A.B. Atkinson, T. Piketty and E. Saez for the World Top Incomes Database.

[7] Across the OECD, taxes on general consumption accounted for 13.4 per cent of total tax revenues in 1975, which rose to 20.5 per cent by 2010 (see OECD, 2012: Table 28). Over the same period, the share of taxes on personal incomes in total tax revenue declined from 29.8 per cent to 23.9 per cent (ibid., Table 10).

prices (and not income) and their impact on income inequality is more difficult to assess than in the case of direct taxes.[8]

While the conventional analysis of fiscal redistribution has important insights to offer, it has some conceptual shortcomings. One important concern is that a snapshot taken at a single point in time (usually for a given year) focuses only on inter-personal redistribution, ignoring *life-cycle redistribution*. For instance, old-age pensions appear as if they were a transfer from the young (who pay contributions and/or taxes to fund them) to the old (who receive pensions). In reality, the young and the old are not two distinct groups, but young workers will grow old over time so that today's contributors are tomorrow's beneficiaries. There is of course no guarantee that an individual's benefits will be equal to her or his contributions (those who die young will not receive anything in return, and those who are blessed with longevity will generally gain more). Pension systems therefore remain redistributive – albeit to different degrees, depending on their design (see Chapter 9 by C. Behrendt and J. Woodall).

A related criticism of the snapshot-approach is that it focuses on outcomes (i.e. it measures redistribution after the event, or *a posteriori redistribution*), rather than the expected, *a priori redistributive* effect. Take the example of occupational accident insurance, where all workers must pay a small premium α_1 and those who suffer an accident are paid a benefit α_2 (which partly compensates for their lost income d). At the end of the year, we can see that those who had no accident have a lower income Y than their initial market income W, while the disposable income Y' of those who suffered an accident is amended by the insurance benefit:

$$\text{No accident:} \qquad Y = W - \alpha_1 \tag{1}$$

$$\text{Accident:} \qquad Y' = W - d - \alpha_1 + \alpha_2 \tag{2}$$

Under the conventional, *a posteriori* approach, this insurance arrangement appears as a redistributive transfer. However, at the beginning of the year, individuals do not yet know into which of the two groups they will fall, and their expected income $\hat{Y}$ depends on the probability p of having an accident:

$$\hat{Y} = (1 - p)(W - \alpha_1) + p(W - d - \alpha_1 + \alpha_2) \tag{3}$$

Since some individuals (say, bricklayers) are more likely to suffer an accident than others (say, office workers), their expected income-gain or -loss from the insurance will differ. However, from an *a priori* perspective, the redistributive impact of social insurance is usually much milder since all contributors are also potential beneficiaries. When approached from behind a Rawlsian 'veil of ignorance' (see below) about future events, most office workers would still opt for protection against the potentially disastrous income loss as a consequences of an occupational accident (even if their expected income from the scheme is negative). The same distinction between the *a priori* and the *a posteriori* effect applies to other social insurance schemes.[9]

[8] Household surveys do not typically capture indirect taxes paid by households and the national accounts (SNA-2008) capture them in the distribution of income account (and the production account).

[9] Note that in the case of maternity cash benefits, male contributors have a probability of zero to receive benefits. Social insurance schemes that fund maternity cash benefits are therefore redistributive *a priori* from a gender perspective. There is, however, a strong rationale to collect insurance contributions from both men and women workers (and their employers) in order not to establish a disincentive to hire women.

4. Measurement issues and data sources

A large number of academic studies have looked into fiscal redistribution, and many of them have sought to quantify the impact on income inequality. The most common approach is to make use of the Gini coefficient, which provides a convenient summary measure of inequality (ranging from zero for perfect equality to one, when all incomes accrue to one individual). One can compare the Gini coefficient for the primary distribution of incomes, $G_{primary}$, to the Gini coefficient that emerges after taxes and transfers, $G_{secondary}$. This allows calculating the absolute differences, ΔG^{abs}, between the two coefficients:

$$\Delta G^{abs} = G_{primary} - G_{\text{sec}ondary} \tag{4}$$

or, alternatively, the reduction in inequality relative to its initial level, ΔG^{rel}:

$$\Delta G^{rel} = \frac{G_{primary} - G_{\text{sec}ondary}}{G_{primary}} \tag{5}$$

Both the *absolute* and *relative measures for redistribution* are frequently used, depending on the research context.[10]

Although this approach is straightforward in principle, it poses a number of practical and conceptual challenges. One obvious requirement is to have sufficient data on the distribution of incomes among households, both before and after taxes and transfers. *Tax records* often provide some information on this – sometimes going back for many decades –, though an obvious limitation is that not all residents of a country submit tax returns and some might do so in a less than fully honest manner (see the data collected by Atkinson et al., 2011).

Household survey data are therefore often the preferred source, especially since the Luxembourg Income Study has made them widely accessible to researchers in standardized format (Atkinson, 2004). However, data-users have to make a number of methodological decisions. For example, a common assumption is that all members of a household pool their incomes, which ignores unequal access to resources between different household members (and hence intra-household inequality). Further, when household income per person is calculated, researchers need to take into account the fact that children need fewer resources than adults, and that households realize economies of scale (since, for instance, several household members can share a single fridge). A number of equivalence scales have been developed to address this issue.[11] In sum, these methodological decisions mean that the comparison of Gini coefficients is often difficult and that the small-print needs careful attention.[12]

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[10] For studies that use the absolute measure for redistribution, see e.g. Kenworthy and Pontusson (2005) or Mahler and Jesuit (2006); some examples for studies base on the relative measure of inequality are Korpi and Palme (1998), Bradley et al. (2003), Mahler (2004), Iversen and Soskice (2006) or Luebker (2012).

[11] The two most frequently used scales are: (1) the so-called "modified OECD equivalence scale" that was first proposed by Haagenars et al. (1994) and assigns a value of 1 to the household head, 0.5 to other adults and 0.3 to each child; and (2) the square root scale that divides household income by the square root of household size (see the short note by the OECD titled "What are equivalence scales?", available at http://www.oecd.org/eco/growth/OECD-Note-EquivalenceScales.pdf).

[12] One of the most comprehensive documentations can be found in the user guide to the World Income Inequality Database by UNU-WIDER (available at http://website1.wider.unu.edu/wiid/WIID2c.pdf).

An alternative, less common measurement approach is based on *national accounts*, namely the secondary distribution of income accounts (SNA-2008: 2.90; see also above). They provide information on how much of households' primary incomes were collected by the state and social security institutions in the form of taxes and contributions, and how much of their total disposable incomes stems from current transfer payments. While this offers insights into the size of the welfare state, it cannot illuminate how far these interventions are effective in reducing income inequality between households (or whether they increase it). Other studies have drawn on *public social expenditure data* to estimate the extent of redistribution (Bassett et al., 1999; Hicks, 1999; Huber and Stephens, 2001).

5. Motivations for fiscal redistribution

While virtually all government action has redistributive implications, some government interventions explicitly aim at redistribution. This gives rise to the question of why governments pursue redistribution policies? Boadway and Keen (2000) have suggested a broad typology of three principle objectives behind fiscal redistribution, namely (i) the pursuit of social justice, (ii) achieving efficiency gains and (iii) that they reflect the self-interested use of the coercive power of the state. Although the distinction is not always sharp, it is nonetheless a useful framework for organizing a complex academic literature with very different views on the subject.[13]

The idea that the state has an obligation to promote *social justice* has a long tradition. For instance, the social teachings of the Catholic Church argue that the state has a moral obligation to "provide for the welfare and the comfort of the working classes" and to ensure distributive justice (Rerum Novarum, 1891: para. 33). Likewise, the International Labour Organization was founded on the principle that "universal and lasting peace can be established only if it is based on social justice" (Preamble of the ILO Constitution).[14] While labour market institutions can help to achieve greater equality of opportunity, initial conditions are sometimes so unequal – or markets so dysfunctional – that the outcomes are seen as ethically unacceptable or unfair. Without intervention, the market will deny some members of society basic capabilities and ultimately their rights as human beings (see also Sen, 2005). Hence, the state has a role to correct the outcomes of the primary distribution of income by transferring resources to enable all citizens a meaningful participation in society.

Such transfers can increase aggregate utility and hence overall welfare when analysed with the tools of welfare economics. If the utility functions of all individuals are identical and depend on the available resources, and marginal utility of resources is decreasing, then the utility gain of poor transfer recipients is greater than the loss faced by richer contributors. An individual who does not yet know which position he or she will take in society therefore has a greater *expected* utility when income distribution is more equitable (see the summary in Boadway and Keen, 2000: 680).[15]

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[13] Some of the discussion in this section follows the useful structure of Boadway and Keen (2000), in which a more detailed list of sources can be found.

[14] The idea of social justice as an overarching policy objective is very much alive today. For a recent policy document that makes explicit reference to social justice, see the ILO Declaration on Social Justice for a Fair Globalization, adopted by the International Labour Conference at its Ninety-seventh Session (Geneva, 10 June 2008).

[15] A. Sen (2000: 63) points to some obvious shortcoming of the welfarist analysis, namely the assumption that people derive identical utilities from the same basket of commodities (that may or may not enable them to exercise some capabilities) and that the summation of utilities across persons is blind to distribution. See Sen (ibid.) for a more nuanced discussion of social justice and the distribution of income.

From a very different starting point, Rawlsian theories of justice make a related argument. They try to determine the kind of society that an individual would choose from behind a "veil of ignorance", arguing that people will be averse to being born into a society where they face the risk of living in deprivation (Rawls, 1971). However, while may be an insightful thought experiment to discuss the hypothetical preferences of individuals under conditions of ignorance, pursuing arguments for fiscal redistribution on the grounds of social justice is ultimately driven by value judgements – which, as will be discussed later, differ between people.

Interestingly, one argument in favour of redistribution on the *grounds of efficiency* also relates to values, namely altruism. From the fact that some people give (voluntarily) to others, economists have deduced that they must derive a utility from the welfare of their fellow citizens. However, any individual's gift to the poor has only a small impact unless other rich persons join in. In other words, the rich face a collective action problem, and private transfers will remain at a sub-optimal level. This problem can be solved through compulsory redistribution that benefits everyone: the poor, who receive transfers, and the rich, who live in a more equitable society (Boadway and Keen, 2000: 684). One can therefore construct an argument that redistribution improves the welfare of everyone and is hence Pareto-efficient. Although expressed in a highly formalistic terminology, this argument essentially boils down to an admission by economists that humans have a heart.

From a more conventional perspective, efficiency gains can be achieved by social security institutions (which carry out most of the redistribution in welfare states). In particular, they address market failures where private insurance markets fail to provide individuals with affordable insurance against some of the basic risks of life, such as ill health, old age, occupational accidents or unemployment (see Chapter 9 by C. Behrendt and J. Woodall and Chapter 10 by J. Berg). Insurance companies are likely to have less information on the risks faced by an individual that the individual her- or himself. Any product they offer is thus likely to be bought primarily by those who face a higher risk, driving up insurance premiums – further disadvantaging those who face low risks, but nonetheless want to buy insurance.

As Rothschild and Stiglitz (1976) have shown, such information asymmetries mean that competition in insurance markets need not lead to an equilibrium, and that a number of responses by providers (such as rationing or the exclusion of bad risks from revealed buying protection) mean that market outcomes are not Pareto-optimal. The inefficiency that results from adverse self-selection can be overcome through the compulsory public provision of social insurance. Intriguingly, the pooling of high- and low-risks individuals under the same contract also leaves low-risk individuals better off since they obtain insurance at lower cost than they could buy in a competitive market.

Going back to these first principles provides a helpful perspective to the debate on the sustainability of welfare states, which have come under pressure in much of the developed world due to aging populations, the rising relative cost of social services (known as Baumol's cost disease) and increased global competition due to trade and capital mobility. Arguably, institutions that increase efficiency by addressing market failures or that raise a country's human capital stock do not undermine a country's global competitiveness. Healthcare provision is a case in point. As a share of GDP, the United States spend twice as much on health as Finland (which has a largely state-controlled health system).[16] Yet, Finland outperforms the United States on almost every health indicator compiled by the World Health Organization (2013), be it treatment-success rate for smear-positive tuberculosis or immunization coverage for measles among 1-year-olds.

[16] According to the World Bank's World Development Indicators, health expenditure accounted for 17.9 per cent of GDP in the United States and for 8.9 per cent of GDP in Finland (data for 2011).

While the Affordable Care Act (better known as "Obamacare") has sought to address failures in the private insurance market, businesses frequently cite the high cost of the United States' inefficient health system as a drag on competitiveness.

A less benign view of redistribution has emerged from the public choice literature, namely that it reflects the *self-interested use of the coercive power of the state*. In a paper that has influenced much of the subsequent debate on redistribution, Meltzer and Richard (1981) presented a model in which the state imposes a (linear) tax on all incomes and then redistributes the proceeds in the form of lump-sum benefits. While those at the top of the income distribution pay more in taxes than they receive in return in the form of benefits, citizens with low incomes will gain from the process – and therefore have an inherent interest in redistribution. Based on the notion of rational individuals who maximize their utility, Meltzer and Richard assume that the prospect of material gain shapes individuals' preferences for redistribution and leads them to demand redistribution at the ballot box. In the tradition of Schumpeter (1942) and Downs (1957), they then argue that the median voter will cast the decisive ballot and that his preferences will be decisive (at least under conditions of majority-rule and universal suffrage).

These three perspectives differ sharply in how they conceptualize redistribution: On the first account, the moral imperative of social justice demands to better the lot of the deprived, while the second viewpoint casts redistribution as efficiency-enhancing government interventions into failing markets that are in the interest of all. The third perspective brushes these considerations aside and portrays redistribution as driven by individual greed – it is the result of the tyranny of the majority that appropriates for itself what rightly belongs to the rich. This summary is, of course, a slight exaggeration made for the sake of clarity. Further, there are many other, often very practical, justifications for redistribution – for instance, from a broader perspective of macro-economic performance or development policy (see Chapter 2 by S. Lee and M. Gerecke).

6. Trends and cross-country differences in redistribution

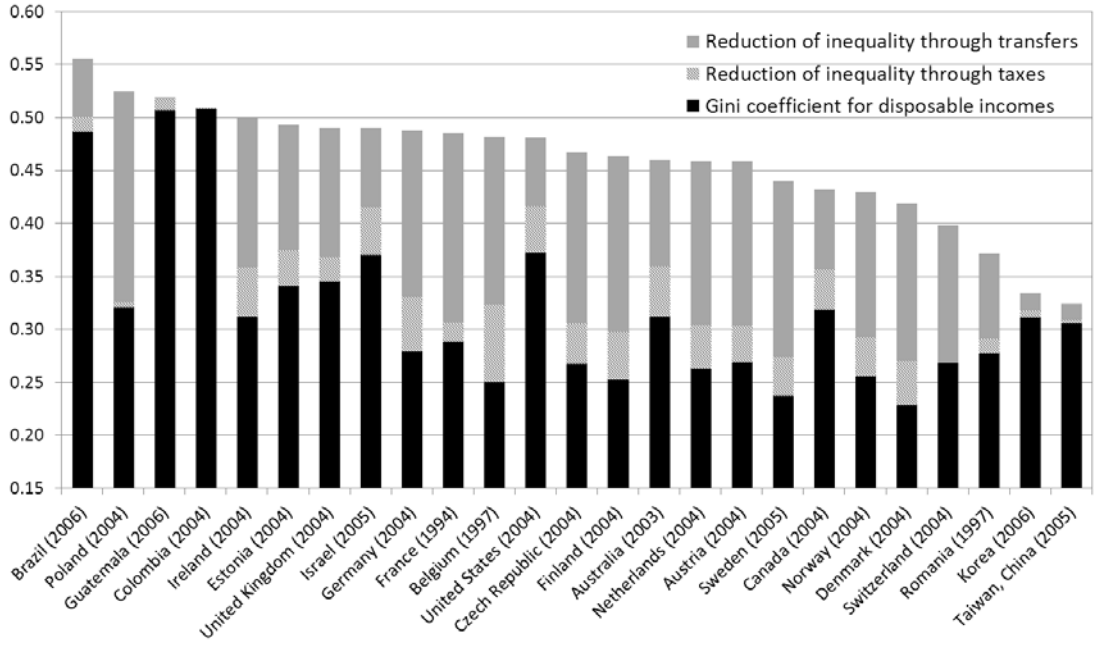
Tax systems and social security systems – the two main vehicles for fiscal redistribution – differ greatly in their scope and size across countries (see ILO, 2010). It is therefore not surprising that their redistributive impact varies significantly. This section provides some illustrative evidence for variation between countries and across time. It presents data both on (a) the overall redistributive impact of taxes and transfer (based on household survey data) and (b) the size of redistribution (based on national accounts). Common to both sources is poor data availability for developing countries.

In line with the approach discussed in section 4, figures 1 to 3 provide an overview of the reduction in the Gini coefficient as a result of fiscal redistribution.[17] The total height of the bars in each figure corresponds to the Gini coefficients for the primary distribution of incomes,[18] whereas the blue sections at the bottom correspond to the Gini coefficients in the secondary distribution (i.e. for disposable incomes). The gap in between is the measure for absolute redistribution introduced in equation (4). It can be decomposed into the reduction in the Gini coefficient achieved through transfer receipts (dark grey bar) and through taxes and mandatory social security contributions (light grey bar).

[17] The results were previously published in Luebker (2011), on which the following discussion draws.

[18] Under the definition used here, private sector incomes include all pre-tax incomes that derive from the private sector (such as income from employment, property income and private transfers). Unfortunately, no comparable data are available for developing countries.

Figure 1. The impact of taxes and transfers on inequality, Gini coefficients (ca. 2000s)



Note: The total height of the column corresponds to the Gini coefficient for market incomes (i.e. before taxes and transfers).

Source: Luxembourg Income Study Database (LIS); www.lisdatacenter.org (multiple countries; analysis of micro-data completed between February and May 2011). Luxembourg: LIS.

The cross-section of 25 countries presented in figure 1 shows remarkable differences in redistribution between countries. While countries such as Belgium (1997), the Czech Republic (2004), Finland (2004), Germany (2004), Poland (2004) and Sweden (2005) all achieve a reduction in the Gini coefficient of 0.20 or more, fiscal redistribution is much more limited outside Europe. In fact, one striking finding is that differences in the Gini coefficient for disposable incomes are, to a significant extent, driven by the magnitude of redistribution – and are not fully determined by inequality in the primary distribution. In technical terms, the simple correlation between Gini coefficients for the primary and secondary distribution is only $r = 0.499$ (p-value: 0.011). This means that initial inequality matters, but can explain only about a quarter of the variation in the Gini coefficients for disposable incomes. [19] Political choice, rather than market forces, are therefore a substantial factor behind distributive outcomes.

Take the example of the Nordic countries and Belgium, that all achieved a fairly equitable secondary distribution of incomes (Gini coefficients of roughly 0.25 or less). Yet, their underlying distribution of private sector incomes ranges from high inequality (as in Belgium, with a Gini of 0.481) to a more egalitarian distribution (as in Denmark, with a Gini of 0.418). Somewhat surprisingly, the United States and Belgium share the same Gini coefficient for the primary distribution of incomes (0.481). Hence, markets produce very similar outcomes in both countries. But whereas Belgium corrects these outcomes, the United States are left with the highest inequality of disposable incomes among the industrialized countries in the sample. Here, the decisive factor is not what happens in the primary distribution, but that taxes and transfers are far less redistributive in the United States.

[19] The coefficient of determination, R^2, is equivalent to the squared correlation coefficient.

The three Latin American countries in the sample – Brazil, Colombia and Guatemala – all share extremely high levels of inequality, with Gini coefficients for the primary distribution above 0.50. In Guatemala, the tax and transfer systems lead only to a negligible reduction in inequality, while it actually marginally increases inequality in Colombia. Here, transfers disproportionately benefit the richer segments of society and taxes impose only a very light burden on those with high incomes (see Alvaredo and Londoño Vélez, 2013). In line with these findings, a World Bank study on Latin America concludes that "a good deal of Latin America's excess inequality over international levels reflects the failure of the region's fiscal systems to perform their redistributive functions" (Goni et al., 2008).

Three features of Latin America's tax and transfer systems account for much of this failure: Firstly, the tax base of Latin American countries has historically been much narrower than in developed countries and declined further during the neo-liberal reforms on the 1980s. In 1990, countries in the regions on average collected only 13.7 per cent of GDP in taxes (see Cornia et al., 2011: 20). Secondly, taxation relies heavily on value added tax (VAT) and other indirect taxes, which – unlike direct taxes on incomes – target poor and rich alike and are therefore often regressive in their impact (ibid.). For instance, Chile and Mexico derive half of their total tax revenue from consumption taxes (compared to less than a third in the OECD as a whole; see OECD, 2012: Table 26). Thirdly, social security entitlements are often tied to previous contributions and expenditure hence favour workers with formal-sector jobs, making it highly regressive in many countries (see ECLAC, 2008: 104ff.).

As López and Miller (2008) argue for the case of Chile, tax loopholes have a strongly favoured the elites and – despite relatively high nominal tax rates – undermined the tax base, leaving government with insufficient sources to address the country's sky-high inequality. However, some countries in the region have begun to address these shortcomings. Led by Argentina and Brazil (where the tax take now approaches the OECD average), the region's tax ratio increased to 18.5 per cent of GDP by 2009 (see Cornia et al. 2011: 20). This created the fiscal space for social transfer programmes targeted at the poorest, such as the "*Bolsa familia*" programme in Brazil (see Chapter 11 by J. Berg). The data presented in Figure 1 show that transfers indeed reduce Brazil's Gini coefficient by 0.055, while the redistributive impact of taxation remains small.

Compared to Latin America, countries in East Asia have managed to achieve lower private sector inequality. The literature attributes this success to heavy investment into broad-based education and lower levels of asset inequality (see e.g. Birdsall et al., 1995). Crucially, land reforms – largely absent in Latin America – levelled entrenched rural inequality and enhanced agricultural productivity (see Chaudry, 2003). The two East Asian economies with available data – the Republic of Korea and Taiwan, Province of China – have in fact by far the lowest pre-tax, pre-transfer inequality among all 25 countries in the sample. This reduces the need for redistribution, and despite only mildly redistributive tax and transfer systems, inequality of disposable incomes is relatively moderate (see also Jacobs, 2000). However, the low incidence of taxation and transfers also means that the automatic stabilizers of the developed countries are absent, and rising market inequality feeds directly through into rising inequality of disposable incomes. In response, regional agencies such as the Asian Development Bank (2012) now advocate "efficient fiscal policies" to address rising inequality, including by greater and more equitable revenue mobilization and more expenditure on social protection schemes (see also UN-ESCAP, 2013: 50f.).

For sub-Saharan Africa, no data were available from the Luxembourg Income Study at the time of data extraction. However, with the partial exception of Southern Africa, fiscal

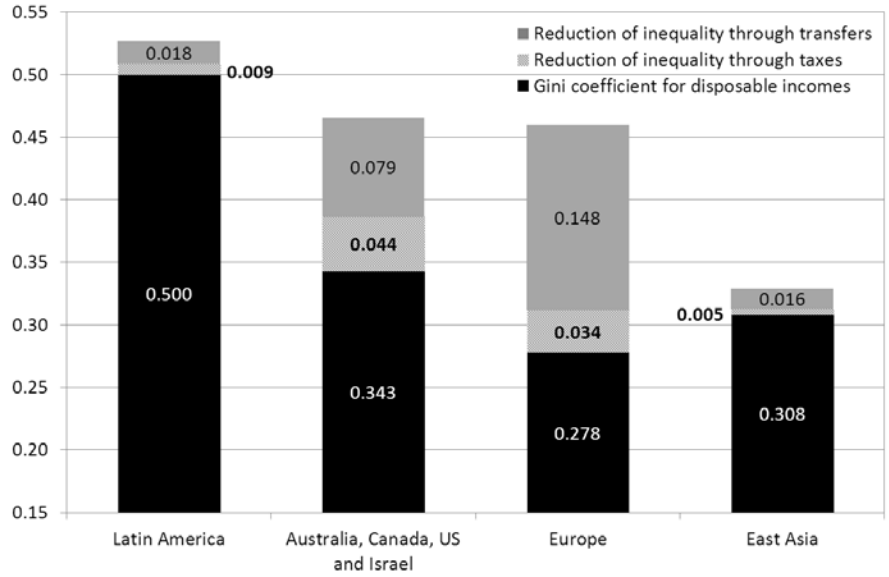
redistribution is extremely limited across the continent. Firstly, taxation as a share of GDP is low compared to other regions and income taxes play a relatively minor role (see Bird and Zolt, 2005). Instead, countries rely on taxing trade and natural resources – and increasingly on value added taxes, which are often regressive in their impact (see Riswold, 2004; Emran and Stiglitz, 2007.). Secondly, the reach of contributory social security schemes is limited due to widespread informality. For instance, in the United Republic of Tanzania less than 1 per cent of the entire population is covered by one of the country's seven social security funds (see ILO, 2008). Thirdly, non-contributory social assistance programmes are still in their infancy. The major exception is South Africa, where the child support grant, the older persons grant and other social grants now reach 16 million persons, almost one-third of the country's population (see National Treasury, 2013: 85). Although other countries have set up similar programmes, such as the Cash Transfer Programme for Orphans and Vulnerable Children in Kenya, their reach is still far more limited (see Asfaw et al., 2012).

The different regional patterns are summarized in Figure 2. Whereas both the Latin American and East Asian countries have only mildly redistributive transfer systems, the gap between high and low inequality of private sector incomes means that the Gini for disposable incomes is much higher in Latin America (0.500) than in East Asia (0.308). By contrast, Europe and a group of largely Anglo-Saxon OECD countries (Australia, Canada, the United States and Israel) start from very similar initial income distributions. However, the income transfers in European countries – that have well-developed social security systems – reduce the Gini coefficient on average by 0.148 points, while the more restricted welfare state in the latter group has a far smaller impact (-0.079). Australia, Canada, the United States and Israel thus have noticeably higher inequality of disposable incomes (0.343) than Europe (0.278), despite starting from a similar underlying distribution.

Looking at trends over time, data for eight countries with a consistent time-series show a continued increase in inequality of disposable incomes: the Gini rose from an average of 0.272 in ca. 1980 to 0.320 in ca. 2005 (see Figure 3). The rise in inequality over the past decades was driven by a greater dispersion of market incomes; taxes and especially transfers slowed the rise in inequality. Using the absolute measure introduced in equation (4), redistribution increased from 0.103 (the sum of the green and red bars) in 1980 to 0.130 in 2005. However, redistribution increased far more modestly under the relative measure for redistribution (from 0.275 to 0.289; not tabulated). While this fining is at odds with the thesis of widespread welfare-state retrenchment, it does not imply that rules and entitlements have become more generous over the past decades. Rather, what seems to be at work here is a process of 'automatic stabilization', where the welfare state partially compensates for the surging market inequality (see Kenworthy and Pontusson, 2005). Moreover, there are substantial differences between individual countries – the United Kingdom and the United States, for instance, both saw declining relative redistribution.[20]

[20] The measure for relative redistribution for the United Kingdom are United Kingdom 0.318 (1979) and 0.297 (2004) and for the United States 0.250 (1979) and 0.225 (2004).

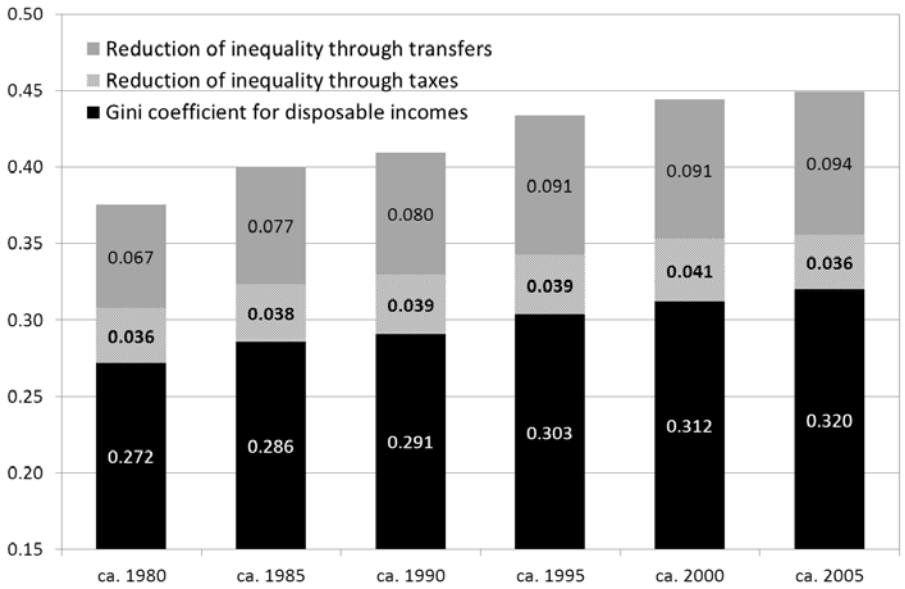
Figure 2. The impact of taxes and transfers on income inequality, regional averages of Gini coefficients (ca. 2000s)



Note: The total height of the column corresponds to the Gini coefficient for market incomes (i.e. before taxes and transfers).

Source: Luxembourg Income Study Database (LIS); www.lisdatacenter.org (multiple countries; analysis of micro-data completed between February and May 2011). Luxembourg: LIS.

Figure 3: The impact of taxes and transfers on inequality, trends in Gini coefficients from ca. 1980 to ca. 2005



Note: Based on a stable sample of eight industrialized economies (Australia, Canada, Germany, Israel, Norway, Taiwan [Province of China], United Kingdom, United States). The total height of the column corresponds to the Gini coefficient for private sector incomes (i.e. before taxes and transfers).

Source: Luxembourg Income Study Database (LIS); www.lisdatacenter.org (multiple countries; analysis of micro-data completed between February and May 2011). Luxembourg: LIS.

Where household survey data can map the effect of fiscal redistribution on personal income inequality, *national accounts data* can give some insights into the overall extent of fiscal redistribution. Figure 4 presents a summary of changes to the aggregate incomes of the household sector for 25 countries of the European Union, mainly for 1995 and 2009. On the left, the figure shows payments made by households in the form of direct taxes, social security contributions[21] and (a minor category) other current transfers.[22] They are expressed as a percentage of primary incomes, and reduce the market incomes that remain at the disposal of households, which are plotted on the right side of the chart.[23] However, households are also major recipients of social security benefits and, to a lesser degree, of other transfers. The total size of the bars on the right corresponds to the household sector's disposable incomes after redistribution, again expressed as a percentage of primary incomes.

Households' aggregate disposable income is usually lower than its balance of primary incomes. This reflects the fact that the household sector (as well as the corporate sector), finances general government expenditure through taxes. There are only a few exceptions to this rule, such as Greece and a few countries in Eastern Europe, where the household sector is a net recipient of resources in the redistribution process.[24] At the opposite extreme, the disposable income of households is only about 72 per cent of primary incomes in Denmark and the Netherlands, and about 82 per cent in Sweden and Belgium. This is due to the high incidence of taxes (Denmark and Sweden) or social contributions (Netherlands and Belgium). Although the household sector appears to be a net loser from redistribution, the four countries cited provide a broad range of public services to their citizens, which are not captured in the secondary distribution of income account (but in the redistribution of income in kind account; see Chapter 11 by J. Martínez Franzoni and D. Sanchéz-Ancochea).

On average, households across the 25 European countries received 27.5 per cent of primary incomes in the form of social transfers, although there is a wide range from less than 21 per cent in Lithuania to almost 35 per cent in Denmark. Between 1995 and 2010, some of the Eastern European countries (Czech Republic, Estonia, Hungary, Romania and Lithuania) have expanded the size of social benefits by 6.5 percentage points or more. This partly reflects a catch-up with the standard in and the old EU member countries, and partly a cyclical increase due the economic crisis. Likewise, the substantial expansions of benefits in Ireland (+11.0 percentage points), Portugal (+11.5 percentage points) and Greece (+15.1 percentage points) is due both to the particularly severe impact of the crisis in all three countries, and to a starting position in the mid-1990s well below the EU average.

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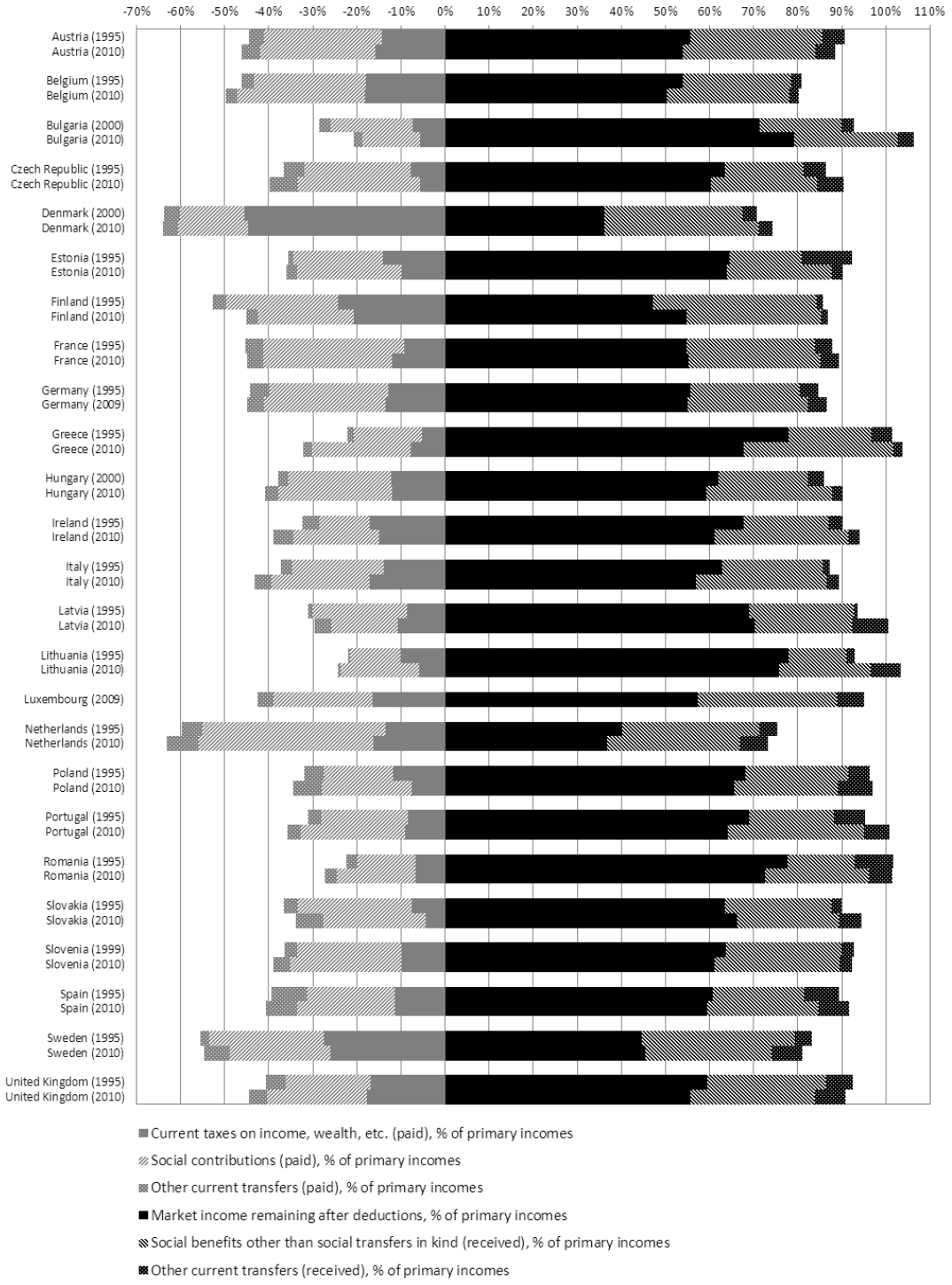
[21] Note that the black bar and the total size of the bars on the left add up to 100 per cent. For national accounts purposes, primary incomes include social contributions made by employers on behalf of their employees (in addition to those paid by employees themselves, which are often direct deducted from wages and salaries). Employers' social contributions are part of the compensation of employees, which is attributed to households in its entirety (SNA-2008: 8.16). This is a difference to an analysis based on household survey data, where employers' social contributions are usually not classified as household income.

[22] The residual category of other current transfers includes "net premiums and claims under non-life insurance policies, […], as well as current transfers to and from NPISHs and between resident and non-resident households" (see SNA-2008: para. 8.19). The latter includes, for instance, alimony payments.

[23] For presentational purposes, it is assumed that taxes and social contributions are paid out of primary incomes. In reality, some social benefits (and pensions in particular) are taxed. National accounts therefore first add benefits and other transfers to primary incomes, and then subtract taxes and contributions.

[24] This means that the general government sector must finance itself by taxing corporations or generate its own primary income – or take on debt to finance the deficit.

Figure 4. Changes to aggregate incomes of the household sector under the secondary distribution of income account in 25 EU countries, 1995 and 2010



Note: The secondary distribution of income account for the household sector shows how the balance of the primary income is allocated by redistribution. Current taxes on income, wealth etc., social contributions and other current transfers paid by households are deducted from the primary incomes, while benefits (excluding social transfers in kind) and other current transfers are added. Since all transactions are expressed in per cent of primary incomes, the total length of the bars on the right-hand side of the chart shows households' disposable incomes as a percentage of primary incomes. No data are available for Cyprus and Malta.

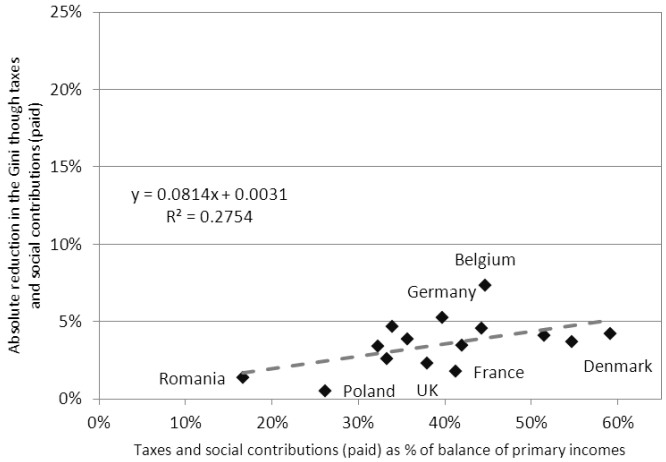
Source: Eurostat (series: nama_r_ehh2s; updated: 28 October 2013; data extracted on 22 November 2013).

Large-scale welfare state retrenchments in the period before the crisis (1995 to 2007) can be seen in traditional welfare states such as Finland (-10.0 percentage points), Sweden (-7.7 percentage points) and the Netherlands (-5.2 percentage points) as well as in Latvia (-11.1 percentage points; not tabulated). However, this decline is partly offset by the expansion of benefits during the economic crisis so that the scale of retrenchment does not become as apparent in Figure 4. Overall, no clear trend towards welfare-state expansion or retrenchment can be detected across the EU: in the pre-crisis period, the level of social benefits changed little from 23.7 per cent of household's primary incomes in the first year (generally 1995) to 23.1 per cent in 2007. Hence, the aggregate increase in benefit intensity (+3.7 percentage points) is entirely due to cyclical factors, and not due to a general policy shift towards greater redistribution.[25]

Do the two approaches to measuring fiscal redistribution show similar patterns? To answer this question, Figure 5 combines the data from both sources (using the latest available matching observations). From panel (a), the wide range in the share of taxes and social contributions – from 16.7 per cent in Romania (1997) to 59.2 per cent in Denmark (2004) – becomes once more apparent. While there is a positive association to the redistributive impact of taxes, the range of outcomes is fairly narrow and the slope of the regression line is relatively flat (0.081). By contrast, benefits translate more directly into a reduction in inequality through the transfer channel, as can be seen from the slope of the regression line (0.335) in in panel (b). Finally, panel (c) presents a summary measure of the size of fiscal redistribution (obtained by summing the two previous measures) and relates it to its overall redistributive impact. The chart shows that the size of the welfare state indeed matters for redistributive outcomes, though the simple measure used can account for only a third of the overall variation in redistributive impacts (R^2 = 0.340). This highlights the importance of the design of tax and transfer systems.

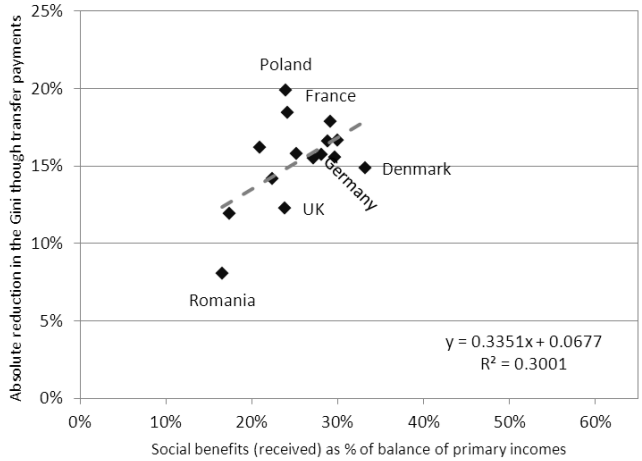
Figure 5. The size of fiscal redistribution and reduction in inequality through fiscal redistribution in 15 European countries, late 1990s and 2000s

Panel a. Size of tax payments and social contributions and reduction in inequality through taxes social contributions

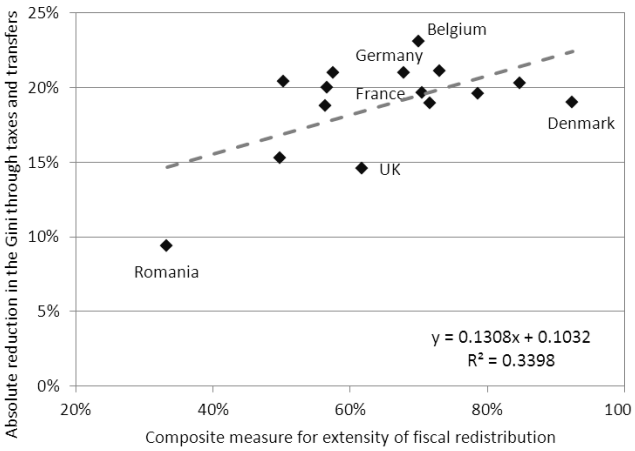


[25] Refers to the unweighted average of national figures for the 24 countries where data were available for 2010 and 1995 (or, in some cases, another base year; compare Figure 4). The averages exclude Cyprus, Luxembourg and Malta.

Panel b. Size of social benefits and reduction in inequality through transfer payments



Panel c. Composite measure for the size of fiscal redistribution and reduction in inequality through fiscal redistribution



Note: The composite measure is calculated as the sum of benefits received and the absolute values of taxes paid and social contributions paid, all expressed as a percentage of the balance of primary incomes for the household sector. For further details, see notes to figures 1 and 4. The country observations and years are: Austria (2004), Belgium (1997), Czech Republic (2004), Denmark (2004), Estonia (2004), Finland (2004), France (1994/95), Germany (2004), Ireland (2004), Netherlands (2004), Poland (2004), Romania (1997), Slovakia (1992/95), Sweden (2005) and the United Kingdom (2004).

Source: Luxembourg Income Study Database (LIS); www.lisdatacenter.org (multiple countries; analysis of micro-data completed between February and May 2011). Luxembourg: LIS; and Eurostat (series: nama_r_ehh2s; updated: 5 July 2012; extracted: 29 January 2013).

7. What explains differences in redistribution?

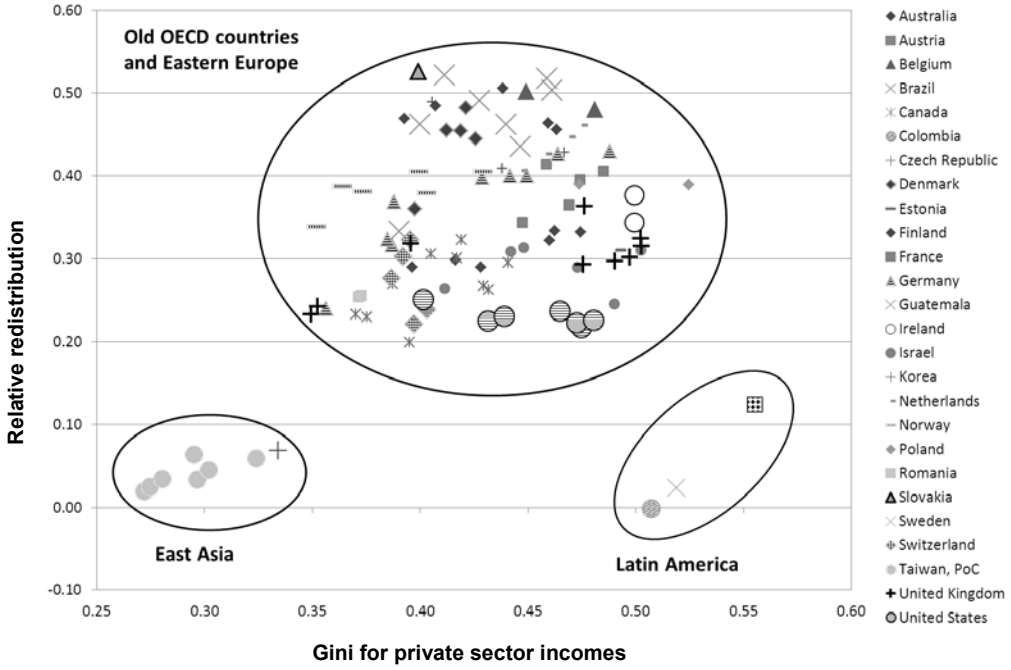
What explains the large differences in redistribution between countries that have been documented in the previous section? A vibrant literature has discussed this question, with contributions from the economics discipline, and – given that decisions about redistribution are ultimately political in nature – also from political sociology and political science. A helpful way to systematize some of the literature is to refer back to the motivations for redistribution, in particular the opposing views that it reflects the pursuit of social justice or individual utility maximization (see section 5).

The latter approach, which is placed in the broader tradition of rational choice, models the process of tax payments and transfer receipts discussed in the previous section from the perspective of individual households. In their previously cited paper, Meltzer and

Richard (1981) show how much each household will gain in the process, and which tax rate maximizes the utility of the median voter (who, in their model, casts the deciding vote). There is, of course, some truth in this assumption: people with low incomes tend to view redistribution more favourably than those who occupy the top echelons of society (see e.g. Guillaud, 2013). However, Meltzer and Richard do not confine their argument to the level of individuals and draw a conclusion art the macro-level, namely that fiscal redistribution should rise in line with inequality of primary incomes. While there has been some debate on whether the extent of redistribution should be measured in *absolute* or *relative* terms (see section 4), it is clear from the model specifications that higher inequality should give rise to greater relative redistribution.[26]

For those concerned with greater equity, this would be good news – redistribution would be in greater supply precisely where it is needed most. However, a range of studies has found no empirical confirmation that relative redistribution systematically rises with greater initial inequality, no matter whether they look at a cross-section of countries (see e.g. de Mello and Tiongson, 2006; Lupu and Pontussen, 2011) or at trends over time within countries (Kenworthy and McCall, 2008). Likewise, Figure 6 with 110 observations from 26 countries shows little evidence for a correlation between the two variables. Two groups of outliers are immediately apparent: East Asia (with low inequality and low redistribution) and Latin America (with high inequality and low redistribution). Even for the old OECD countries and Eastern Europe no strong pattern emerges, though the hypothesis seems to have some validity for repeated observations from the same country. In a regression, initial inequality indeed becomes a significant explanatory variable for within-country changes in relative redistribution. However, the regression coefficient loses its significance when the unemployment rate and the share of the population aged 65 years and above are added as control variables (see Luebker, 2012).

Figure 6. Gini for private sector income and relative redistribution in 26 countries and territories, 1990s and 2000s (latest available)



Source: Luxembourg Income Study Database (LIS); www.lisdatacenter.org (multiple countries; analysis of micro-data completed between February and May 2011). Luxembourg: LIS.

[26] For further details, see Luebker (2012) on which this section draws heavily.

There is thus little evidence to suggest that the simple mechanism of individual utility maximization proposed by the rational choice literature is sufficient to explain why some countries redistribute more than others. One body of literature, with many contributions from political science, has sought the explanation in the properties of different political systems and argued that they differ in how they translate voters' preferences into policy outcomes. For instance, proportional representation and majority voting, voter turnout and the structure of inequality could all influence the final outcome (see e.g. Bassett et al., 1999; Tanninen, 1999; Austen-Smith, 2000; Cukierman and Spiegel, 2003; Iversen and Soskice, 2006; Borck, 2007; Solt, 2008; Mahler, 2008; Lupu and Pontussen, 2011). Others have drawn on the second school of thought – redistribution as social insurance (see section 5) – to argue that social security systems have unclear *a priori* distributive outcomes (Moene and Wallerstein, 2003). Therefore, greater risk exposure should increase support for these schemes (see Cusack et al., 2006).

An alternative strand of literature relates to the view that redistribution aims at greater social justice where markets fail to produce equitable outcomes. Hence, people's conceptions about what is just and fair should matter – in other words, values and value orientations become important (rather than economic utility). As Amartya Sen has argued,

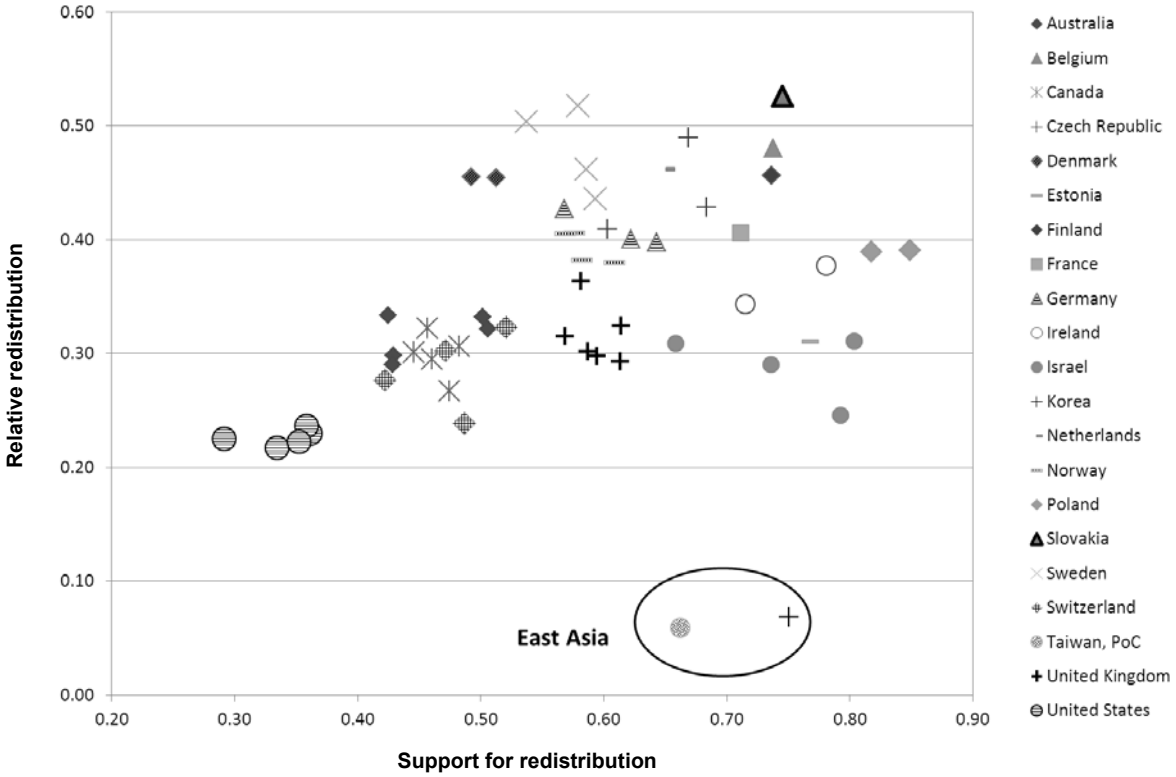
> "People's attitudes towards, or reactions to, actual income distributions can be significantly influenced by the correspondence – or the lack thereof – between (1) their ideas of what is normatively tolerable, and (2) what they actually see in the society around them. Ideas of social justice can sway actual behaviour and actions." (Sen, 2000: 60)

Relating income redistribution to the sphere of ideas and value orientations provides a fresh starting point. If different societies have different conceptions about what can be considered just, societies should indeed evaluate identical levels of inequality differently. Data from opinion surveys show that this is in fact the case: for instance, people from Eastern Europe, who were socialized in a (at least nominally) socialist system, are far more adverse to inequality than those from Western Europe. At the other extreme, citizens from the Anglo-Saxon countries, and especially the United States, are found to be far more tolerant of inequality (see Luebker, 2007). Interestingly, the evaluation of inequality as ''too large' translates into greater support for fiscal redistribution among the electorate – an effect that is independent of the actual level of inequality (ibid).

Do these differences in public support for redistribution matter for policy outcomes? Figure 7 plots the share of respondents from a large-scale public opinion survey who agree that it is the government's role to reduce income differences (on the horizontal axis) against actual redistribution (on the vertical axis). The fit is much better than in the previous graph, although East Asia remains an outlier (there are no matching observations from Latin America). When the outliers are excluded, a multivariate regression model shows that public support for redistribution indeed turns out to be a highly significant explanatory variable for the variation in actual redistribution (using the relative measure; see ibid.)[27]. This suggests that voters hold sway over what welfare states do, and that the sphere of ideas and values matters in the electorate's decision-making process.

[27] The model controls for the unemployment rate, the share of the population aged 65 years and above and the initial level of inequality; see Luebker (2012).

Figure 7. Support for redistribution and relative redistribution in 22 countries and territories



Source: Luxembourg Income Study Database (LIS); www.lisdatacenter.org (multiple countries; analysis of micro-data completed between February and May 2011). Luxembourg: LIS, and International Social Survey Programme (ISSP), modules on Role of Government II and III, and Social Inequality I to IV; see Luebker (2012) for details.

However, this finding needs to be qualified with at least two caveats. Firstly, it is not entirely clear in which direction the causality runs: While it is likely that voters' demand for redistribution matter for policy (i.e. that they serve as an input into the political system, to use David Easton's terminology), it is equally plausible that voters' conceptions of what is just and fair are partly shaped by their socialisation in a particular welfare state regime. Hence, they serve as 'feedback' that is generated by previous policy (see also Easton, 1965). Secondly, even if there is some evidence for policy responsiveness, it would be naïve to assume that favourable public opinion is all that it takes to make governments more (or less) redistributive. The lack of any large-scale redistribution in Latin America has little to do with unsupportive public opinion (there is overwhelming support in Chile and Argentina, the two countries for which ISSP data are available). Rather, history and an entrenched power structures offer a better explanation for why the welfare state is so underdeveloped in Latin America (though this is beginning to change). Power resource theory has looked into this aspect of political decision-making (see e.g. Korpi and Palme, 1998).

8. Conclusions

When designing and reforming labour market institutions, policy makers can ensure that they do not only promote an efficient framework for markets to operate, but also enhance equity. However, providing a level playing field and protecting those who have weak individual bargaining power will not always achieve the desired outcomes – and developments in financial markets and trade policies can have effects that run counter to the objective of greater equity. As this chapter has shown, all countries therefore intervene into the primary distribution of incomes that emerges from the market through their tax and transfer systems. Justifications for this include the pursuit of social justice, a mission at the heart of the ILO's mandate, and the search for greater efficiency – though opponents of redistribution have argued that it is primarily driven by the selfish motives of the beneficiaries.

The extent of fiscal redistribution varies substantially between countries, both in terms of its impact on income inequality and the size of taxes and transfers involved. While a larger size of transfers and taxes (relative to primary incomes) usually entail a greater reduction in inequality, the size alone explain only about a third of the variation in redistributive impact. The repressiveness of taxes and the design of social security systems is therefore at least of equal importance – a topic that is taken up by C. Behrendt and J. Woodall in Chapter 9 (pension systems) and by J. Berg in Chapter 10 (income support for the unemployed and the poor). Likewise, the present chapter has only considered the primary and secondary distribution of incomes, but neglected the tertiary distribution – an aspect that J. Martínez Franzoni and D. Sanchéz-Ancochea discuss in Chapter 11 on the provision of public goods.

What these chapters show is that inequality is not an unavoidable outcome of market forces, but – to some degree – a matter of political choice and institutional design. While policy makers face objective constraints (and the paths taken in some countries are clearly not sustainable), they need to maintain an open ear towards public opinion to remain responsive to public demand for an equitable society. What is needed is an informed debate on how labour market governance and social security and tax policies can become part of a more balanced development path that can combine equity with growth.

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Paper B. Inequality and the demand for redistribution: Are the assumptions of the new growth theory valid?

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Inequality and the Demand for Redistribution: Are the Assumptions of the New Growth Theory Valid?

Malte Lübker

Abstract: One prominent strand of the new growth theory has identified the political process as a potential channel to link high inequality to lower long-term growth. Several authors have argued that (1) higher inequality causes higher demand for redistribution, (2) which leads to greater redistribution and higher taxes, (3) which is in turn harmful to growth. This article addresses the first step of this argument, a proposition that has been widely accepted as a stylized fact. Using cross-section data for 26 countries from the ISSP's module on Social Inequality, it presents an empirical test that yields no support for the idea that public support for redistribution rises with inequality across countries. This finding is attributed to the influence of social justice norms that vary greatly between groups of culturally similar countries.

Key words: Income distribution; redistribution; new growth theory; rational choice; political sociology.

JEL classification: D31; D63; H24; O15.

1. Introduction

During the past decades, economics and the other social sciences have overcome some of their reciprocal isolation. While many sociologists and political scientists have adopted the more formal modelling of the neighbouring discipline and started to use – and to question – the economic notion of rationality and utility-maximisation in their respective fields, economists have begun to accept that economic theory needs to be embedded in a more complex vision of society, state, and their interaction with the market. These encounters between neighbours have produced some hostilities, but also a number of remarkable new theories and at times the feeling of genuine and mutual surprise. Economics has been most innovative where it went beyond the traditional borders of the discipline to incorporate ideas from

neighbouring fields such as psychology, sociology, or political philosophy.[1] The booming new growth theory is a good example for the potential of inspiration, innovation and misunderstanding that a cross-over between economics and neighbouring disciplines can create. One of its merits is that it has brought back into focus the notion that the distribution of income and assets has a potentially significant impact on growth (for reviews see Aghion et al., 1999; Thorbecke and Charumilind, 2002). Inequality is a traditional domain of sociologists and political scientists who have always dealt with society's stratification, class conflict and the role of the state as an instrument of specific interests. Yet, it is also an obvious issue for economists, although the discipline had lost interest in the issue for much of the 1980s (see Atkinson, 1997).

Despite this joint interest in the same subject area, there is only a limited convergence in methodologies. While sociologists and political scientists generally address the issue by analyzing social structure, social justice norms, and the distribution of power in society, many economists extend economic thought to social and political processes and model them from a rational choice perspective. Related to this is how the different disciplines conceptualize human beings – either as a part of a particular society and culture whose norms they have internalized, or as rational self-interested actors that will behave in essentially the same utility maximizing way in any particular society. In linking inequality to growth, one prominent strand of the new growth theory has employed the rational choice perspective, and developed a proposition that builds on the median voter theorem. It involves three quite distinct logical steps: It is argued that (1) higher inequality leads to a stronger preference for redistribution among citizens, which (2), through the electoral process, leads to more redistributive expenditure that is financed through taxes, and this in turn (3) creates market distortions and undermines incentives, hence reducing subsequent growth rates. Drawing on earlier work by Romer (1975), Roberts (1977) and Meltzer and Richard (1981), the basic argument was first

introduced into the new growth literature by Perotti (1992), Persson and Tabellini (1992 and 1994) and Alesina and Rodrik (1994) (with some differences in model specifications).

The present paper will discuss the plausibility of this argument and start in section 2 by reviewing some of the objections brought forward by the literature. They have focused on the second and third step of the argument but by-and-large neglected the first step. Hence, the present paper will concentrate on the claim that higher inequality leads to greater demand for redistribution and show why the median voter's preference for redistribution is a direct function of inequality from the rational choice perspective. This school of thought will be contrasted with an alternative concept that draws on the political sociology literature and assigns a central role to social justice norms. Section 3 will formalize the two alternative approaches in the sense of testable hypotheses, develop an empirical strategy and introduce the data sources. The results are presented in section 4, while section 5 discusses the implications of the findings for the new growth literature and argues why the dominant rational choice approach fails to account for differences in the demand for redistribution.

2. Inequality and the demand for redistribution: theory and empirical evidence

Ever since the new growth literature employed the rational choice argument to link inequality to lower growth, it has attracted considerable criticism. Many economists have questioned the third step and argued that redistribution need not depress growth, but may actually be growth-inducing (for a summary see Boadway and Keen, 2000). Political scientists naturally concentrate on the second step and ask how the demand for redistribution would translate into actual redistribution in the presence of powerful vested interests, and point at possible collusion between economic and political élites. Although many analysts have directly linked the extent of inequality to the outcome of the political process,[2] it is important to disentangle the two logical steps. The first makes the argument how inequality affects public preferences for redistribution and therefore, to use Easton's (1965) terminology, how inequality influences the input that feeds into the political system (through the ballot box or other channels). Quite

distinct from this is the second step, the question how the political system subsequently converts this input into an output. Arguably, public preferences are not translated into policies in a quasi-automatic manner, but different political systems will produce different outputs when faced with identical demands – for example, authoritarian regimes might respond with repression, and not redistribution. But even for democracies, the applicability of the underlying median voter theorem can be questioned (see e.g. Milanovic, 2000). Austen-Smith (2000) argues that the individual with the median income has decisive influence on the chosen tax rate only in majority-voting systems, but not under proportional representation. Bassett et al. (1999) draw attention to the problem of unequal influence and utilize the well-established finding from political science that political participation declines with socio-economic position. In effect, this means that the median individual and median voter are not the same person (see also Tanninen, 1999).

These issues will be left aside in the present paper in order to concentrate on the prior step, the proposition that higher inequality increases the demand for redistribution. It has so far received little attention, given that it is – from the perspective of rational choice – largely unproblematic. The classical proof was made by Meltzer and Richard (1981) who constructed a model where a government's sole activities are lump-sum redistribution and taxation to finance redistribution, using a linear tax rate. If people seek to maximize their utility, their preferences for taxation (and redistribution) will be inversely ordered by income. At low levels of income, additional lump-sum payments will offset additional taxes on earned incomes, but for those who receive high market incomes, the burden of taxes will exceed the benefits of lump-sum redistribution. Meltzer and Richard show that the median individual's preference for redistribution is a function of his or her income relative to mean income, and that as the ratio of mean income to median income rises, the preferred tax rate rises. The ratio of mean over median income is, of course, just another expression for income inequality and is, under the assumption that income follows a lognormal distribution, monotonically related

to the Gini-Index (Aitchinson and Brown, 1957). The argument holds not only for the median individual, but also for those below and above the median; it supports the general conclusion that, across a large and diverse sample of countries, the higher inequality is, the greater the demand for redistribution will be.[3]

The ingenuity of this "simple intuition" (Perotti, 1993, p. 756) arises from the fact that it is solely based on individual utility maximization – a process that is, from the perspective of rational choice, insulated from social, cultural and political institutions and entirely driven by rational self-interest. Rather than questioning this starting point, the new growth literature has debated some of the model's details. For example, the work by Alesina and Ferrara (2001) implies that the model should be supplemented by a dynamic perspective that allows for the effects of social mobility, since those who see themselves among tomorrow's rich will oppose redistribution today where the static model would expect them to favour it. The assumption of lump-sum redistribution and flat tax rates can also be seen as a rather special case in a world were taxes are normally progressive and welfare benefits means-tested (see Saint Paul and Verdier, 1996). Further, welfare state expenditure is not purely redistributive, but also provides insurance against future income shocks (Moene and Wallerstein, 2003). While these objections seem justified, they can be accommodated within the model and point at relatively minor imperfections, all of which could in principle be cured by further refining the model. There is a good chance that the general effect remains intact once these refinements are done.

In contrast to this, the proposed relationship becomes controversial once it is approached from the perspective of political sociology. There is a long-standing and complex body of literature on values and conceptions of social justice, and how these influence the support for the welfare state in general and for redistribution in particular (see e.g. the volumes edited by Kluegel et al., 1995, and by Toš et al., 1999). By relying entirely on the rational choice argument presented above, the literature on inequality and growth has so far not utilized the knowledge accumulated here, a shortcoming that is more than unfortunate.

Taking this literature seriously would mean questioning the core assumption that "[t]he decisive voter chooses the tax rate that maximizes his utility" (Meltzer and Richard, 1981, p. 920) over any alternative that leaves him with less income (or leisure), but allows him to live in a more equitable society.[4] This narrow, hedonistic conceptualization of utility (that is common in mainstream economics; see Etzioni 1988, pp. 160f.) is of course questionable, and Alesina et al. (2001b) must be credited for discussing the possibility that equality can be part of an individual's utility function. However, by-and-large the debate has so far ignored the possibility that preferences for redistribution can be shaped by factors other than narrowly defined self-interest.[5] This is of course not the case for the political sociology literature: From its perspective, one could argue that it matters whether people evaluate income inequality as morally unjust, and perceive it as problem that should be addressed by the state through redistribution. To be sure, self-interest will influence the evaluation of inequality (i.e., those at the bottom of the distribution are more likely evaluate inequality as unjust), but the political sociology perspective opens up the possibility that social justice norms affect the evaluation of inequality. Since dominant social justice norms differ between countries, it no longer follows that the demand for redistribution closely mirrors actual inequality.

Somewhat surprisingly, the new growth literature lacks an explicit test that would clarify the nature of the link between inequality and the demand for redistribution – despite an ever-growing number of econometric studies on inequality and growth. Most of these studies present reduced form relationships, taking two or even all three logical steps of the rational choice argument at once. Persson and Tabellini (1992, p. 601) explicitly point at this short-coming of their work and directly investigate the relationship between inequality and growth, which they find to be negative. This result is in line with Clarke (1995), Alesina and Rodrik (1994) or Birdsall et al. (1995), although the latter report that the addition of regional dummies cancels the significance of the inequality variable (*ibid*., p. 496). In a later version of their paper, Persson and Tabellini (1994, p. 617) narrow their analysis to include step 1 and 2

only and find that inequality goes hand in hand with government transfers. However, Bassett et al. (1999) can show that this result is highly sensitive towards the choice of data-sets and is reversed when alternative sources are used. Milanovic (2000) also explores the link between pre-tax inequality and redistribution and finds that the effect of inequality on redistribution is only significant if pensions are included. Looking at total welfare spending in OECD countries, Moene and Wallerstein (2003) find a negative correlation with earnings inequality (i.e. of opposite sign than expected). The causal mechanism discussed above becomes more dubious in the light of studies such as that by Tanninen (1999), who concludes from his data that inequality indeed reduces growth, but also that government spending on transfer payments is actually growth-enhancing. Forbes (2000) repudiates the conventional wisdom altogether and claims that country-specific omitted variables account for previous findings. Controlling for these by using a panel technique, she can show that increases in inequality are positively associated with growth in the short- and medium-term. However, as Pritchett (2000, p. 243) points out, this finding is perfectly reconcilable with the idea that between-country differences in inequality can explain the international variation in long-term growth rates.[6]

In a nutshell, the empirical literature has so far produced ambiguous results and has remained largely inconclusive about the causal mechanisms. The next section will outline a strategy to put the rational choice argument at an empirical test: Is higher inequality, across a large and diverse sample of countries, associated with greater support for redistribution? And how do we best understand the nature of the link between the two variables: Is it a direct link as proposed by the new growth theory, or an indirect one that is mediated by value judgements on inequality?

3. Hypotheses, Empirical Strategy, and Data Sources

a. Hypotheses and empirical strategy

Both the new growth literature and the sociological literature lead us to believe that the extent of inequality influences the demand for redistribution. What the two bodies of literature differ

on is how they conceptualize this link. The literature inspired by Meltzer and Richard (1981) assumes a direct link and makes predictions that can easily be translated into a testable hypothesis. The strong version of this hypothesis would read that any two countries with the same level of inequality should exhibit the same degree of public support for redistribution, and that if one compares two countries with different levels of inequality, redistribution should be in greater demand in the more unequal country. Demanding a perfect correlation between inequality and the support for redistribution would, however, impose an unreasonably strict standard on any empirical test, and it seems advisable to test a weaker variant: That the level of actual inequality is positively associated with the demand for redistribution.

From the perspective of political sociology, this may or may not be true. To be sure, most political sociologists would accept that there is a causal link between the two variables. For example, one could argue that at higher levels of inequality, people (both poor and rich) will see a greater need for redistribution. But what is then crucial is that inequality is seen as a problem in need of remedy, and the evaluation of inequality as unfair or morally bad is by no means only driven by the level of actual inequality. As Amartya Sen has argued, people's judgements about actual income distribution are a function of (i) their ideas about what is morally right and just, and (ii) the reality they compare these norms to (Sen, 2000, p. 60). If one accepts that value judgements on income differences are step logically *prior* to the call on governments to redistribute income, one needs to allow for the influence of values and cultural norms.

It is a well-established finding from political sociology that norms of social justice differ between countries, or more specifically between groups of similar countries (see Roller, 2000; Suhrke, 2001). Some societies are far more tolerant towards inequality than others, and the same level of actual inequality can thus be evaluated rather differently in different countries, contingent on the dominant norms. By the same token, the subsequent call for redistribution can be expected to be much louder in countries with a strong egalitarian tradition than

in societies that subscribe to individualistic principles and see income differences as the legitimate outcome of a free and fair market exchange. Drawing on the literature's previous findings, countries can be divided into groups with broadly similar social justice norms. By introducing dummy variables for these groups into a regression, one can test if different societal norms matter for the evaluation of inequality and subsequent demand for redistribution. The idea that such cultural differences matter is of course in direct contradiction to the rational choice approach and its assumption that the mechanisms of individual utility maximisation can explain human behaviour in all contexts.

Rather than denying that inequality influences the demand for redistribution, the political sociology approach therefore conceptualizes the link in a different way: As *mediated*, i.e. that actual inequality matters only insofar as it – in conjunction with value orientations – influences the evaluation of inequality, which will in turn influence the demand for redistribution. What might seem like splitting hairs at first has, however, consequences for the predictions theory allows us to make: It is conceivable that countries with low inequality happen to subscribe to egalitarian views (and thus evaluate even low levels of inequality negatively), and those with high inequality to individualistic principles (which would make them more tolerant of high levels of inequality). As a result, the demand for redistribution might no longer correlate with actual inequality at the bivariate level. The finding of a bivariate non-correlation would thus be reconcilable with the idea of a mediated relationship between inequality and the demand for redistribution. Contrary to this, the rational choice argument does not allow for an interaction with social justice principles.

To test the consistency of theory with data, the present paper will use three different tests – the bivariate correlation, and two sets of OLS regressions:

Bivariate correlation: Since the rational choice approach assumes that greater demand for redistribution, inequality (as measured by the Gini-Index) should be strongly and posi-

tively correlated with the public demand for distribution. As discussed above, the political sociology literature does not make any predictions about the bivariate correlation.

Regression A, dependent variable 'evaluation of inequality': The political sociology approach assumes that the extent of actual inequality and societal norms jointly explain how inequality is evaluated. Entering dummies that serve as proxies for different social justice norms into a regression allows the regression line to have different intercepts for the different groups of countries, while maintaining the same slope throughout. Hence, the same level of inequality would lead to different predictions about the evaluation of inequality in the different groups of countries. A model that can account for such cross-national differences should thus have greater explanatory power (measured in terms of the adjusted R^2) than in a model that only includes the Gini-Index (or only the country group dummies). Also, the predictive power of the Gini-Index should be greater when the dummies are entered, and vice versa (an effect known as suppression). Further, in the joint model, all explanatory variables are expected to be significant (while this is not necessarily the case in the alternative models). Since the rational choice literature is not concerned with value orientations, no predictions can be derived from it.

Regression B, dependent variable 'demand for redistribution': In line with the expectation of is a strong bivariate correlation between the Gini-Index and the demand for redistribution, the rational choice approach leads to the prediction that the Gini-Index, if entered on its own, is a significant and powerful explanatory variable. The addition of further variables should not increase the model's explanatory power substantially, and the regression coefficient on the Gini-Index should remain significant. In contrast to this, the political sociology approach predicts that the explanatory power of the model should improve substantially when the evaluation of inequality is entered as an independent variable. Since evaluation of inequality (partly or completely) mediates the relationship between the Gini-Index and the demand for redistribution, the evaluation of inequality should be a significant predictor even

when entered together with the Gini-Index (or alongside the Gini-Index and the group dummies).

--- Table 1 about here ---

A summary of the two alternative hypotheses is found in Table 1. It should be noted that they are asymmetrical as far as some predictions made by one approach find no direct counterpart in the other. Therefore, e.g. a failure to find a significant bivariate correlation would only lead to the rejection of the rational choice approach, but not by itself lend any support to the political sociology approach. The hypothesis that social justice norms are relevant and that the relationship between inequality and the demand for redistribution is mediated can only be substantiated through the two regressions. The political sociology model is more complex than the rational choice approach, but still parsimonious since it involves only a small number of variables and proposes one linear, mediated relationship. Whereas theories can propose causality, an empirical test can of course not establish causality – it can only test whether the empirical evidence is consistent with the predictions derived from theory.

In this context, it is important to point out that both theories make identical predictions on how the support for redistribution should respond to changes in inequality over time within the same country. The rational choice approach would imply that as inequality increases over time, the median voter becomes poorer, and hence her or his preference for redistribution increases. Similarly, aggregate support for redistribution should rise. From a political sociology perspective, one could argue that – under the assumption that dominant social justice norms remain stable over time – people will evaluate any increase in inequality as an aggravation of the problem, and call on their government to act on it even louder. Although the expressiveness of time series data is extremely limited,[7] there is some indication that demand for redistribution actually tends to increase when inequality rises (Lübker, 2004, p. 115). But even if this finding could be further substantiated, it would not allow deciding which of the

approaches conceptualizes the relationship more adequately. This, and the fact that the new growth literature is applied predominantly to explain differences in growth performance between countries, makes it appropriate to employ a cross-section approach.

b) Data on evaluation of inequality and the demand for redistribution

As indicated above, this paper will draw on the latest round of the International Social Survey Programme's (ISSP) module on social inequality that was fielded in 1999 to obtain information about public support for redistribution and also utilize this source for a variable that captures values judgements on inequality.[8] The ISSP's member institutions jointly design questionnaire modules that are then translated from the English original to give cross-nationally and inter-temporally comparable results. The questionnaire item used to measure public support for redistribution reads as follows:

> *"It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes",*

and respondents were asked to record their opinion using five answer categories from "strongly agree" to "strongly disagree". Owing to the easily comprehensible wording, 96.0 per cent of all participants gave valid answers.[9] As with all surveys, this does not necessary mean that respondents actually reveal their true preferences – but in contrast to questions about taboo topics such as infidelity or sexual inclinations, there is little reason to believe that answers are systematically misleading. It seems therefore warranted to count those who either 'agree' or 'strongly agree' with the above statement as favouring of redistribution; their share (relative to all valid answers) will be used as a proxy for the aggregate demand for redistribution.[10] By its very nature, the dependent variable is bounded by its lower and upper limits of zero and one – a fact that needs to be kept in mind when interpreting the results. Agreement rates by country are found in Annex Table 1. Following the ISSP's tradition to draw separate samples for East and West Germany and for Northern Ireland and Great Britain, these are listed as quasi-countries.

The ISSP's module on Social Inequality also includes an item that offers itself as a measure of how people evaluate inequality. It requires people to make a value judgement on inequality in their country, and reads as follows:

"Differences in income in [country] are too large",

where 'country' is replaced with the respondent's home country, but with 'Northern Ireland' and 'Britain' for the two sub-samples of the United Kingdom. Again, people were asked to record their agreement with the statement, using the same answer scale as in the question above. As before, the simple wording of the item led to an extraordinary high share of valid answers (97.5 per cent). The percentage of those who agree with the statement is listed in Annex Table 1.

c. Data on income distribution

While the well-known ISSP provides a reliable and easily accessible source for the two dependent variables, consistent data on income distribution are far harder to obtain. This is a problem common to all studies on income distribution (or, indeed, the distribution of land or assets), although the situation has improved in recent years. The compilation by Deininger and Squire (1996) certainly presented a major advance in this field, but as the authors themselves rightly stress, even the data included into the high-quality sub-sample are not directly comparable across countries as a result of differences in underlying measurement concepts. Similar comparability problems exist with the World Income Inequality Database produced by UNU-WIDER (2005). Atkinson and Brandolini (2001) warn that ignoring the caveats can drive results in an unpredictable manner and point to the *Luxembourg Income Study* (LIS) as an alternative source for more reliable data. In contrast to others, the LIS directly accesses the primary household-level data and recalculates all Gini coefficients under a single methodology to produce comparable figures. The major weakness of this source is its limited geographical and retrospective coverage. Fortunately, the lack of time-series data presents no problem in the present research context, and there is a significant overlap with the countries

that participate in the ISSP. Further, Statistics New Zealand (1999, p. 73) also used the LIS methodology to produce a Gini coefficient that can be considered directly comparable. Taken together, inequality measures based on the LIS methodology are available for 21 countries covered by the ISSP.[11] Faced with the conflicting objectives of making use of the full ISSP sample and avoiding comparability problems, the present study only added Gini coefficients that were produced by Eurostat (2005) under a similar methodology and concept to cover five more countries.[12] To ensure that this addition does not bias results, a robustness check that excludes these data will be performed in section 4.

d. Dummy variables: grouping of countries

As a last element, it is necessary to identify groups of broadly similar countries. This will be done by drawing on (a) the literature on social justice norms that range from egalitarian to individualistic, and on (b) typologies of different welfare state regimes. Both are interact in the sense that dominant social justice norms have contributed to the evolution of particular institutions, while the familiarity with institutional arrangements can in turn shape people's ideas about what ought to be.

The transition countries of Eastern Europe are a natural candidate for such a grouping. Here, people grew up in systems where state ideology advocated the elimination of class differences and experienced a reality with extremely low levels of inequality by any historic or international standard. In addition to the direct effects of a predominant ideology on people's value formation, the past experience of low inequality could also serve as a frame of reference that forms today's expectations about what one can legitimately expect to be the case (see Arts and Gelissen, 2001). In his comparison between 'East' and 'West', Suhrcke (2001) found confirmed that East Europeans think far more negatively about inequality than people from other countries. Gijsberts (1999) also presented evidence that egalitarian justice principles are more widespread in Eastern Europe than in the West. This implies that inequality should be evaluated far more critically in the transition countries than elsewhere, and that

demand for redistribution should be higher than what would be predicted by the level of actual inequality. In the present paper, East Germany will be grouped with the transition countries since East Germans share a common history with Eastern Europeans and differ in their attitudes from their Western compatriots (Suhrcke, 2001; see also Wegener and Liebig, 1995).

For almost two centuries, many writers have argued that the United States provide another extreme. There is a long-standing literature on American exceptionalism, going back to Tocqueville. He argued that the "equality of conditions" after the American revolution gave rise to individualism, where people "imagine that their whole destiny is in their own hands" and cannot expect to "claim the assistance of their fellow-creatures" (Tocqueville, 2004 [1835], Vol. 2, 2nd book). Revisiting the theme 160 years later, Lipset writes that "America has been dominated by pure bourgeois, middle-class individualistic values" (Lipset, 1996, p. 32). Several empirical studies confirm this assessment. Wegener and Liebig (1995) show that "self-interested individualism" dominates in the United States and contrast this with the "egalitarian statism" they detected in Germany. Consequently, inequality is evaluated far less critically in the United States than in Germany (Wegener and Liebig, 1995; Roller, 2000) or in Europe in general (Alesina et al., 2001b). Alesina et al. (2001a) present evidence that Americans perceive society as fair and argue that this has constrained redistribution and an expansion of the welfare state. Consistent with this, the United States are also exceptional among western democracies for lacking a sizable socialist party (Lipset and Marks, 2001). While Roller (2000) emphasizes that minimal welfare provisions are supported even in the United States, Shapiro and Young (1989) argue that the partial endorsement of the welfare state is reconcilable with differences in underlying belief systems: Americans tend to support only those provisions that are related to equality of opportunity (such as public spending on education), while being overwhelmingly critical of government interventions that explicitly aim at promoting equality of outcomes. Drawing on the combined evidence that points at unique position of the United States, the present paper will put the country in its own group.

There are, however, still large differences among the remaining countries. For example, Svallfors (1993) demonstrates that the British are prepared to accept far greater income differences than the Swedish would tolerate. Haller (1996) shows that meritocratic value orientations are more widespread in the United Kingdom than on the European continent (with the exception of Switzerland) and that the British are in this respect similar to Australians (and, to a lesser degree, to Americans; *ibid*., p. 204). Research on welfare-state regimes points in a similar direction. For example, Esping-Andersen classifies Britain as a "liberal" welfare state where "the progress of social reform has been severely circumscribed by traditional, liberal work-ethic norms" (Esping-Andersen, 1990, p. 26). The liberal regime type offers only modest social benefits that are tied to strict entitlement rules, and the idea of social rights is effectively contained (*ibid*.). His well-known de-commodification score, which is intended to capture the generosity of benefits and entitlements, clusters the United Kingdom, Ireland, Canada, New Zealand, the United States and Australia (in this order) at the least de-commodified end of the spectrum (*ibid*., p. 52). Drawing on other welfare state indicators, Alesina et al. (2001a, p. 200) conclude that Australia, Canada, Japan and New Zealand are placed somewhere between the United States and continental Europe. Taken together, there are good reasons to believe that Britain and the industrialized countries that emerged from the British Empire share important characteristics that make them different from the industrialized countries of continental Europe, and to some extend similar to the United States. The present paper will group them together and apply the formal criterion that they were under British rule in 1900.[13]

The remaining countries are, with the exception of Israel, all from continental, Western Europe. They are, however, more than a residual category and share important similarities. The research on social justice norms cited above puts them in the middle of the egalitarian—individualistic/meritocratic continuum. Also, welfare systems are generally more extended and go beyond providing the minimum necessary for mere physical survival,

although they might be even more generous in Scandinavia than elsewhere (see Esping-Andersen, 1990). In contrast to the liberal market economies of the Anglophone world, they generally know some kind of corporatist arrangements, rely less on market forces, and have more state regulation and higher taxes. They are sometimes classified as 'organized market economies', and this term – rather than continental European – will be adopted as an analytical category; it has the additional advantage that it can also be applied to include Israel. The organized market economies will be used as the omitted benchmark category.[14]

4. Results

a. Bivariate correlation between the Gini-Index and the demand for redistribution

The first test of the hypotheses proposed above was to calculate the bivariate correlation between the Gini-Index and the demand for redistribution. The prediction of the rational choice was that the correlation is strong, positive and significant. The results, as reported in Table 2, show that this is not the case: Although the correlation coefficient carries the expected sign, the level of significance of 0.475 clearly does not allow rejecting the null hypothesis that no correlation exists. The result remains insignificant when the five countries with Gini coefficients from Eurostat are excluded (Pearson's r = 0.001, p-value: 0.997).[15] As a further sensitivity test, each of the 26 case was in turn excluded from the data-set (a procedure known as jack-knifing). Since this amounts to computing 26 correlation coefficients, by chance alone 5 per cent of them (or 1 out of 20) should be significant at the 0.05-level.[16] However, the significance levels generally hover around the 0.50 mark and only one of them is close to the 0.10-level. There is thus no indication of a bivariate correlation between inequality and the demand for redistribution. While a lack of a bivariate correlation does not disprove causation, this finding is clearly incompatible with direct causal relationship proposed by the rational choice approach.

--- Table 2 about here ---

For the convenience of the reader, a scatter-plot of the Gini-Index against the demand for redistribution is provided in Graph 1. No regular pattern emerges from this either; the support for redistribution apparently varies irrespectively of the level of actual inequality. Towards the right-hand side of the graph, two data-points stand somewhat separate from the main cluster: These are Russia (in the top right corner) with the sample's highest level of inequality and the strongest support for redistribution, and the US (towards the bottom) with the sample's second highest Gini-Index and the lowest demand for redistribution. What also becomes apparent from the scatter-plot is that the other transition countries (printed as circles) tend to record high demand for redistribution despite their relatively low levels of inequality, while countries like Australia, Canada and New Zealand combine higher inequality with considerably lower demand for redistribution.

--- Graph 1 and 2 about here ---

b. Regression A, dependent variable: 'Evaluation of inequality'

A similar picture emerges from Graph 2 that plots the Gini-Index against the evaluation of inequality. As also evident from Table 2, there is no significant bivariate correlation between the actual level of inequality and the evaluation of inequality. Hence, the Gini-Index fails to account for the variation in the evaluation of inequality when entered as the sole explanatory variable into a regression, as done Regression A, Model 1 (see Table 3). The regression coefficient is insignificant, and the equation has no explanatory power (adjusted $R^2 = .017$, p-value: .242). An alternative specification (Model 2) that only uses the group dummies as explanatory variables already performs better and returns a significant adjusted R^2 of .500; differences between the group means can thus explain half of the variation in the dependent variable. The significant regression coefficient on the dummy for transition countries (b = .131, p-value: .002) indicates that the share of respondents who favour redistribution is on average 13.1 percentage point higher in the transition countries than in the organized market

economies (the omitted benchmark category). By contrast, the coefficients on the other two dummies are insignificant.

Model 3 enters the Gini-Index together with the dummy variables, as proposed by the political sociology approach. Jointly, they can account for about 70 per cent of the dependent variable's variance (adjusted R^2 = .699, p-value: <.001). Compared to Model 1 (but also to Model 2), this is a substantial improvement in explanatory power. Further, the regression coefficients on all explanatory variables are significant, including the Gini-Index (unlike in Model 1). Since the influence of the Gini-Index on the evaluation of inequality becomes only evident when further variables are added, this suggests that Model 1 faces an omitted variable bias. Another way to think about this effect is in terms of "cooperative suppression" (to use the term from Cohen and Cohen, 1975, pp. 90f.) that occurs when independent variables correlate positively with the dependent variable, but negatively with each other (or vice versa). As Table 2 shows, this is indeed the case for the group dummies: The Gini-Index and the dummy for the transition countries correlate positively with the dependent variable (the evaluation of inequality) but negatively with each other, while the other two group dummies correlate positively with the Gini-Index, but negatively with the dependent variable.[17] In such a case, the "independent variables are mutually enhancing" (*ibid*., p. 91) and hence the R^2 of Model 3 (R^2 = .747) is greater than that of Model 1 (R^2 = .057) and Model 2 (R^2 = .560) combined. As discussed above, this result is consistent with the political sociology hypothesis. Also in conformity with the political sociology literature, the significant regression coefficients on the dummy variables show that the evaluation of inequality differs between the groups: At the same level of actual inequality, the share of respondents who evaluate income differences as "too large" would be 11.9 percentage points higher a transition country if compared to an organized market economy, but 10.3 percentage lower in a country from the group "British in 1900", and 23.0 percentage points lower in the United States. As the positive sign of the coefficient on the Gini-Index shows, the negative evaluation of inequality

increases with the Gini-Index once the difference in social justice norms is accounted for. The data are thus in agreement with the political sociology hypothesis (see Table 1).

--- Table 3 about here ---

The regression diagnostics (not tabulated) confirm that the assumptions underlying an OLS regression are fulfilled and the results are robust to sensitivity tests.[18] However, the predicted values reveal one inconsistency with respect to the assumption that the relationship between the Gini-Index and the evaluation of inequality is linear within the relevant data range: The equation in Model 3 leads to a predicted value of 1.08 for Russia, or in other words predicts that 108 per cent of Russians evaluate inequality as too large. Since even low levels of inequality are evaluated negatively by an overwhelming majority in the transition countries, it is unwarranted to expect the share to rise in the same linear manner; in reality, it reaches a saturation point at around 97 per cent. This problem can be avoided with a specification that allows the regression line to take a different slope in transition countries.[19] Model 4 therefore introduces two interaction terms, one for the Gini and transition countries and one for the Gini and the remaining countries. The regression coefficient of .186 on the first interaction term shows that the slope of the regression line is very flat for the transition countries (and not significantly different from zero), and steep for the remaining countries (b = 2.121, p-value: <.001). The regression coefficients on the dummy variables are all highly significant. With a new adjusted R^2 of .883, the explanatory power of the regression improves further. The refined model is thus consistent with the political sociology approach which, however, did not foresee that the slope of the regression line is flatter in the transition countries.

--- Table 4 about here ---

b. Regression B, dependent variable: 'Demand for redistribution'

The crucial test for the political sociology approach is, however, how well it can account for the cross-country differences in the aggregate demand for redistribution. This is addressed in Regression B (see Table 4). Consistent with the finding of a non-correlation at the bivariate

level (see above), the Gini-Index cannot explain any of the variance in the demand for redistribution (Model 1, adjusted R^2 = -.019). Again, this is not reconcilable with the rational choice hypothesis. By comparison, and in agreement with the political sociology approach, the evaluation of inequality can account for almost three quarters of the dependent variable's variance (Model 2, adjusted R^2 = .728). Adding the Gini-Index as a further explanatory variable, as done in Model 3, does not improve the predictive power (adjusted R^2 = .720) and the regression coefficient on the Gini-Index remains insignificant (p-value: .578). This indicates that, at the aggregate level, the relationship between inequality and the demand for redistribution is mediated through the value judgements made about the present distribution of income (as proposed by the political sociology approach). The regression diagnostics show that the underlying assumptions are not violated, and results are robust across several sensitivity tests.[20] The finding does not change when the group dummies are added to the regression equation, as done in Model 4. The predictive power of the regression improves only marginally (adjusted R^2 = .742), but there is the unexpected outcome of a significant negative regression coefficient on the United States dummy (b = -.217; p-value: 0.050). The American public is unsupportive towards state-sponsored redistribution over and above what one would predict from their already favourable evaluation of inequality. This effect is quite large: If the United States belonged to the omitted benchmark group, the regression would predict 57.0 percent of all Americans to favour redistribution,[21] but the actual share is only 35.3 percent (21.7 percentage points lower, as indicated by the coefficient on the dummy). The simple model formulated on the basis of the political sociology approach thus performs well overall (and certainly far better than the alternative rational choice approach), but is somewhat off the mark when it comes to the United States. The blame for this should be put on the stylized nature of the model; the broader literature itself is rich in more nuanced discussions on American attitudes towards redistribution that would have pointed in this direction (see e.g. Shapiro and Young, 1989).

5. Conclusions

This paper has dealt with one step of a rational choice argument that was brought forward by the new growth literature to link higher inequality to lower subsequent growth (Perotti 1992, Persson and Tabellini, 1992 and 1994; Alesina and Rodrik, 1994). Although the different models differ in their details, the basic mechanism they describe is similar and straight-forward: It is argued that (1) higher inequality leads to a stronger demand for redistribution among citizens, that (2) this translate into greater redistribution and higher taxes, and that (3) the ultimate outcome is lower long-term growth. While the last two steps of this argument have attracted considerable criticism from both political scientists and economists, the first has remained largely unchallenged. Relying on the classical theoretical proof presented by Meltzer and Richard (1981), the hypothesized relationship between inequality and the demand for redistribution has been widely accepted as a stylized fact that need not be questioned further. However, the new growth literature lacks an empirical test, a task this paper devoted itself to. It utilized cross-nationally comparable data on public perceptions of inequality and people's support for redistribution that were collected by the *International Social Survey Programme*.

The main result is that, across a sufficiently large and diverse sample of 26 countries, no significant bivariate relationship exists between the Gini-Index for the distribution of income (as taken from the *Luxembourg Income Study* and *Eurostat*) and aggregate demand for redistribution (measured by the share of respondents who want their government to reduce income differences). The outcome is robust to several sensitivity tests; the data do not support the assumption that the demand for redistribution is a direct function of inequality. This finding can be attributed to the influence of social justice norms that differ between groups of culturally similar countries. Drawing on the political sociology literature, it was argued that a given level of inequality will be evaluated differently across countries, contingent on dominant social justice norms. However, people are only likely to call on the state to reduce

inequality when they see it as unfair or otherwise morally bad, and hence as a problem in need of remedy. As a proxy for differences in social justice norms, dummy variables were introduced for the transition countries (where people overwhelmingly subscribe to egalitarian norms), the industrialized countries that emerged from the British Empire (that hold more meritocratic views) and the United States (with individualistic conceptions). Once these differences are taken into account, the evaluation of income differences as too large increases with actual inequality, while the regression coefficients on the dummy variables confirm that the tolerance of inequality differs substantially between the groups. The second step of the analysis showed that the evaluation of inequality as too large is a powerful predictor for the aggregate demand for redistribution, and that the relationship between inequality and the demand for redistribution is mediated through the value judgements on inequality. The only anomaly were the United States where people are unsupportive towards redistribution over and above what one would expect from their already very favourable evaluation of the country's extraordinary high level of inequality.

The findings show that traditional rational choice theory is ill-equipped to understand a phenomenon that involves value judgments and moral considerations. Build on the assumption that humans act in a narrowly self-interested way, the elegant algebraic proof made by Richard and Meltzer (1981) is worthless if the starting assumption does not hold. Etzioni (1988) prominently argued that the neoclassical paradigm suffers systematically from its blindness towards moral behaviour, and that people frequently act in a non-selfish way. The debate whether the utility of actions that are performed out of a sense of moral commitment can be incorporated into a single, broader utility function is of course a lively one (see the contributions in Vol. 3, No. 1 of this journal) that cannot be revisited here. It should suffice to say that reducing human behaviour to that of the *homo oeconomicus* results in an under-complex conception that makes theory vulnerable to gross fallacies.

For the new growth theory, this outcome implies that if the first link of the rational choice argument presented above cannot be upheld, then steps two and three are non-followers. The present finding helps to explain why Perotti (1996) and Bassett et al. (1999) found no robust relationship between inequality and transfers when they tested this reduced-form relationship, and why Milanovic (2000) came to a similar conclusion when he looked at transfers other than pensions. Moen and Wallerstein (2003) even found a negative relationship between earnings inequality and total welfare spending. If one combines the available evidence, there is little reason to believe that the political link between inequality and growth is properly conceptualized by the literature that follows Meltzer and Richard (1981). This, however, does certainly not mean that inequality has no impact on growth. Instead of continuing the elusive search for a uniform relationship across the entire spectrum, Cornia et al. (2004) argue that very low levels of inequality can retard growth (due to e.g. incentive traps and free-riding), but so can high inequality (due to e.g. the erosion of social cohesion and increased social conflicts). Similarly, the World Bank (2005) draws on other strands of the new growth literature to conclude that high inequality leads, among others, to market failures and inefficient allocation of capital. In situations of high inequality, redistribution of resources could thus be part of the solution – rather than the problem.

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1. This is, among others, evident from the work of recent Nobel laureates such as Amartya Sen or Daniel Kahneman.

2. An important exception is the work by Alesina, et al. (2001a) who compare the extend of redistribution in Europe and the United States and distinguish between the influence of the public demand for redistribution and the political system that, in the case of the United States, is unfavourable to redistribution.

3. The argument can be extended beyond direct redistribution (in the sense of cash transfers) to any government expenditure on public goods that equally benefit all citizens, but is disproportionately paid for by the rich (see Perotti 1992).

4. Meltzer and Richard (1981) conceptualize utility solely in terms of income and time devoted to leisure and do not provide for any other components of a utility function, e.g. pleasure for acting according to internalized norms or the advantages of living in a country without poverty.

5. A further exception are Bassett et al. (1999: 216).

6. Forbes' result is also directly at odds with Banerjee and Duflo (2003) who demonstrate that both upward and downwards shifts in inequality are *negatively* associated with subsequent growth rates.

7 Compared to the differences between countries, both the changes in inequality and in the support for redistribution are small. Further, data cover a only few countries and reach back only to 1987.

8. The main source for the ISSP survey result is the cumulative data-set held at the Zentralarchiv, University of Cologne (ZA No. 3430). However, several countries are not included in this data-set due to technical problems

or late archiving (see Harkness et al. 2003: 6). The Irish, Danish and Swiss data were obtained directly form participating institutions in the respective countries. However, the Swiss questionnaire (SIDOS No. 6396) used a different response scale (ranging from 'is completely correct' to 'is completely false'). The results are therefore not comparable (see Wyatt and Meyers 1987) and the country was excluded. In Finland, identical questionnaire items were fielded together with the European Social Survey 2002/2003, making the inclusion of this country feasible (FSD No. 1303).

9. For an overall assessment of the difficulty of the ISSP questionnaire items see van der Zouwen (2000).

10. Doing so – rather than using the mean answer – helps to avoid any discussion about whether the Likert scale (Likert 1932) that was used to map responses is metric or not. In any event, the choice between the two possibilities has no practical relevance since both correlate at Pearson's r = 0.984 (significant at the 0.01-level).

11. In the case of the United Kingdom, no separate Gini coefficient is available for Northern Ireland were people were specifically asked to comment on the income distribution in Northern Ireland. Since it cannot be assumed that it is equal to that of the entire United Kingdom, Northern Ireland had to be excluded from the analysis. The same discrepancy would also hold true for the British sample, but given the minor weight Northern Ireland carries, it seems to be a reasonable assumption to equate the Gini-Index for the United Kingdom with that for Great Britain. No such problems exist for the two German sub-samples since respondents in both parts of the country were asked to comment on income distribution in all of Germany.

12. Both sources cover a country's complete area, the total population of all ages and measure inequality of disposable income between persons, based on households as resource pooling units. They differ in the equivalence scale they use to convert household income into income per person: Eurostat uses the OECD-modified scale (that assigns a value of 1 to the household head, 0.5 to each additional adult member, and 0.3 to each child), while the LIS divides household income by the square root of the number of household members. However, for households of the size and composition typical for industrialized countries (i.e. one or two adults, and no more than three children) both scales lead to very similar results. Although not strictly comparable, the results from both sources are thus closely mirroring each other. If one takes those countries and years where data are available from both sources, they correlate highly at Pearson's r = 0.912 (p-value: 0.001, n = 24). The mean of the absolute values of the differences between the two sources is 0.015. This would equal a medium-sized shift within countries (comparisons within countries and across time should therefore not combine sources), but is small in relation to the differences between countries (the Gini ranges from 0.210 in Denmark to 0.437 in Russia). A cross-country study like the present one should thus not be seriously affected by the potential noise in the data. A further complication is that the data from either source do not necessarily refer to the survey year. However, since income distribution tends to be relatively stable across time, it is unproblematic to take a Gini coefficient that refers to 1998 or 2000 instead. In cases were both a Gini for an earlier and a later year (generally 2000) were available, a simple interpolation method was used. The LIS and Eurostat data are based on household disposable income per person where pre-tax/pre-transfer income would be preferable in the present research context. However, from the perspective of the rational choice argument this is unproblematic since the extent of taxes and redistributive transfers is seen as a function of the distribution of pre-tax income. Disposable income should then also be monotonically related to the initial market distribution of income, and using disposable income should in no way compromise the validity of the test.

13. Regardless of the legal status of these countries at the time as a Dominion, Crown colony, territory under British administration, or as a country forming a union with Great Britain. The group includes Great Britain itself, as well as Australia, Canada, Cyprus, Ireland, and New Zealand.

14. Since sociological theory makes a clear prediction about the direction of the relationship (less tolerance for inequality in the transition countries, and more in the United States and countries that were British in 1900), there would be a point in applying single-tailed significance tests to the coefficients on these two dummy variables. However, economic theory makes no such prediction, and the more rigorous two-tailed tests will therefore be applied throughout.

15. Full results are available on request and can be replicated from the information given in Annex Table 1.

16. This follows from the definition of the p-value as the *a priori* probability that the observed data (or more extreme data) occur when the null hypothesis (i.e., no correlation exists) is in fact true (for this and some popular misconceptions about the p-value see Gigerenzer 2004).

17. The effect holds regardless of whether the correlation coefficients are actually significant or not.

18. Multicollinearity causes no concern; the bivariate correlations between the independent variables (see Table 2) are below the critical threshold of 0.60 the largest variance inflation factor (VIF) is 1.34. Residuals are approximately normal distributed and the residual plot (not reproduced) gives no indication that heteroscedasticity would make standard errors unreliable. Somewhat larger standardized residuals are only found for Denmark (-2.09) and Russia (-2.01), but they remain well below the critical threshold of 3 that would mark them as potentially influential cases. Hence, the results remain unaffected when each of the cases is excluded in turn. Neither do results change when the five countries with data on inequality from Eurostat are excluded.

19. Allowing the regression line to take a curvilinear shape by introducing an interaction term with the square root of the Gini-Index brought no improvement in explanatory power, and it was therefore dropped to safe parsimony.

20. The scatterplot (not reproduced) shows that linearity holds for the relevant data range and the predicted values from Model 4 range between .35 and .86, and hence well within the lower and upper bound of the dependent variable. A plot of the predicted values against the residuals does not point at heteroscedasticity. The residuals are approximately normal distributed and in only one case a somewhat larger standardized residual is found (Ireland, 2.53). This, however, does not bias the regression results that remain stable when each case is excluded in turn. When the five cases with data from Eurostat are dropped from Model 4, the explanatory power decreases slightly (adjusted $R^2 = .676$) and the regression coefficient on the United States dummy looses its significance (p-value: .118). Since the group dummies and the Gini-Index are a very good predictor for the other independent variable (as has been shown in Regression A, Model 3), Model 4 that introduces all of them alongside each other is prone to multicollinearity problems. This is evident from the variance inflation factor on the evaluation of inequality (VIF = 3.96, not tabulated). Hence, the standard error reported in Table 3 (std. err. = .265) is inflated (almost doubled; see Gujarati 1999, p. 325). While this lowers the t-value and therefore increases the p-value, this effect is so small that it does not render the regression coefficient insignificant. Multicollinearity is therefore no reason for concern.

21. This can be calculated by entering the actual values for the Gini-Index and the evaluation of inequality (see Annex Table 1) into the regression equation of Model 4.

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--- *Annex Table 1 about here* ---

Table 1: Summary of Hypotheses on the Relationship between Inequality and the Demand for Redistribution (Bivariate Correlation and Regression Analysis)

Indicator	Hypothesis following from the rational choice approach	Hypothesis following from the political sociology approach
Bivariate Correlation		
Pearson's r between Gini-Index and demand for redistribution	Significant, strong and positive correlation between the Gini-Index and the demand for redistribution.	- no prediction made -
Regression A		
dependent variable: evaluation of inequality *independent variables:* Gini-Index, dummies for country groups	- no prediction made -	a. The R^2 increases substantially with the addition of dummy variables. b. The dummy variables act as suppressor variables; when they are entered, the predictive power of the Gini-Index improves.
Regression B		
dependent variable: demand for redistribution *independent variables:* Gini-Index, evaluation of inequality, dummies for country groups	a. The Gini-Index, if entered on its own, is a significant predictor for the demand for redistribution. b. The addition of further variables alongside the Gini-Index does not improve the R^2 substantially, nor does it affect the significance of the regression coefficient on the Gini-Index.	a. The R^2 increases substantially when further variables are entered in addition to the Gini-Index. b. The explanatory power of the Gini-Index is weakened when the evaluation of inequality is added into the regression since the latter mediates the relationship between inequality and the demand for redistribution.

Note: Adapted from the literature as described in the text.

Table 2: Bivariate Correlation Matrix of All Variables (Pearson's r)

	Gini-Index	Dummy transition countries	Dummy organized market econo-mies	Dummy British in 1900	Dummy United States	Evalua-tion of inequality
Dummy transition countries	-.065 (.752)	1				
Dummy organized market economies	-.244 (.229)	-.572 (.002)	1			
Dummy British in 1900	.224 (.271)	-.399 (.044)	-.433 (.027)	1		
Dummy United States	.288 (.154)	-.146 (.478)	-.158 (.440)	-.110 (.594)	1	
Evaluation of Inequality	.238 (.242)	.689 (<.001)	-.177 (.388)	-.441 (.024)	-.291 (.149)	1
Demand for Redistribution	.146 (.475)	.558 (.003)	-.047 (.818)	-.365 (.067)	-.461 (.018)	.860 (<.001)

Note: n = 26; exact significance levels, as given in (brackets), are based on two-tailed tests. A p-value of <.001 refers to p-values that would have been rounded to .000.

Source: See Annex Table 1.

Table 3: Regression A, Dependent Variable is 'Evaluation of Inequality'

	Model 1			Model 2			Model 3			Model 4		
	b	std. err.	p-value	b	std. err.	p-value	b	std. err.	p-value	b	std. err.	p-value
Constant	.669	.132	<.001	.800	.025	<.001	.507	.077	<.001	.204	.071	.009
Gini-Index	.525	.438	.242				1.042	.264	.001			
Dummy Transition				.131	.037	.002	.119	.029	<.001	.672	.096	<.001
Dummy British in 1900				-.065	.042	.133	-.103	.034	.006	-.142	.022	<.001
Dummy United States				-.138	.084	.118	-.230	.070	.003	-.325	.046	<.001
Gini-Index × Transition										.186	.220	.408
Gini-Index × non-Transition										2.121	.247	<.001
R^2	.057			.560			.747			.907		
adjusted R^2	.017			.500			.699			.883		
F-test (p-value)	1.44 (.242)			9.339 (<.001)			15.53 (<.001)			38.82 (<.001)		

Note: n = 26; the omitted benchmark dummy is "organized market economies". A p-value of <.001 refers to p-values that would have been rounded to .000.
Source: See Annex Table 1.

Table 4: Regression B, Dependent Variable is 'Demand for Redistribution'

	Model 1			Model 2			Model 3			Model 4		
	b	std. err.	p-value	b	std. err.	p-value	b	std. err.	p-value	b	std. err.	p-value
Constant	.564	.176	.004	-.238	.114	.047	-.201	.133	.143	-.143	.163	.392
Gini-Index	.424	.584	.475				-.178	.315	.578	.222	.423	.606
Evaluation of Inequality				1.126	.137	<.001	1.145	.143	<.001	.953	.265	.002
Dummy Transition										-.006	.047	.900
Dummy British in 1900										-.035	.049	.485
Dummy United States										-.217	.104	.050
R^2	.021			.739			.742			.794		
adjusted R^2	-.019			.728			.720			.742		
F-test (p-value)	.526 (.475)			67.873 (<.001)			33.131 (<.001)			15.381 (<.001)		

Note: n = 26; the omitted benchmark dummy is "organized market economies". A p-value of <.001 refers to p-values that would have been rounded to .000.
Source: See Annex Table 1.

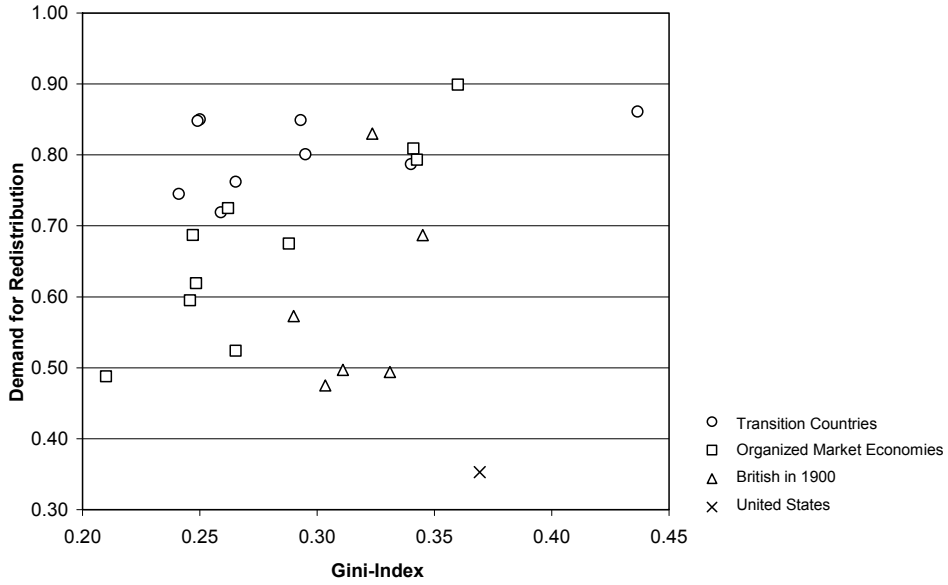
Annex Table 1: Data and Data Sources

Country	Group	Demand for Redistribution	Evaluation of Inequality	Source of Survey Data	Gini-Index	Source of Gini-Index
Australia	British in 1900	0.497	0.709	ZA 3430	0.3110	LIS
Austria	Organized Market Economy	0.725	0.862	ZA 3430	0.2620	LIS
Bulgaria	Transition Country	0.850	0.968	ZA 3430	0.2500	EU
Canada	British in 1900	0.475	0.706	ZA 3430	0.3035	LIS
Cyprus	British in 1900	0.573	0.656	ZA 3430	0.2900	EU
Czech Rep.	Transition Country	0.719	0.878	ZA 3430	0.2590	LIS
Denmark	Organized Market Economy	0.488	0.595	Aalborg Univ.	0.2100	EU
Finland	Organized Market Economy	0.687	0.721	FSD 1303	0.2470	LIS
France	Organized Market Economy	0.675	0.874	ZA 3430	0.2880	LIS
Germany East	Transition Country	0.762	0.936	ZA 3430	0.2653	LIS
Germany West	Organized Market Economy	0.524	0.757	ZA 3430	0.2653	LIS
Great Britain	British in 1900	0.687	0.824	ZA 3430	0.3450*	LIS
Hungary	Transition Country	0.801	0.931	ZA 3430	0.2950	LIS
Ireland	British in 1900	0.830	0.781	SSRC, Dublin	0.3235	LIS
Israel	Organized Market Economy	0.809	0.898	ZA 3430	0.3410	LIS
Latvia	Transition Country	0.787	0.967	ZA 3430	0.3400	EU
New Zealand	British in 1900	0.494	0.732	ZA 3430	0.3310	NZ
Northern Ireland	British in 1900	0.663	0.695	ZA 3430	n/a	n/a
Norway	Organized Market Economy	0.619	0.725	ZA 3430	0.2484	LIS
Poland	Transition Country	0.849	0.891	ZA 3430	0.2930	LIS
Portugal	Organized Market Economy	0.899	0.960	ZA 3430	0.3600	EU
Russia	Transition Country	0.861	0.955	ZA 3430	0.4366	LIS
Slovakia	Transition Country	0.745	0.937	ZA 3430	0.2410	LIS
Slovenia	Transition Country	0.848	0.910	ZA 3430	0.2490	LIS
Spain	Organized Market Economy	0.793	0.893	ZA 3430	0.3426	LIS
Sweden	Organized Market Economy	0.595	0.711	ZA 3430	0.2458	LIS
United States	United States	0.353	0.662	ZA 3430	0.3693	LIS

Note: * Gini-Index refers to the United Kingdom. Where no Gini-Index was available for the survey year 1999, either the closest preceding year was used or – in cases where data for both a later and an earlier were available – the Gini-Index for 1999 was computed using a simple interpolation method. The data for Finland refer to 2000 (Gini-Index) and 2002 (survey data). The column "*Demand for Redistribution*" refers to the share of respondents who agreed or strongly agreed with the statement "It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes"; and the column "*Evaluation of Inequality*" refers to the share of respondents who agreed or strongly agreed with the statement that "Differences in income in [their country] are too large".

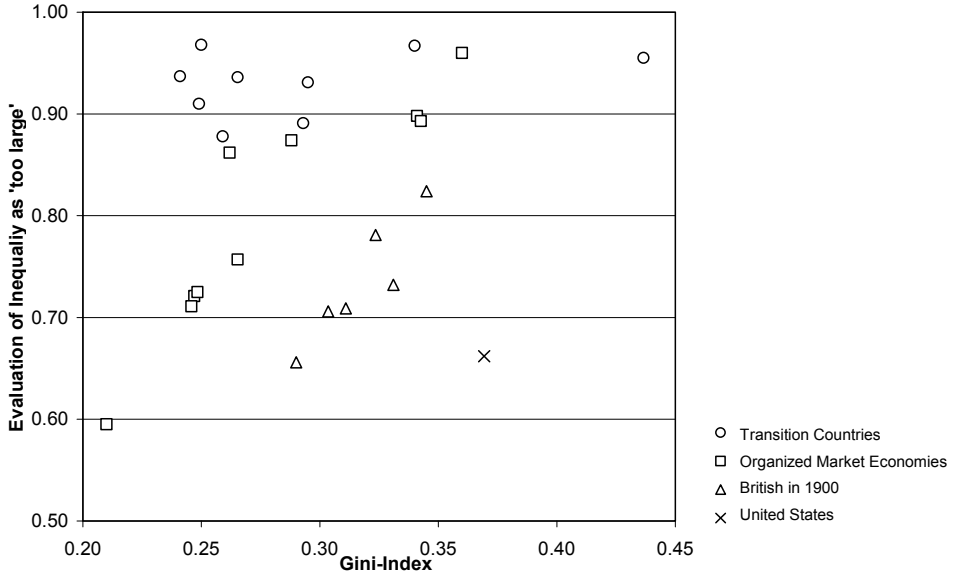
Source: Author's calculations based on the cumulative ISSP data-set, *Social Inequality III*, Central Archive for Empirical Social Research, University of Cologne, ZA 3430; European Social Survey data-set for Finland, archived by the Finnish Social Science Data Archive, FSD 1303; and data obtained from two ISSP member institutions, the SSRC in Dublin, Ireland, and the Department of Economics, Politics, and Public Administration, Aalborg University, Denmark. The main source for the Gini-Index is the Luxembourg Income Study (LIS) as available from http://www.lisproject.org/keyfigures/ineqtable.htm, version as of 29 September, 2005; NZ refers to Statistics New Zealand (1999: 73) that produced LIS-equivalent Gini coefficients; EU refers to Eurostat database, table ilc_lk15, current as of 2 June, 2005.

Graph 1: Income Inequality and the Demand for Redistribution



Source: See Annex Table 1.

Graph 2: Income Inequality and the Evaluation of Inequality



Source: See Annex Table 1.

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INCOME INEQUALITY, REDISTRIBUTION, AND POVERTY: CONTRASTING RATIONAL CHOICE AND BEHAVIORAL PERSPECTIVES

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Based on the standard axiom of individual utility maximization, rational choice has postulated that higher income inequality translates into greater redistribution by shaping the median voter's preferences. While numerous papers have tested this proposition, the literature has remained divided over the appropriate measure for redistribution. Revisiting the original contribution by Meltzer and Richard in 1981, the present paper argues that the median voter hypothesis implies that relative redistribution should increase in line with inequality. However, an empirical test based on 110 observations from the Luxembourg Income Study (LIS) finds no support for the hypothesis. By contrast, voters' actual preferences offer a better guide to understanding redistributive outcomes. The findings challenge the narrow concept of human motivation that underpins rational choice, and point to the importance of fairness orientations that have been emphasized in behavioral economics.

JEL Codes: D03, D31, H23, H55

Keywords: behavioral economics, income distribution, median voter theorem, redistribution

1. INTRODUCTION

At the danger of over-simplification, income poverty is a function of two factors: the level of average incomes and their distribution between households and persons. Holding income levels constant, poverty will generally be more severe when incomes are distributed more unevenly (see, e.g., Kanbur, 2005). Consequently, countries with comparable income levels can have very different outcomes in terms of poverty incidence and depth. While economic growth increases the level of average incomes, it is generally more effective in alleviating poverty when the initial distribution of incomes is more equitable or when it is accompanied with a reduction in inequality (White, 2001; Dagdeviren *et al*., 2002). Even as growth has helped to reduce poverty in a large number of countries since the mid-1990s, Fosu (2011, p. ii) concludes in his recent review of poverty trends that "further progress could have occurred under [a] relatively [more] favourable income distribution."

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It is thus not surprising that redistribution, broadly defined as the use of tax and transfer policies to reduce income inequality, has re-entered the mainstream of the poverty debate—much like income inequality itself has been "brought in from the cold" by the economics discipline in the mid-1990s (Atkinson, 1997; see also Kanbur and Lustig, 2000). Whereas redistributive instruments are generally more developed in the advanced countries—where relative poverty has remained a policy concern—developing countries such as Brazil are now using cash-transfer programs (along with other policy tools, such as minimum wage legislation) to reduce poverty and to put a dent into sky-high inequality. By contrast, tax and transfer systems have only a negligible impact on inequality in other Latin American countries such as Guatemala or Columbia. Even among developed economies, the welfare-state literature has found a wide gulf between the redistributive efforts made in Nordic countries and in the liberal market economies of the Anglo-Saxon world (see, e.g., Korpi and Palme, 1998).

What explains these differences in the extent of redistribution? Mainstream rational choice theory has postulated an automatism under which higher initial income inequality will lead to higher redistribution. This would be good news for those concerned with poverty eradication, since redistribution would be in greater supply precisely where it is needed most to redress inequities generated by the market and the social context in which it operates. In an influential paper, Meltzer and Richard (1981) have argued that the median voter's interest in redistribution will be greater in more unequal societies. Since self-interested politicians want to maximize their chance of gaining or retaining power, they will strive to translate the median voter's preferences into policy action. In democratic polities, this mechanism should translate higher initial inequality into higher subsequent redistribution.[1]

The Meltzer–Richard hypothesis, as the proposition has become known, draws on the standard assumptions of rational choice—individuals are rational actors who maximize their own, narrowly defined utility—and relies on methodological individualism to extrapolate from the postulated (rather than observed) individual behavior to predict developments at the macro-level. Behavioral economics has found many of these assumptions wanting, and pointed to the bounds of rationality. By drawing on insights from neighboring disciplines, it has also questioned the narrow definition of utility as material gain. While the simplistic concept of human motivation makes the agents of rational choice theory behave like "rational fools" (see Sen, 1977), the well-established research on social alignments and value orientations offers a more nuanced understanding of individual voting behavior (see Lipset and Rokkan, 1967; Flanagan, 1987; Knutsen, 1995; Dalton, 1996).

The hypothesis developed by Meltzer and Richard is readily testable: Do more unequal societies redistribute more? Unsurprisingly, many papers have sought to address this question (e.g., Milanovic, 2000; Kenworthy and Pontusson, 2005; de Mello and Tiongson, 2006; Lupu and Pontusson, 2011). Overall, the literature has arrived at the unsatisfactory conclusion that the answer partly

[1]Romer (1975) and Roberts (1977) had made similar arguments earlier, and all modern median voter theories of course find their intellectual heritage in Schumpeter (1942) and Downs (1957).

depends on how "redistribution" is defined. By and large, papers that look into "absolute redistribution" (the absolute reduction in the Gini coefficient) concluded that more unequal societies, indeed, redistribute more (see, e.g., Kenworthy and Pontusson, 2005). By contrast, papers that have measured "relative redistribution" (the reduction of the Gini coefficient relative to its initial level) have not found any correlation between market inequality and subsequent redistribution (see, e.g., de Mello and Tiongson, 2006; Lupu and Pontusson, 2011). Mixed findings have also emerged from a related body of literature on welfare spending (see, e.g., Bassett *et al*., 1999).

In this context, the present paper aims to the make the following contributions: (1) As a contribution to theory, it revisits the original paper by Meltzer and Richard to deduct a valid test with the appropriate measure for redistribution. (2) As a contribution to econometric analysis, it uses an expanded dataset from the Luxembourg Income Study (LIS, 2011) to test the hypothesis. (3) Lastly, the paper explores behavioral approaches to understanding support for redistribution, namely the observed preferences of voters for equity and redistribution, and submits this alternative explanation to an empirical test. The paper concludes by reviewing the utility of the two different approaches and discusses their commonalities and limitations. There are a number of related issues this paper will not address, namely asset redistribution, trade-offs between different transfer schemes, and policy options to reduce inequality in pre-tax, pre-transfer inequality (such as minimum wages and collective bargaining rights).

2. Revisiting the Meltzer–Richard Hypothesis

While several studies have sought to establish a relationship between pre-government inequality and the extent of redistribution, most of them have suffered from the lack of reliable data for market inequality and/or used proxy variables for redistribution, such as the size of social expenditures or public transfers.[2] Mahler and Jesuit (2006) were among the first to provide reliable cross-country time-series data for both concepts on the basis of LIS. They report the Gini index for the inequality of private sector incomes,[3] which presents the desired measure of the initial distribution of incomes (i.e., before taxes and transfers), as well as for the distribution of disposable incomes (i.e., after taxes and transfers). Based on this, researchers have a choice between measuring fiscal redistribution as the *absolute* difference between the two Gini coefficients, or as the change in the Gini coefficient due to taxes and transfers *relative* to its initial level. Both the absolute and relative measures are frequently used in the literature on inequality and redistribution, and the justification for using either concept crucially depends on the research context.[4]

[2]See, e.g., Perotti (1996), Moene and Wallerstein (2003), and de Mello and Tiongson (2006); notable exceptions are Milanovic (2000), Bradley *et al*. (2003), and Kenworthy and Pontusson (2005).

[3]This paper uses the terms "market incomes" and "private sector incomes" interchangeably to describe all pre-tax, pre-transfer incomes received by private households. See footnote 8 for a definition in terms of LIS variables.

[4]See, for example, the arguments in favor of the absolute measure in Kenworthy and Pontusson (2005); examples for studies based on the relative measure of inequality include Bradley *et al*. (2003) or Mahler (2004).

To determine which of the two measures is theoretically more appropriate for the narrow purpose at hand, it is necessary to revisit some of the details of the original contribution by Meltzer and Richard (1981). In their seminal paper "A Rational Theory of the Size of Government," they use "the share of income redistributed by government . . . as [their] measure of the relative size of government and develop a theory in which the government's share is set by the rational choices of utility-maximizing individuals" (p. 915). Their model can explain how the extension of franchise (that allowed poorer voters to participate in elections) leads to increased redistribution, and hence a greater size of government. However, the most intriguing part of their argument predicts how greater inequality in the primary distribution of incomes shifts voters' preferences and produces more redistribution.

Meltzer and Richard conceptualize redistribution as a "Robin Hood"-type process where the rich pay more taxes than they receive from the state in the form of transfers, whereas the poor gain from redistribution. They assume that taxes are levied against all private sector incomes using a linear tax rate, and that all tax receipts are spent on distributing equal lump sums among citizens.[5] These simplifying model assumptions make it possible to calculate by how much a given Gini coefficient would be reduced as a result of a given tax rate. A full proof is supplied in Appendix 1, but one can intuitively understand the process as a shift of the Lorenz curve from its original position toward the 45-degree line (that would imply perfect equality). The magnitude of this shift, and hence the extent of redistribution, depends on the share of the lump-sum receipts and of private sector incomes in total disposable income. Fortunately, the distribution of incomes from both sources is known: the Gini for the remaining private sector incomes is equal to the initial distribution of private sector incomes, G_p, and the Gini for incomes from lump-sum redistribution, G_l, is zero (since all individuals receive equal lump sums).

Further, Meltzer and Richard assume that all proceeds from taxation are redistributed, so the total sum of incomes does not change. The share of the lump sum receipts in total incomes is thus equal to the tax rate t, and the share of the remaining private sector incomes in total income is equal to $1 - t$. We therefore know the distribution of both income components and their relative weight in the overall post-tax, post-transfer distribution. Since Gini coefficients cannot be easily decomposed, this information would be insufficient to calculate the Gini coefficient for total disposable incomes in any real-world application. This is due to the fact that the relative position of individuals usually differs between any two income distributions (see, e.g., Shorrocks, 1982). However, in the model world of Meltzer and Richard, each individual's income grows by the same amount so that their relative position does not change when transfer receipts are added.[6] The Gini

[5]Hence, taxation itself has no impact on inequality, and redistribution is solely achieved through the transfer system. This is of course a gross oversimplification, but it corresponds to the real world in so far as Mahler and Jesuit (2006) find that about three-quarters of fiscal redistribution can be attributed to the transfer system.

[6]This condition is crucial; unless it is satisfied (i.e., virtually in all real-world applications), it is not possible to average Gini coefficients.

coefficient of disposable incomes, G_d, can thus be calculated as a weighted average of the two income components G_p and G_l, where the weights are given by $1 - t$ and the tax rate t:

$$G_d = (1-t)\cdot G_p + t\cdot G_l. \tag{1}$$

Since all persons receive the same lump-sum transfers, the Gini coefficient G_l takes the value of zero and equation (1) can be simplified into:

$$G_d = (1-t)\cdot G_p. \tag{1'}$$

It is easy to see that at a tax rate of zero, post- and pre-government inequality are identical (and hence no redistribution takes place), but that as the tax rate rises, the Gini for disposable income decreases until it eventually reaches zero (when all income is taxed and redistributed).

For Meltzer and Richard, political conflict is therefore about determining the tax rate t. They start from the premise that the median voter casts the decisive vote in systems with majority rule, and chooses the tax rate that maximizes his utility (Meltzer and Richard, 1981, p. 920). The median voter's utility is given by the cost that taxation imposes on her or him and the benefit from lump-sum redistribution. Even after taking into account potentially adverse effects of taxation on incentives, Meltzer and Richard show that "the tax rate rises as mean income rises relative to the income of the decisive voter" (which corresponds to median income; see Meltzer and Richard, 1981, p. 923). The ratio of mean over median income is a common metric for inequality, and is monotonically related to the Gini coefficient when the distribution of incomes follows a lognormal pattern (see Lopez and Servén, 2006).

Returning to the two measures for redistribution, absolute redistribution, ΔG^{abs}, can be defined as the absolute difference between the two Gini coefficients,

$$\Delta G^{abs} = G_p - G_d \tag{2}$$

and relative redistribution, ΔG^{rel}, as the absolute difference between the two Gini coefficients divided by the initial level of the Gini coefficient:

$$\Delta G^{rel} = \frac{G_p - G_d}{G_p}. \tag{3}$$

Substituting (1′) into equations (2) and (3) leads to:

$$\Delta G^{abs} = t\cdot G_p \tag{2'}$$

$$\Delta G^{rel} = t. \tag{3'}$$

The identity in equation (3′) implies that *relative* redistribution is the best proxy for the tax rate t, which Meltzer and Richard expect to rise as a result of greater

market inequality. It is therefore appropriate to investigate how initial market inequality, G_p, influences relative redistribution, ΔG^{rel}. Note that equation (2′) shows that *absolute* redistribution is, by definition, a function of the Gini coefficient for market incomes (even if the tax rate remains constant). Since political conflict is about changes in the tax rate, a positive association between market inequality and absolute redistribution would not offer any support to the Meltzer–Richard hypothesis.

Although this "model world" might seem removed from reality, the two equations are helpful to think about redistribution in the real world. As can be seen in equation (2′), we would expect absolute redistribution to increase with market inequality even if the characteristics of the tax and transfer system remain largely unchanged. Incidentally, this process of "automatic stabilization" is what seems to have been at work over the 1980s and 1990s in rich countries where the welfare state partially compensated for the surge in market inequality (see Kenworthy and Pontusson, 2005). Equation (3′) implies that only the characteristics of the tax and transfer system (for which t is the short-hand) will influence relative redistribution (regardless of the initial level of inequality). Note, however, that the tax and transfer system in the Meltzer and Richard model is very crude and that different effects might be observed in the real world.

3. Do More Unequal Societies Redistribute More?

The discussion above leads to a readily testable hypothesis, namely that relative redistribution ΔG^{rel} is a direct function of the initial level of inequality for private sector incomes, G_p:

$$\mathrm{H}_1: \Delta G^{rel} = f(G_p). \tag{4}$$

This relationship should hold true both *within* countries over time and *between* countries, at least as far as electoral democracies are concerned. It is thus appropriate to test the hypothesis on a dataset that contains repeated observations across countries. The LIS provides such a source and is generally recognized as the best compilation of standardized household income datasets that allow for such an analysis (Atkinson, 2004). In their initial publication, Mahler and Jesuit (2006) provided a total 59 data points from 13 countries for inequality of private sector incomes and of disposable incomes, and hence for redistribution (see also Bradley *et al.*, 2003). In February 2008, they released an updated dataset with 68 observations from 14 industrialized countries (Mahler and Jesuit, 2008). Since then, the LIS has significantly expanded its coverage and now includes observations from Latin American countries (Colombia, Brazil, and Guatemala) as well as Asia (Republic of Korea and Taiwan, Province of China). In total, the relevant income concepts can be retrieved for 110 surveys from 26 countries and territories.[7]

[7]The LIS database contains further datasets that record only net income, so that no comparison between incomes before and after taxes and transfers can be made. The definition of private sector income follows Mahler and Jesuit and refers to the sum of LIS variables "Market income" (MI),

The resulting dataset (which is reproduced in Luebker, 2012) contains the desired cross-sectional and inter-temporal variation. The oldest observation dates back to 1967 (Sweden) and the newest are from 2006 (Brazil, Guatemala, and Republic of Korea). The panel is unbalanced, and the number of observations ranges from ten observations in Canada to only one data-point in seven countries (Austria, Brazil, Colombia, Estonia, Guatemala, Republic of Korea, and Slovakia; see Appendix 3). This still leaves 19 countries that have at least two data points to study variation across time. Among these, some 15 countries showed a rise in the Gini coefficient for private sector incomes, while only one displayed stability and three a decline.

When the relationship between market inequality and relative redistribution is examined in a scatter plot (see Appendix 4), no systematic relationship emerges. There are, however, two clusters with outliers: observations from East Asia combine low market inequality with low redistribution; and the three Latin American countries combine high market inequality and low redistribution. Both findings correspond to the literature on redistribution in these two regions (see Hwang, 2004; Huber *et al*., 2006; Goñi *et al*., 2008). These outliers, however, do not allow dismissing the Meltzer–Richard hypothesis that redistribution rises with inequality since they might well reflect institutional variations. While the Latin American countries and the Republic of Korea were all electoral democracies when the data were collected (2004 and 2006), some of the observations from Taiwan, Province of China, date back to the early 1980s and hence to the period of authoritarian single-party rule.

For the developed economies, where the institutional preconditions of majority rule and political freedom were in place for the entire period under observation, no clear pattern emerges. However, on closer inspection, it appears that repeated observations from the same country—for example, from Canada or France—roughly correspond to the pattern predicted by Meltzer and Richard.

The scatter-plot has two implications for the empirical strategy:

(a) The presence of outliers suggests that the applicability of the Meltzer and Richard model might be confined to the developed countries, which can be expected to have stronger and more mature democratic institutions and a greater degree of political freedom. Proponents of the Meltzer–Richard model could (with some justification) argue that the empirical test is unfair by including countries such as Colombia or Guatemala. All regression models will therefore be estimated first on the full sample and then on a smaller sample that contains only observations from the developed countries (i.e., excluding observations from East Asia and Latin

"Private transfers" (PRIVATI), and "Other cash income" (V36). Disposable income is derived by adding "Transfer income" (TRANSI) and subtracting "Mandatory payroll taxes" (PAYROLL) and "Income taxes" (V11). Standard LIS procedures are used to top- and bottom-code and to obtain equivalized per capita income. The results are consistent with Jesuit and Mahler's 2008 dataset and the LIS key figures as of mid-2011. Note that all data were extracted before the launch of the new LIS template on October 31, 2011 that brought some changes to the definition of income concepts (in particular the inclusion of non-monetary income to disposable household income).

America).[8] This also removes the influence of outliers and produces a more homogenous group of countries where the median-voter mechanism should apply.

(b) While there is no apparent cross-country relationship, the expected relationship might still hold within countries. It is therefore useful to distinguish between-country from within-country effects, and to run separate models for these.

The scatter-plot also calls into question the utility of a pooled cross-section, time-series analysis. Such models imply that the same relationship can be observed between and within countries. Of course, the underlying assumption of the median voter theory is that the same mechanism is at work within countries over time and when comparing between countries. Table 1 therefore presents a standard OLS regression model (1) with robust standard errors for the pooled dataset largely on *a priori* theoretical grounds, and with caveats about its analytical utility and statistical validity (see also Kenworthy, 2007). Model (1a) with the full dataset yields no support for the hypothesis: the regression coefficient on the Gini for private sector incomes remains insignificant (even if one applies a generous 0.10 threshold). This does not change when the observations from East Asia and Latin America are excluded, as is done in model (1b), which again produces an insignificant regression coefficient. Note that no control variables are added to the model; the median voter theorem postulates a universal relationship that is not conditional on the presence of specific conditions (other than majority rule).

The failure to establish a relationship between initial inequality and subsequent redistribution is in line with previous studies based on pooled datasets cited above. But can the median voter hypothesis possibly explain variation in redistribution between countries? Models (2a) and (2b) present a test of the between-country effect, essentially a regression on the mean of all observations from the same country. This removes the within-country variation, while using all available observations—an approach that is preferable to arbitrarily selecting a single observation from each country. As in the pooled model, the regression coefficients on the Gini for private sector incomes are insignificant, regardless of whether the full or the reduced sample is used (p-values: 0.959 and 0.867, respectively).[9]

The results have so far been disappointing for the Meltzer and Richard hypothesis. One possible explanation could be that unobserved institutional variations between countries obscure the relationship. An approach to control for institutional differences is to focus on changes over time within countries (thus

[8]The alternative would have been to introduce control variables for institutional differences. However, this would unnecessarily complicate the model specification and it is not clear whether this would achieve the objective of capturing the effect of non-democratic governance. Therefore, the more radical approach of excluding observations was taken.

[9]Again, the coefficient on the Gini for private sector incomes remains insignificant when the unemployment rate and the share of the population aged 65 years and above are added as control variables. The p-values are 0.999 (sic!) (full sample) and 0.433 (sample excluding observations from East Asia and Latin America); the coefficient also carries the wrong sign in the latter case.

TABLE 1

Regression Results for Models with Private Sector Inequality as an Explanatory Variable (dependent variable: relative redistribution)

	(1) OLS Regression, Robust Cluster SE		(2) Between-Country Effects		(3) Within-Country Effects		(4) Within-Country Effects, with Controls	
Variable/Model	(1a) Full Sample	(1b) OECD	(2a) Full Sample	(2b) OECD	(3a) Full Sample	(3b) OECD	(4a) Full Sample	(4b) OECD
pi_gini (Gini, private sector incomes)	0.854	0.360	0.028	0.093	0.584***	0.581***	0.192	0.168
	(0.530)	(0.264)	(0.536)	(0.547)	(0.107)	(0.111)	(0.146)	(0.153)
unemp (unemployment rate)							0.457***	0.468***
							(0.160)	(0.165)
oldage (population 65+ years)							0.900**	1.056**
							(0.360)	(0.410)
constant	–0.040	0.198	0.297	0.330	0.074	0.102**	0.094**	0.105**
	(0.233)	(0.115)	(0.237)	(0.241)	(0.046)	(0.048)	(0.048)	(0.053)
n =	110	99	110	99	110	99	110	99
number of clusters/groups	26	21	26	21	26	21	26	21
R^2	0.146	0.029	0.000	0.002	0.266	0.261	0.371	0.376

Notes: R^2 refers to R^2 (overall) for model (1), to R^2 (between) for the between-effects model (2), and to R^2 (within) for the within-effects model (3) and (4). Standard errors are given in parentheses; those in model (1) refer to robust cluster standard errors. ***, **, and * denote significance at risks levels 0.01, 0.05, and 0.10, respectively.

Source: Based on LIS (pi_gini and dependent), ILO (unemp), World Bank (oldage) and Statistics Bureau of Taiwan, Province of China (unemp and oldage for Taiwan, POC). For details, see Appendix 2.

holding institutions constant).[10] Models (3a) and (3b) therefore present a fixed effects model to test the within-country relationship. The results appear to offer overwhelming support to this "weak" hypothesis. Although the explanatory power of the regression is modest (within $R^2 = 0.266$), the coefficients are highly significant and robust to the exclusion of observations from East Asia and Latin America. Two interpretations offer themselves for the contradictory results from the between- and within-country models: unobserved country characteristics—say, differences in the electoral process (see Iversen and Soskice, 2006)—could obscure the median voter's influence, which only becomes evident once they are controlled for by introducing country dummies. The fixed effects model would then be the only valid test, and the results would offer sufficient support for the median voter theorem.

However, the within-country effect could also be due to a different mechanism (or, technically speaking, omitted variable bias). Recall that Meltzer and Richard built a rudimentary model of redistribution under which all income is taxed at a flat rate and the entire revenue is redistributed in equal lump-sum benefits. In the real world, benefits are means-tested and income taxes are generally progressive (see also Prasad and Deng, 2009). The automatic stabilization of inequality through a progressive tax and transfer system would be greater than what we would expect in the "model world" of Meltzer and Richard. If demographic change causes greater market inequality, relative redistribution might increase as a result of the very same demographic shifts—and not as a result of changes in welfare generosity (or the hypothetical tax rate *t*).

Rich countries have of course experienced a large increase in unemployment since the early 1970s, and low fertility and rising life expectancy have led to a steady growth in the share of the elderly population. Model (4) adds two control variables, the unemployment rate and the share of the population aged 65 years and above. Both variables turn out to be highly significant (at the 0.01 and 0.05 level, respectively). Once these factors are controlled for, changes in the initial inequality of private sector incomes no longer carry any explanatory power and the regression coefficient loses its significance. It therefore appears that structural changes in the labor market and demography sufficiently explain within-changes in inequality. Moreover, the explanatory power of the model improves, which indicates that the private sector inequality was a poor proxy for the underlying demographic and labor market trends. The results are robust to the exclusion of observations from East Asia and Latin America, as can be seen in marginal difference between models (4a) and (4b). In sum, within-country changes in redistribution offer no convincing support for the Meltzer and Richard hypothesis.

4. Alternative Explanations for Variance in Redistribution and the Perspective of Behavioral Economics

Can behavioral economics account for differences in redistribution where rational choice offered no conclusive explanation? Recall that the two central

[10]In the period covered by the dataset, the only major change in political regime was the transition to democracy in Taiwan, Province of China, which is excluded from the reduced sample of OECD countries.

assumptions of the rational choice model were that the political system responds to demands of the median voter, and that the median voter seeks to maximize her own, narrowly defined utility. At least one of these assumptions appears to be faulty, and an extensive literature has indeed discussed their respective shortcomings (for a short review, see Kaufman, 2009). One body of literature, with many contributions from political science, has concentrated on the question how political systems translate preferences into policy outcomes. Various authors have investigated differences between proportional representation and majority voting, the impact of voter turnout, or how the structure of inequality will influence coalitions between different groups (see, e.g., Bassett *et al*., 1999; Tanninen, 1999; Austen-Smith, 2000; Cukierman and Spiegel, 2003; Iversen and Soskice, 2006; Borck, 2007; Mahler, 2008; Solt, 2008; Lupu and Pontusson, 2011). Others have argued that social security systems have unclear *a priori* distributive outcomes and serve primarily insurance purposes (Moene and Wallerstein, 2003). Hence, greater risk exposure should increase support for these schemes (see Cusack *et al*., 2006).

More fundamentally, questions have arisen about the underlying *Menschenbild* (view of the nature of man) of rational choice—do people only consider their own advantage when voting? While this proposition is unproblematic within the rational choice framework, behavioral economics has challenged the utility maximization paradigm and explored the role of social norms in explaining actual, observed human behavior. This has brought into focus the role of altruism, inequality aversion, and fairness orientations (see, e.g., Fehr and Fischbacher, 2004; Fehr and Schmidt, 2005).

One prominent approach within behavioral economics has been to conduct experiments with groups of individuals who are asked to distribute small amounts of money between themselves and another person. Results from the dictator game and the ultimatum game have been interpreted as evidence that individuals behave altruistically by passing on part of their endowment, and that they are willing to forego a small gain when they reject splits perceived as overly unfair (see Andreoni *et al*., 2008). Interestingly, while altruism appears to be a universal phenomenon, there is some variation between countries and communities (see Cardenas and Carpenter, 2008, for a review). Similarly, Falk *et al*. (2008) show that fairness intentions matter, and that individuals frequently prefer an option seen as "fair" over an alternative that maximizes only their own utility.

However, the sample size and coverage of these experiments are too small to gain reliable information on cross-national (and inter-temporal) variations in inequality aversion. Building on large cross-national survey datasets, political sociology has studied the role of value orientations in shaping people's preference for equity and their support for redistribution (Blekesaune and Quadagno, 2003; Luebker, 2004). Unlike the rational choice literature, this political sociology approach leaves room for social norms and individual belief systems as intervening factors to shape support for redistribution (that is no longer a direct function of initial market inequality; see, e.g., Kuhn, 2009a, 2009b). If tolerance of inequality varies between societies, different societies will evaluate income inequality differently and also display differences in their support for redistribution—even when the level of initial inequality is identical (Luebker, 2004, 2007; Alesina and Angeletos, 2005). Research on social welfare responsiveness has shown that these

differences matter for redistributive outcomes and welfare state generosity, at least as far as rich countries are concerned (see Burstein, 1998; Brooks and Manza, 2006, 2007).

The key challenge to this literature is that the causality might run in the other way—generous welfare states might not be a response to citizen's demands, but could have generated their own support through performance over time (Kenworthy, 2009). Socialization in a particular welfare regime type undoubtedly shapes social norms by providing a benchmark of what can reasonably be expected, and hence also evaluations of inequality and support for redistribution. The post-war division and subsequent reunification of Germany provides for an insightful natural experiment: East Germans, who were brought up in a nominally socialist state, expect a far greater welfare state engagement than their West German compatriots, even when other individual-level factors are controlled for (Alesina and Fuchs-Schündeln, 2007).

The question on the direction of causality has probably no clear answer—it would seem plausible that it in fact runs *both* ways. Easton's (1957, 1965) system analysis of the political life provides a useful theoretical framework. For him, the political system generates outputs (such as welfare payments and redistribution) that are evaluated by the citizenry and, through a feedback loop, influence the inputs that feed into the political system in the form of demands and support. From this perspective, support for redistribution could then be shaped by previous performance of the welfare state, and explain why the welfare state is maintained through popular support once it is established (see Brooks and Manza, 2007). However, the present paper has a more limited concern: Are the observed preferences of real individuals a better guide to reality than the "hypothetical" preference for redistribution (as deducted by the rational choice literature)?

A related controversy has focused on measurement issues, particularly the treatment of pensions. In countries where pensions are provided though public social insurance schemes, people save less in their working years but pay compulsory social security contributions. When they reach retirement age, their private sector income often falls to zero and they live from transfer payments in the form of old-age pensions. In countries without such public systems, people pay into private, capital-based schemes and receive annuities in retirement (which are usually counted as private sector incomes). In the latter class of countries, inequality of market incomes and redistribution will be lower, whereas public pension systems "inflate" market inequality and redistribution (see Bradley *et al*., 2003, p. 208). One approach to address this observation has been to exclude the elderly population from the analysis and compute measures for inequality and redistribution for the working-age population (Bradley *et al*., 2003; Kenworthy and Pontusson, 2005; see also Mahler and Jesuit, 2006). An alternative is to adjust income concepts by including social insurance and state pensions into a concept of "primary income" (in line with private pensions), and by treating payroll taxes analogous to savings and including them in "adjusted disposable income" (Jesuit and Mahler, 2010).

While the concern is valid, it raises a more fundamental question: Do we want to control for differences in pension systems when analyzing redistribution and welfare states? After all, old-age pensions are not fundamentally different from

other types of social insurance, such as unemployment, sickness, maternity, or invalidity benefits—the design of which will all lead to different redistributive outcomes.[11] In all cases, employees (often matched by employers) pay contributions, and receive benefits when certain qualifying conditions are met. Not all who contribute to a scheme will also receive a benefit, and while benefits are often linked to previous contributions, they also reflect other, social objectives. For example, times spent in education or caring for children are frequently credited as contribution periods, and spouses who survive a beneficiary typically receive a survivor's benefit (for which no extra contributions have been made). Often, a substantial part of benefits is funded not out of contributions, but out of general tax revenue.

Social insurance institutions are one of the main mechanisms for welfare states to redistribute incomes, and their design is of central importance for redistributive outcomes (see Korpi and Palme, 1998; Kraus, 2004; Conde-Ruiz and Profeta, 2007). By comparison, private pensions have different distributive outcomes (Behrendt, 2000). Pension systems are thus subject to intense political debate, and even incremental transitions from one model to another go hand-in-hand with intense conflict. Excluding the pension system from the comparative analysis of welfare regimes and redistribution would mean to miss a large part of the picture. The empirical analysis in the following section will therefore maintain the dependent variable for relative redistribution as introduced in the previous section (i.e., based on the total population).

5. Can Voters' Actual Preferences for Distribution Account for Differences in Redistribution between Countries?

To test the proposition that actual (as opposed to "hypothetical") public opinion matters for policy outcomes, we need to find an appropriate way to measure public support for redistribution. The International Social Survey Programme (ISSP) is the most reputable and most commonly used source for this type of analysis (see, e.g., Alesina and Angeletos, 2005; Osberg and Smeeding, 2006). The consortium started in 1984 with four members (Australia, Germany, Great Britain, and the United States) and has since expanded to a total of 48 member countries, including several newly industrialized and developing countries. One of the questions in the module on Social Inequality addresses support for government redistribution directly:

> How much do you agree or disagree with each statement about differences in income? It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes.

The Social Inequality module has so far been in the field in 1987, 1992, 1999, and 2009, and an identical question was also included in the Role of Government module in 1985, 1990, and 1996. Respondents were asked to record their answers

[11]See Statistical Appendix Part B in ILO (2010) for a comprehensive overview of the different social insurance systems. For redistributive outcomes in the case of different sickness benefit systems, see Khan and Jansson (2008).

on a five-point Likert-scale that ranges from "strongly agree" to "strongly disagree." The proportion of those who either agreed or strongly agreed is a good proxy for the prevalence of support for redistribution. It captures the appetite among the electorate for government intervention to reduce income disparities, which modern welfare states achieve through the tax and transfer system.

Although there is a large overlap in coverage between the LIS and the ISSP, the match between the two sources is not perfect. For instance, the Latin American countries covered by the ISSP (Argentina and Chile) differ from those included by the LIS (Brazil, Colombia, and Guatemala) so that there are no common observations from this region. In Asia, both the ISSP and LIS cover Taiwan, Province of China, and the Republic of Korea; they also share a large, common pool of advanced industrialized economies. However, the years for which there are observations from the two sources do not always match. This necessitates estimating support for redistribution in some years, mainly by interpolating between neighboring years (see Appendix 2). Such approximations are of course not ideal and compromise the quality of within-country trends. However, they are the best possible solutions in a world of non-perfect data and should have less impact on between-country comparisons.

Again, an examination of the scatter-plot is a first step to approach the data, which cover the 58 observations from 22 countries. The scatter shows a reasonably close, though not perfect association between the two variables: as expected, relative redistribution grows roughly in line with support for redistribution (see Appendix 4). This is particularly true for between-country variation, but less apparent within countries. However, this is perhaps not surprising, given that within-country variation is relatively small on either variable. Two outliers which combine relatively high support for redistribution with very limited actual redistribution can be found (the Republic of Korea and Taiwan, Province of China). Latin American countries would most likely be found in the same corner since redistribution is typically very limited in the region, even though public opinion is strongly in favor.[12]

In line with the previous design, the first regression will use both the time-series and the cross-section component of the pooled sample and estimate an OLS model with cluster-robust standard errors. However, due to the mismatch of years for which observations are available from the two primary sources, the time-series component of the pooled analysis is not always robust and model (5) is presented with this caveat. For the same reasons, no within-effects model is estimated and more trust is placed in the between-effects model (6) that only captures the variation between countries. In addition to the support for redistribution, the models carry over the share of the population aged 65 years and above and the unemployment rate as control variables.

To control for the "automatic stabilization" effect of the welfare state that goes beyond the impact of unemployment insurance and old-age pensions, the specifications also maintain the initial level of private sector inequality as an explanatory variable. Incidentally, this also addresses a possible criticism of the

[12]In the ISSP dataset, 84.8 percent of respondents in Argentina and 73.0 percent in Chile agreed with the statement introduced above.

TABLE 2

Regression Results for Models with "Support for Redistribution" as an Explanatory Variable (dependent variable: relative redistribution)

	(5) OLS Regression, Robust Cluster SE		(6) Between-Country Effects	
Variable/Model	(5a) Full Sample	(5b) OECD	(6a) Full Sample	(6b) OECD
pi_gini (Gini, private sector incomes)	–0.003	–0.819*	0.180	–1.357**
	(0.491)	(0.404)	(0.727)	(0.598)
support (support for redistribution)	0.169	0.348***	–0.008	0.383**
	(0.114)	(0.086)	(0.197)	(0.161)
unemp (unemployment rate)	0.630	0.335	1.461	0.527
	(0.436)	(0.308)	(1.113)	(0.794)
oldage (population 65+ years)	2.311***	1.534**	2.600**	1.138
	(0.631)	(0.676)	(1.075)	(0.800)
constant	–0.115	0.285	–0.187	0.558**
	(0.237)	(0.197)	(0.258)	(0.239)
n =	58	56	58	56
number of clusters / groups	22	20	22	20
R^2	0.395	0.490	0.468	0.458

Notes: R^2 refers to R^2 (overall) for model (5) and to R^2 (between) for the between-effects model (6). Standard errors are given in parentheses; those in model (5) refer to robust cluster standard errors. ***, **, and * denote significance at risks levels 0.01, 0.05, and 0.10, respectively. OECD refers to old OECD member countries and those in Europe; the Republic of Korea is excluded.

Source: Based on LIS (pi_gini and dependent), ISSP (2011a, 2011b, 2011c, 2011d, 2011e, 2011f) and related sources (support), ILO (unemp), World Bank (oldage) and Statistics Bureau of Taiwan, Province of China (unemp and oldage for Taiwan, POC). For details see Appendix 2.

model, namely that measured support for redistribution is nothing but a proxy for initial inequality (which, as rational choice would predict, drives up demand for redistributive government interventions). If this were the case, the variable that measures initial inequality directly should carry the explanatory power (and not the proxy).[13] As before, the regressions will be estimated for the full sample and for a reduced sample that excludes the East Asian economies.[14] (Recall that the Latin American countries are missing from both samples due to lack of data on public opinion.)

The pooled analysis on the full sample in model (5a) produces no significant regression coefficients apart from the highly significant coefficient on the variable "oldage" (see Table 2). At first sight, the performance of the "behavioral" model is therefore no better than the previous test of the Meltzer and Richard hypothesis. However, this changes when the two outliers from East Asia are excluded, as done in model (5b): the regression coefficient on support for redistribution is now highly

[13]The behavioral approach will only "outperform" the rational choice model in so far as public support for redistribution (as measured by the ISSP questionnaire item) diverges systematically from what the rational choice approach deducts based on the level of initial inequality.

[14]Note that the relatively small sample size of only 58 observations reduces the statistical power of the test, i.e. there is a lower likelihood to obtain a significant result than would be the case with a larger sample. Small sample sizes increase the risk of committing a type II error (false negative), but do not influence the probability of committing a type I error (false positive). The risk of making a type I error is given by the p-value, or the level of significance, the computation of which takes into account the size of the underlying sample.

significant (at the 0.01 level), and the control variable "share of the population aged 65 years or above" also gains significance (at the 0.05 level). With an R^2 of 0.490, the explanatory power of the model is satisfactory. The between-effects model (6a) on the full sample largely replicates the results of the pooled OLS model and does not produce any significant coefficients with the exception of the variable "oldage." Once the East Asian observations are removed, as done in model (6b), support for redistribution again becomes a significant explanatory variable (at the 0.05 level). These results confirm that, as far as the old industrialized countries are concerned, public support for redistribution is an input into the political system that is strongly associated with actual redistribution at the output side of the system (to use Easton's terminology).

Note that the level of inequality is a significant predictor in the models with the reduced sample. However, this does not lend support to the median voter theorem since the sign on the coefficient is *negative*, and hence opposite of what the rational choice model predicts. This unexpected result is partly an artifact of the way the dependent variable—relative redistribution—has been constructed. As discussed above, it is obtained by dividing absolute redistribution (i.e., the difference between the Gini coefficients for disposable incomes and private sector incomes) by the Gini coefficient for private sector incomes. Hence, the same level of absolute redistribution will result in a lower value for relative redistribution if the initial private sector inequality was higher. The variable "pi_gini" (private sector inequality) can therefore best be thought of as a control variable that is necessitated by the nature of the dependent variable. As a robustness test, models (5) and (6) were re-estimated with *absolute* redistribution as a dependent variable (reported in Luebker, 2012). While the coefficient on the initial level of inequality lost its significance, the results did not change materially otherwise.

What do these findings imply? One interpretation would be that governments in the old OECD countries and in Eastern Europe are, to some extent, responsive to public demands to reduce inequality through the tax and transfer system. However, this conclusion comes with two caveats. The first is that the finding is based primarily on the between-country variation; due to data limitations, this paper has not exploited the time-series element of the dataset. Kenworthy and McCall (2008) study over-time variation in support for redistribution and changes in actual redistribution for 15 countries, and find no consistent pattern. Over-time variation in support for redistribution is relatively small when compared to between-country differences, and does not necessarily match redistributive outcomes (which are heavily influenced by other factors, such as the business cycle and unemployment).

The second caveat is that the aggregate finding may obscure a lack of government responsiveness in some countries, or in fact hide a bias in one direction across all countries. In the United States, the corrosive effects of inequality on democracy itself have become an issue of debate (see Jacobs and Skocpol, 2005). To summarize a complex literature, it appears that the government is responsive to citizens' demands, but more so to the views of affluent voters (Gilens, 2005). This matters since the poor and the rich differ in their preferences when it comes to welfare spending and other policies with redistributive consequences (Gilens, 2009). At the level of individual United States senators, Bartels (2005) shows that

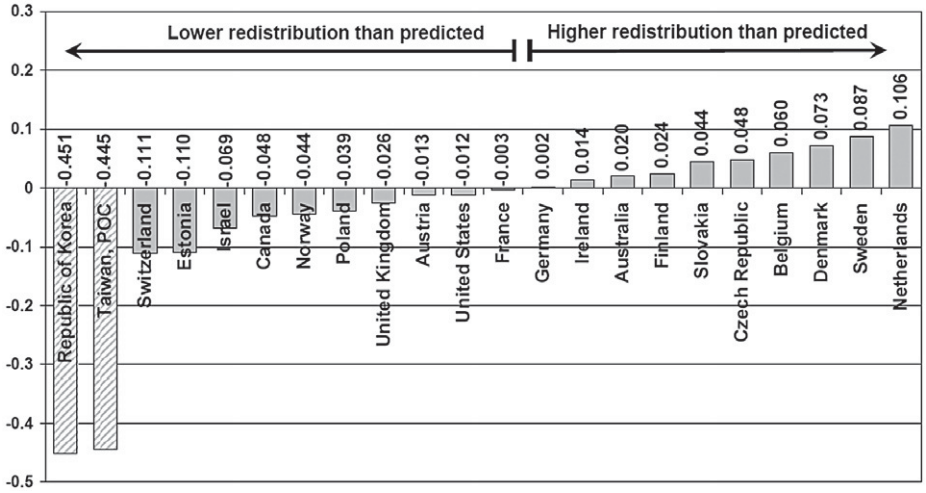

Figure 1. Departures from Predicted Extent of Relative Redistribution, by Country (residuals from regression model 6b)

Notes: Gray bars refer to residuals from regression model (6b). The same regression equation was also applied to the Republic of Korea and Taiwan, Province of China, to predict the extent of redistribution under the counterfactual assumption that these two economies displayed the same characteristics as the advanced countries (light gray bars).

Source: Based on LIS (pi_gini and dependent), ISSP (2011a, 2011b, 2011c, 2011d, 2011e, 2011f) and related sources (support), ILO (unemp), World Bank (oldage) and Statistics Bureau of Taiwan, Province of China (unemp and oldage for Taiwan, POC). For details, see Appendix 2.

they are more responsive to the views of affluent constituents in their home state than to those held by middle-class voters; the preferences of the bottom strata have no statistically significant impact on senators' voting behavior in Congress. Effectively, this literature gives support to the argument that the hypothetical median voter of Meltzer and Richard's model world is not the decisive voter in the real world.

Does the United States stand out for ignoring redistributive preferences of its voters? To approach this question, it is useful to look at the unexplained departure from the extent of redistribution that one would expect to find, given public support for redistribution and demographic factors. Figure 1 therefore displays the residuals from the between-effects regression model (6b). The striking finding is that redistribution in the United States is almost exactly in line with the model prediction (residual: –0.012). When compared to France (residual: –0.003) or Germany (residual: 0.002), the lower level of redistribution in the United States largely reflects differences in (measured) public opinion, initial inequality, unemployment, and demographic structure—and not a fundamental difference in how the political system translates inputs into outputs. This finding, however, leaves open to debate whether all of these countries share the same elite-bias. It is informative that some European welfare states (Denmark, Sweden, and the Netherlands) offer greater redistribution than expected, and somewhat counterintuitive that Switzerland, with its strong tradition of direct democracy, redistributes substantially less. In both cases, the historical evolution of the welfare state might

offer an explanation. By far the greatest disconcordance can be observed in the two East Asian economies: both the Republic of Korea (residual: –0.451) and Taiwan, Province of China (residual: –0.445) have far less government redistribution than one would expect if they behaved like the old OECD countries.

6. Conclusions

Explanations for the extent to which governments redistribute income through the tax and transfer system provide for an interesting example to contrast rational choice and behavioral perspectives, and how they differ in understanding human motivation. In a classical paper, Meltzer and Richard (1981) provide a theoretical "proof" that individual utility maximization and the vote-seeking behavior of politicians under majority rule produce greater redistribution when inequality is high. The model exemplifies the deductive reasoning of rational choice, and applies the median-voter theory of Schumpeter (1942) and Downs (1957) to a tangible question. As even critics would concede, the model is elegant and parsimonious and its logic is intuitively compelling. Yet, it suffers from the shortcomings of its very foundations that behavioral economics has found wanting. By portraying humans as "rational fools" (to use Amartya Sen's term), rational choice ignores that people are embedded in a society and share values and perceptions of fairness and social justice.

While a host of papers has tested the relationship between inequality and redistribution, one unresolved issue has been how best to define redistribution in empirical tests. While some authors have used "absolute redistribution" (measured as the difference between the Gini for private sector incomes and the Gini for disposable incomes), others have chosen a relative concept of redistribution (i.e., the reduction of the Gini coefficient relative to its initial level). To resolve this question, the present paper has revisited the original article by Meltzer and Richard and shown that their model assumptions imply that *relative* redistribution should rise in line with initial inequality. An increase in *absolute* redistribution should arise from the automatic stabilization properties of welfare states and finding such a relationship would not provide conclusive evidence for the median-voter hypothesis.

The empirical analysis in this paper has—in line with previous findings—shown that the simple mechanism proposed by rational choice is a poor guide to explain redistributive outcomes. The "pooled" analysis of cross-section time-series data with 110 observations from 26 countries revealed no significant relationship between inequality of private sector incomes and subsequent relative distribution. The approach also failed to account for differences between countries, but at first appeared to have some utility in explaining within-country changes over time. However, the explanatory power of the model remained poor and the regression coefficient on inequality became insignificant once control variables were added. As it turned out, changes in unemployment and an increasing share of the elderly population offer a simple and more powerful alternative explanation for the observed over-time changes in relative redistribution since the 1970s.

The failure of the real world to behave in line with model predictions puts into question at least one of the two underlying premises of the Meltzer–Richard

model: that voters' support for redistribution strictly depends on what they personally have to gain from it (i.e., their utility maximization), and that the political system produces outputs that are aligned to the median voter's interests. While a large body of literature has concentrated on the second point, the present paper has adopted the perspective of behavioral economics. This body of literature has challenged the axiom that rational utility maximization alone is sufficient to understand human motivation and has explored the role of altruism, social norms, and values in explaining people's choices. These have of course been central to political sociology and comparative welfare state research long before they entered mainstream economic analysis, as evident from a rich body of literature that has previously studied voters' actual views on inequality and redistribution. As it turns out, observed support for redistribution—measured as the share in the population who thinks that it is the government's role to reduce income differences—is a better predictor for actual redistribution, at least in the old industrialized countries.

Some caveats need to be added to this analysis. First, since people's views on what is just and fair, and on how the government should intervene in market outcomes, are shaped by their socialization in a political system, the direction of causality is open to debate—and it may well run in both ways. In Easton's (1965) terminology, the output of a political system will, through a feedback loop, influence the input that feeds into the system through elections or other forms of political participation. The central argument is that, when analyzing inputs into the system, observing and measuring what people want is a better guide to reality than simply deducting what they want on the basis of assumptions about their rational utility maximization. Second, while the behavioral perspective is a better guide than the median voter theorem, this type of micro-level analysis has its inbuilt limitations. For instance, limited redistribution in Latin America is not due to a lack of public support, but linked to entrenched concentrations of wealth and power. As Streeck (2010) has pointed out, the danger is to simply replace the supposedly "rational" choice of individuals with another simplistic explanation of human choice that follows universal behavioral dispositions and leaves no space for human agency or historical context. Redistribution will not follow automatically where inequality is highest or where it is demanded by voters. However, as countries such as Brazil have shown, democracy at least opens up the space for human agency to affect policy outcomes (Huber *et al.*, 2006).

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's web-site:

Appendix 1: Alternative Proof for Equation (1′)
Appendix 2: Variable Definitions and Sources
Appendix 3: Basic Descriptive Statistics of the Dataset
Appendix 4: Scatter plots for relative redistribution and two explanatory variables
Appendix Figure 1: Gini for private sector income and relative redistribution in 26 countries and territories
Appendix Figure 2: Support for redistribution and relative redistribution in 22 countries and territories

Errata

Page 232: Due to a typesetting error, the axis labels were omitted in Figure 8.6. The correct label for the x-axis is "**Gini for private sector incomes**", and the correct label for the y-axis is "**Relative redistribution**".

Page 234: Due to a typesetting error, the axis labels were omitted in Figure 8.7. The correct label for the x-axis is "**Support for redistribution (% of respondents)**", and the correct label for the y-axis is "**Relative redistribution**".

Paper D. Can the structure of inequality explain fiscal redistribution? Revisiting the social affinity hypothesis

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Can the structure of inequality explain fiscal redistribution?

Revisiting the social affinity hypothesis

Abstract: Lupu and Pontusson (2011) argue that the structure of income inequality, rather than its level, can explain differences in fiscal redistribution in modern welfare states. Contrary to their assertion that there is robust evidence in support of this proposition, the present paper challenges the empirical work that underpins the social affinity hypothesis. It makes three central claims: (a) skew in the earnings distribution, the key explanatory variable, is a result of labor market institutions and hence endogenous to the welfare state; (b) relative earnings differentials are not a valid measure for the structure of income inequality; and (c) there is no indication that skew in the income distribution is positively associated with fiscal redistribution. In sum, revisiting the social affinity hypothesis offers no support for the proposition that the structure of inequality has consequences for redistribution.

Key words: Redistribution; social distance models; labor market institutions.

Can the *structure* of inequality explain why the extent of fiscal redistribution varies over time and across countries? The social affinity hypothesis proposes exactly this. It is an intriguing proposition, especially in light of failed attempts to establish a link between the *level* of inequality and redistribution. Lupu and Pontusson (2011, 316) argue that "middle-income voters will empathize with the poor and support redistributive policies when the income distance between the middle and the poor is small relative to the income distance between the middle and the affluent". Drawing on the literature on racial and ethnic fragmentation (Luttmer 2001) and Shayo's (2009) notion of perceived social distance, they develop a framework where income differentials are the source of social affinity between groups. Social

affinity, in turn, shapes the allegiance of the middle class and hence which political coalitions emerge in the distributional conflict (see also Kristov, Lindert, and McClelland 1992).

Like other second-generation models, the social affinity hypothesis builds on the idea that the middle class has a decisive role in the distributional conflict (Romer 1975; Meltzer and Richard 1981). But unlike the early median-voter models, these second-generation theories place greater emphasis on social structure and the formative effect of institutions. For instance, Iversen and Soskice (2006) outline how electoral systems influence the alliances entered by the middle class and Korpi and Palme (1998) argue that the middle class will support redistribution when social benefits are universal and provide insurance against risk. It is a natural extension to consider how the position of the middle class in the income distribution – its relative distance from the bottom and top – forms its preferences for redistribution. This question has gained relevance with the concentration of incomes at the very top and the near-stagnation of median incomes in industrialized countries (see Thewissen et al. 2015). It is also of substantial consequence for the future trajectories of welfare states.

Lauded as an "important advance" (Kelly and Morgan 2012, 5) and a "significant contribution to the literature on redistribution" (Dimick, Rueda, and Stegmueller 2017, 414), the paper by Lupu and Pontusson has received substantial scholarly attention and given rise to a small but growing branch of enquiry that further explores the "structure of inequality logic" (Tóth, Horn, and Medgyesi 2014; see also Dallinger 2015). It has also introduced a new variable into the comparative political economy literature, namely "skew", a measure for the relative position of the middle class between the two poles of the distribution. The paper's impact is hardly surprising, given that it relates to a salient aspect of the present political discourse – the fate of the middle class in an age of income polarization – and lays down a finely textured and intuitive theoretical argument. Last but not least, Lupu and Pontusson provide an empirical test that confirms their predictions and remains robust across a number of specifications: skew

cannot only explain redistribution and social spending, but also public opinion and government partisanship, in line with theoretical expectations about the transmission mechanism.

Cited widely and overwhelmingly with approval (see e.g. Förster and Tóth 2015, 1783), the empirical validation of the social affinity hypothesis has so far attracted little scrutiny. A partial exception is the work by Alt and Iversen (2017, 22), who suspect that findings in favor of the social distance model might be driven by omitted variable bias. Given the prominence that the social affinity hypothesis has gained in the literature on redistribution, the present paper revisits the original analysis by Lupu and Pontusson (2011) in greater detail. It makes three central claims: (1) Like redistribution itself, skew in the earnings distribution is an outcome of political processes and institutions aimed at creating greater equity, notably labor market regulation. This gives rise to endogeneity. (2) Moreover, skew in the distribution of earnings among full-time workers is not a valid measure for relative income distances. The distinction between earnings and incomes is crucial, given that significant redistribution occurs between those in employment and those who are not (and hence have no earnings). (3) A valid test of the social affinity hypothesis should therefore rely on data for the structure of income inequality, in line with theory. However, when such a test is performed, it produces no indication that skew is positively associated with redistribution or non-elderly social spending.

In short, this paper argues that the social affinity hypothesis lacks empirical support and that previous findings presented in its favor are not robust. The remainder of the paper is organized as follows. The next section provides a brief summary of the causal links proposed in Lupu and Pontusson (2011) and outlines their main empirical results. The paper then substantiates each of the three claims made above. It concludes by discussing broader implications for the study of redistribution.

THE SOCIAL AFFINITY HYPOTHESIS: SOLUTION TO A LONG-STANDING PARADOX?

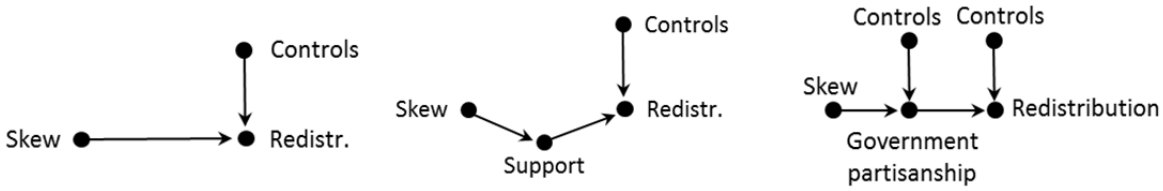
Within the comparative political economy literature, the hypothesis that greater inequality of market incomes should lead to more fiscal redistribution is one of the most extensively tested propositions. While uncontroversial from a rational choice perspective, empirical work has produced little support and much evidence to the contrary (starting with Milanovic 2000; see also the review in Jäntti, Pirttilä, and Rönkkö 2016). Lindert (2004) pointedly referred to this rather unsatisfactory state of the literature as the "reverse Robin Hood paradox". In a debate that appeared to have arrived at a dead end, Lupu and Pontusson (2011) offered a "very plausible resolution of the paradox" (APSR 2011, v): Inequality matters, although it is not the level, but the structure of inequity that matters. Like much great scholarship, their hypothesis comes in a complex and a simple version. The complex version explains how the concept of social affinity that stems from shared identities can be transferred to income stratification, and is best elaborated in the original paper. The concise version, as summarized by Pontusson in a joint paper with Weisstanner, reads as follows:

> "The Lupu-Pontusson thesis boils down to this: if the distance from the middle to the bottom of the income distribution is smaller than the distance from the middle to the top, middle-income citizens will be inclined to join a pro-redistribution coalition with the poor, but if the distance to the bottom is bigger than the distance to the top, middle-income citizens will be inclined to join an anti-redistribution coalition with the affluent." (Pontusson and Weisstanner 2017, 4)

As a helpful short-hand, Lupu and Pontusson use the term "skew" to describe the relative position of the middle class and measure it as the ratio of the upper decile ratio (D9/D5) over the lower decile ratio (D5/D1). Hence, values greater than unity indicate that the median is closer to the poor than to the rich. Under the social affinity hypothesis, greater skew should cause more redistribution, with policy preferences of middle-income voters acting as the

causal mechanism (ibid., 328). Figure 1 summarizes the overall macro-link between skew and redistribution and the micro-foundations that run through support for redistribution (using the system of directed acyclic graphs developed by Pearl 2009). The model allows for other, generally accepted causes of redistribution and expects that the influence of skew remains unaffected when control variables are introduced. Lupu and Pontusson (2011, 330ff.) also suggest an alternative macro-link where the effect of skew on redistribution is mediated by government partisanship (Panel c).

Figure 1. Diagram of Causal Links between Skew and Redistribution under the Social Affinity Hypothesis



(a) Macro-link **(b) Micro-link** **(c) Alternative macro-link**

Source: Own compilation based on Lupu and Pontusson (2011).

Lupu and Pontusson (2011) use the first part of their empirical section to show that there is indeed a strong positive association between skew and redistribution, which is robust under different model specifications and remains intact when rival causes are included. They corroborate their findings by switching the dependent variable, showing that skew is also strongly associated with non-elderly social spending (ibid., 327). Next, they turn to the micro-linkage and use data from public opinion surveys (namely the ISSP and the ESS) to illustrate in a scatter plot that greater skew is generally associated with a higher share of middle-income respondents who support redistributive government interventions (ibid., 328f.). Moreover, there appears to be a reasonably strong relationship between support for redistribution and actual fiscal redistribution (anomalous findings from Switzerland and Spain aside), offering "suggestive evidence" that the micro-linkage through middle-class preferences holds (ibid., 329f.). They substantiate this claim by showing that, as predicted by the alternative macro-

link, “skew is consistently associated with left participation in government” (ibid., 331) and can point to more tenuous evidence that left governments pursue more redistributive policies (ibid., 332). In total, some 30 regressions consistently produce findings in line with the causal paths laid down in Figure 1, leading to the conclusion that there is “robust evidence in support of the core hypotheses generated by this theory” (ibid.).

ENDOGENEITY: HOW GOVERNMENTS CAUSE EARNINGS SKEW

Central to the social affinity hypothesis is the idea that the structure of inequality shapes government policy and, by extension, redistribution. But what if skew is itself an outcome of government policy? To their credit, Lupu and Pontusson (2011, 332) raise the possibility of endogeneity, pointing out that their “theoretical and empirical discussion treats the structure of inequality as an exogenous variable that causes changes in redistribution”. Their primary concern is whether redistribution might cause skew, or that endogeneity arises from reverse causation. Addressing this potential challenge to their findings, they point to their model specifications (where, among others, skew is averaged for the years preceding the dependent variable) and conclude that endogeneity does not represent a serious challenge to their interpretation (ibid.). However, endogeneity can also arise when a confounder influences both the dependent and independent variable. So do skew and redistribution have a common cause?

This section will argue that redistribution and skew are both (at least in part) the result of government policies and socio-economic institutions. While the notion that fiscal redistribution is a function of tax and transfer systems – and the tweaks that governments make to them – is now a staple of the political economy literature, the literature has paid less attention to the distributional effects of government interventions into labor markets (for notable exceptions see Bradley et al. 2003; Rueda 2008). However, the idea that political and institutional factors influence the distribution of earnings is hardly new. As Pontusson, Rueda,

and Way (2002) show, union density, bargaining centralization, public sector employment, and left governments all reduce earnings differentials. Importantly, they generally have a much stronger effect on the D5/D1 ratio than on the D9/D5 ratio. Hence, they influence the structure of earnings inequality, giving rise to skew. Lupu and Pontusson (2011, 332f.) cite this work when discussing the causes of skew in their closing paragraphs, but they do not draw the crucial conclusion: that earnings skew is endogenous to modern welfare states. If political variables influence both skew and redistribution, one should expect a strong correlation between these two outcomes – albeit one that does not imply causation.

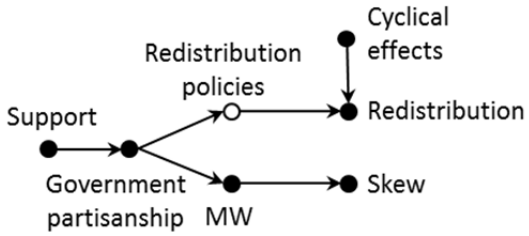
An alternative causal model to link skew and redistribution

This alternative causal model is formalized in Figure 1 to show how skew and redistribution are connected through government policy as a confounder (see Panel a). Following Lupu and Pontusson, it is likely that governments are responsive to public demands for greater equity (see also Brooks and Manza 2006).[1] However, their response need not be limited to fiscal redistribution policies, but they can also resort to "direct normative redistribution" (Hicks and Swank 1984), i.e. policies that directly influence the distribution of market incomes. One prominent example for such an intervention is the minimum wage (see Belser and Rani 2015). Although the details of its operation are often left to semi-autonomous bodies, governments usually exert significant influence on the level of minimum wages (ILO 2013, 58ff.). Crucially, as argued in Pontusson, Rueda, and Way (2002, 292), "left governments are likely to set the minimum wage closer to the median wage than right governments". Likewise, it is plausible that left governments are also more likely to introduce minimum wages (unless

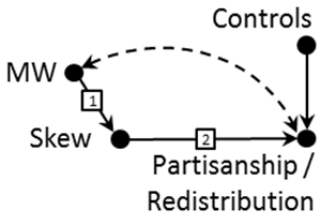
[1] The ISSP item used by Lupu and Pontusson reads "it is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes" (see e.g. ISSP 2009, *Social Inequality IV*, Q6b). Although commonly interpreted as support for redistribution (Luebker 2007; Dallinger 2010), governments can achieve lower inequality also through labor market regulation.

strong coordination of wage bargaining makes this unnecessary; see Eldring and Alsos 2012, Rueda 2008). In lieu of a better measure for government policy, it therefore seems reasonable to use government partisanship as a proxy.

Figure 2. Diagram of Alternative Causal Links between Skew, Partisanship and Redistribution



(a) Alternative causal model



(b) Summary of possible links between earnings skew and partisanship / redistribution

Source: Own compilation.

Although radically different in the way it links the relevant variables, the alternative causal model is perfectly reconcilable with the findings reported in Lupu and Pontusson (2011). This holds not only for the association between skew and redistribution, but by extension also for the association between skew and social spending (which are connected through the same backdoor path that runs through government partisanship). Likewise, support for redistribution should be associated with both redistribution itself and with skew in the earnings distribution (in line with the suggestive findings in Lupu and Pontusson 2011, 329f.). Moreover, one should expect an association between skew and government partisanship (though the direction of causality is reversed). Taken by themselves, the results obtained by Lupu and Pontusson (2011) do not allow us to determine which of the two explanations holds.

It is beyond the scope of the present paper to "test" the full alternative model. Instead, this section will focus on the association between earnings skew and redistribution (as well as partisanship). Figure 2, Panel b summarizes how the two competing models conceptualize this link. The social affinity hypothesis holds that there is a direct causal relationship that runs from skew to the two outcome variables (Arrow 2). By contrast, the alternative model claims

that minimum wages cause earnings skew (Arrow 1) and that minimum wages are linked to partisanship and redistribution in the way described above (here symbolized by a bi-directed, dotted arc). Importantly, the alternative model asserts that skew has no causal effect on partisanship and redistribution, but that any association is due to confounding. Following Morgan and Winship (2015, Ch. 4), conditioning on minimum wages blocks the backdoor path and absorbs the non-causal association between skew and the outcome variables.[2]

This then provides for a clear plan of work for the remainder of this section: It will first seek to provide evidence that minimum wages give rise to skew, and secondly replicate the original work by Lupu and Pontusson (2011) to test whether the link from skew to partisanship and redistribution is robust when controlling for minimum wages.

Minimum wages as a proximate cause of earnings skew

When investigating the effect of minimum wages on the dispersion of earnings, it is useful to start by asking how the earnings distribution would look like in the absence of labor market institutions (i.e. to develop a counterfactual). Fortunately, traditional labor economics can guide theoretical expectations. A commonly held assumption is that the wage distribution is generated by Gibrat's (1931) law of proportionate effect, resulting in a lognormal distribution of earnings (see Mayer 1960; Balintfy and Goodman 1973; Sutton 1997). By the 1960s, this theory had been widely accepted and researchers turned to the finer points of detail, such as whether or not the extreme upper tail is better approximated by a Pareto distribution (see Harrison 1979). Thatcher (1976, 233) provided a time series for the United Kingdom, showing that the D9/D5 ratio had been approximately equal to the D5/D1 ratio ever since

[2] In the words of Morgan and Winship (2015, 106), the "key goal of a conditioning strategy is not to adjust for any particular confounder but rather to remove the portion of the total association between [two variables] that is noncausal".

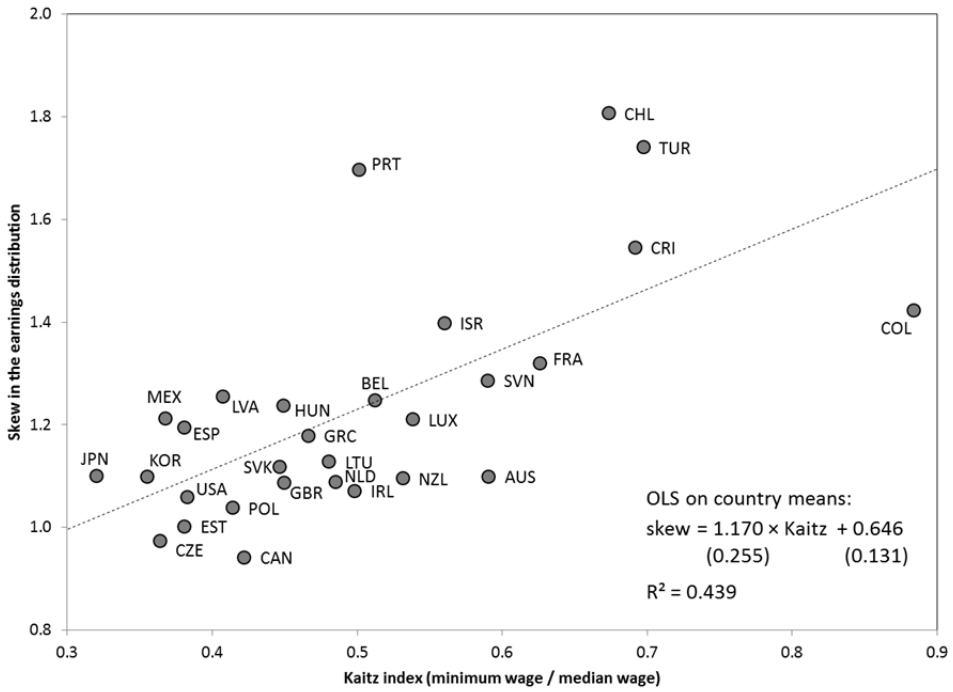
1886. The implied skew ratio of unity is a natural consequence of a lognormal distribution.[3] In other words, according to traditional labor economics, skew should not exist.

However, skew clearly does exist. As argued above, labor market institutions hold a plausible explanation. Minimum wages are a self-evident example, and for lack of space the discussion will focus on them (leaving aside collective bargaining). Despite sharp disagreements over the damaging or beneficial effects of minimum wages (see Card and Krueger 1995; Neumark and Wascher 2006), the arguments made on both sides of the divide imply that higher minimum wages should lead to greater skew. The first strand of the literature has focused on the wage effects of statutory minimum wages, by-and-large confirming that they achieve their stated objective and raise the wages of low-paid workers (see e.g. Autor, Manning, and Smith 2016; Dube, Lester, and Reich 2010; Metcalf 2008). The second major strand of the literature has concentrated on employment effects and (controversially) argued that minimum wages price workers with low productivity out of the market (Brown, Gilroy, and Kohen 1982; cf. Schmitt 2013; cf. Metcalf 2008). Therefore, regardless of which position one takes, minimum wages should disproportionately increase the earnings at the first decile: either by lifting the wages at the bottom relative to the counterfactual, or by truncating the distribution through the displacement of low-productivity workers. Kernel density plots typically show a clustering of wages at or just above the minimum wage, resulting in a characteristic departure from the lognormal pattern (see DiNardo, Fortin, and Lemieux 1996). Although minimum wages can spill over to workers with higher wages, the effect is unlikely to reach the median (Lopresti and Mumford 2016). Note that the impact of minimum wages on skew is instantaneous:

[3] For a non-technical proof, consider that when the *x*-axis is in logarithmic form, the earnings distribution resembles the familiar, symmetric shape of the normal curve. D1 and D9 can then be found at equal distance from the median (D5), regardless of shape and location parameters. Raised to the base of *e*, the distance on the logarithmic scale corresponds to ratios in the non-logarithmic world. Hence, the upper and the lower decile ratios should be equal to each other.

employers have to pay wages in compliance with the current minimum wage legislation, not a prior year's.

Figure 3. The Kaitz Index and Skew in the Earnings Distribution (Country Means)



Note: Refers to country means, based on all years where a non-zero Kaitz index and data on earnings skew are available. Country abbreviations correspond to ISO 3166.
Source: OECD and ILO (see Appendix A).

Figure 3 confirms that countries with a higher Kaitz index – minimum wages expressed as a fraction of median wages – typically also display higher skew in the earnings distribution: On the lower left-hand side, the United States, Korea and Japan have low minimum wages and exhibit low skew; at the other extreme, France, Israel and a number of emerging economies set high minimum wages and reach much higher levels of skew. The effect of minimum wages is relatively strong, explaining more than 40 % in cross-national variation in skew.

Table 1. Explaining Skew in the Earnings Distribution and the D5/D1 Ratio with the Kaitz Index

	(1)	(2)	(3)	(4)
	Skew (earnings)		D5/D1 ratio	
Kaitz index	0.714**		-0.615**	
	(0.250)		(0.209)	
Kaitz index × developed country		0.690**		-0.627**
		(0.264)		(0.218)
Kaitz index × developing country		1.139*		-0.357
		(0.458)		(0.300)
No minimum wage (dummy)	0.412*	0.403*	-0.364*	-0.369*
	(0.176)	(0.182)	(0.154)	(0.157)
Unemployment rate	0.0481	0.0393	-0.346**	-0.351*
	(0.126)	(0.125)	(0.133)	(0.137)
Female labor force participation rate	0.292	0.296	-0.0805	-0.0787
	(0.313)	(0.312)	(0.280)	(0.280)
Employment protection legislation	0.0729*	0.0723*	-0.0859***	-0.0860***
	(0.0305)	(0.0302)	(0.0238)	(0.0240)
D9/D5 ratio (earnings)			0.150	0.148
			(0.105)	(0.107)
Developing country (dummy)	0.384***	0.0967	-0.0252	-0.197
	(0.108)	(0.266)	(0.118)	(0.185)
Constant	0.437*	0.447*	1.980***	1.989***
	(0.220)	(0.222)	(0.209)	(0.218)
n =	512	512	512	512
Countries	37	37	37	37
R^2 (overall)	0.235	0.240	0.552	0.553
Model	GLS random effects with cluster robust standard errors (xtreg, vce(r))			

Standard errors in parentheses; + p<0.1, * p<0.05, ** p<0.01, *** p<0.001.

Note: Refers to observations from 1985 onwards due to the limited availability of the OECD's EPL indicator. The dummy variable for national minimum wages takes the value of 0 for all 20 observations from developing countries, and hence no interaction term is required. Sargan-Hansen statistics range from 3.78 (*p*-value: 0.582) in model (1) to 7.51 (*p*-value 0.378) in model (4), indicating that the RE model is appropriate.

Source: See Appendix A.

In Table 1, a set of random-effects models extends this analysis to countries that do not set a minimum wage (which enter with a Kaitz index of zero and an additional dummy variable to allow for a different intercept).[4] As expected, model (1) shows that the Kaitz ratio has a positive and highly significant impact on skew. This effect remains intact in model (2), which uses interaction terms so that the slope can differ between developed and developing countries (ensuring that the relationship is not driven by observations from the developing

[4] Following Lupu and Pontusson (2011, 320), all observations are included, regardless of definitional differences. As long as measurement error is random, it only inflates the error term and hence works against finding significant effects. The GLS random-effects model is combined with cluster-robust standard errors. Given that the latter preclude a Hausman test, Sargan-Hansen statistics are obtained.

world).[5] To test for the impact of other labor market institutions, the OECD's measure for Employment Protection Legislation (EPL) is introduced as a proxy (setting aside methodological doubts; see Bertola, Boeri, and Cazes 2000). The significant and positive coefficient suggests that other forms of regulation indeed matter. By contrast, cyclical variations in unemployment and female labor force participation have no discernible effect on earnings skew.[6]

The analysis then turns to the proposed causal mechanism, namely that the minimum wage decreases the lower decile ratio relative to what would be expected under the law of proportionate effect. Models (3) and (4) hence use the D5/D1 ratio as the dependent variable and enter the D9/D5 ratio as an additional explanatory variable, capturing the section of the earnings distribution that is unaffected by minimum wage legislation. The negative and highly significant coefficients on the Kaitz index confirm that minimum wages lead to a compression of the lower decile ratio in developed countries, as do EPL and higher unemployment (possibly because it disproportionately affects workers in low-wage jobs).

Controlling for endogeneity: Replication of key findings

The finding that governments can produce earnings skew by setting minimum wages provides leverage to address the question how skew and government partisanship are connected (and later to look at the link to redistribution itself). Recall that under the social affinity hypothesis, skew shapes social coalitions and ultimately the composition of governments. Importantly, social affinity is a causal mechanism that works independently of minimum wages. Hence, the effect of skew on partisanship should remain intact when controlling for minimum wages. By contrast, the alternative model states that skew has no causal effect on partisanship and

[5] In addition, all models include a dummy for developing countries (which account for 20 observations, or less than 5 % of the total sample).

[6] The sole rationale for using female (rather than male or total) labor force participation throughout this paper is to stay in line with the design in Lupu and Pontusson (2011: 325).

that the association between the two variables is due to confounding. Since the alternative link is mediated by minimum wages (and other labor market institutions), they should absorb much of the non-causal association between skew and partisanship (see Figure 2, Panel b).

Table 2. Replication of "Determinants of Government Partisanship" with Minimum Wages as an Additional Control Variable

	(5)	(6)	(7)	(8)	(9)	(10)
		Partisanship			Partisanship	
Skew (earnings)	-0.237+	-0.294*	-0.522**	0.211+	0.00271	-0.0938
	(0.126)	(0.143)	(0.186)	(0.114)	(0.130)	(0.169)
Proportionality	-0.0550	-0.00723	-0.0203	0.118	0.154*	0.135*
	(0.0512)	(0.0557)	(0.0656)	(0.0734)	(0.0676)	(0.0679)
Voter turnout	-0.00111	-0.000842	0.000760	0.00294***	0.00185***	0.00209**
	(0.000813)	(0.000764)	(0.000862)	(0.000624)	(0.000557)	(0.000701)
Globalization		-0.00852***	-0.00841***		-0.00631***	-0.00673***
		(0.000782)	(0.00166)		(0.00105)	(0.00174)
Immigration			-0.00303			0.000979
			(0.00318)			(0.00201)
Kaitz index				-1.233***	-0.725***	-0.612***
				(0.121)	(0.162)	(0.186)
No minimum wage (dummy)				-0.753***	-0.472***	-0.412***
				(0.0590)	(0.0837)	(0.0929)
Constant	0.771***	1.410***	1.560***	0.496***	0.988***	1.056***
	(0.150)	(0.162)	(0.197)	(0.132)	(0.143)	(0.186)
n =	312	312	238	284	284	229
Countries	18	18	18	18	18	18
R^2	0.025	0.193	0.163	0.224	0.296	0.222
Model	Regression with panel-corrected standard errors (xtpcse, pairwise)					

Standard errors in parentheses; + p<0.1, * p<0.05, ** p<0.01, *** p<0.001.

Note: Corresponds to models (21) to (23) in Table 5 of Lupu and Pontusson (2011, 331). For consistency, the additional control variables (Kaitz index, minimum wage dummy) were subjected to the same data treatment as the other explanatory variables. Only observations from 1980 onwards are included.

Source: Lupu and Pontusson (2011); OECD, ILO and ICTWSS (see Appendix A).

Table 2 replicates the analysis of the "Determinants of government partisanship" in Lupu and Pontusson (2011, 331). Models (5) to (7) reproduce the original analysis that supported the tentative conclusion that "there is some evidence that skewed earning inequality promotes left participation in government" (ibid.). Models (8) to (10) then introduce the Kaitz ratio as a control variable, as well as a dummy for countries that do not set a comprehensive minimum wage (and hence enter with a Kaitz ratio of zero). The result is unambiguous: the coefficient on skew switches signs and remains marginally significant in model (8), and becomes

insignificant in models (9) and (10). There also is a highly significant association between minimum wages and government partisanship. Of course, this cannot be interpreted within the conventional logic of the regression framework: minimum wages are not an independent variable that "explains" partisanship; the minimum wage variables only serve as controls.[7]

These findings no longer offer any support for a crucial transmission mechanism of the social affinity hypothesis, namely government partisanship. Hence, they also put the causal interpretation of the association between skew and redistribution into doubt. However, before testing the robustness of the redistribution and social spending models, two notes of caution are in order: (1) While the analysis above has provided sufficient evidence for endogeneity, minimum wages are not the only way through which governments and labor market institutions affect skew (see Pontusson, Rueda, and Way 2002). Hence, controlling for minimum wages alone may be insufficient to remove omitted variable bias, leaving residual confounding in place. (2) Including both skew and its proximate causes (namely minimum wages and EPL) on the right-hand side of a regression equation is a recipe for multicollinearity (Farrar and Glauber 1967). Under normal circumstances, the advice would be to remove skew from the regression (which, however, would defeat the purpose in this special case).

With these caveats in mind, Table 3 reproduces the results for the concise models for the "Determinants of redistribution and social spending with government partisanship" (Lupu and Pontusson 2011, 331). Model (11) and (12) present the original analysis for the determinants of redistribution, first for the full data-set and then excluding outliers. When the Kaitz index is entered as a control variable in model (13), the association between skew and redistribution remains marginally significant. However, the coefficient on skew becomes insignificant once

[7] The direction of causality runs from partisanship to minimum wages. Note that the negative sign of the coefficients implies that right-leaning governments set lower minimum wages.

outliers are dropped in model (14). Likewise, when using social spending as the dependent variable in models (15) to (18), the coefficients on skew lose their significance once minimum wages are introduced to control for confounding effects. Across specifications, there is a highly significant association between minimum wages and the dependent variable. Again, it would be misleading to say that minimum wages can "explain" redistribution or social spending. The coefficients simply indicate that governments which set higher minimum wages also tend to engage in more redistribution and have higher levels of social spending.

Table 3. Replication of "Determinants of Redistribution and Social Spending with Government Partisanship" with Minimum Wages as an Additional Control Variable

	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Redistribution				Non-elderly public social expenditure			
Partisanship	0.974	-0.707	4.980*	4.489**	-0.405	-0.309*	0.034	0.0908
	(2.045)	(1.633)	(2.119)	(1.713)	(0.285)	(0.151	(0.337)	(0.151)
Skew (earnings)	9.742*	14.08***	6.785+	1.373	2.647***	1.846***	0.705	0.465
	(4.728)	(3.238)	(3.545)	(2.332)	(0.800)	(0.444	(0.832)	(0.518)
D9/D1 ratio (earnings)	-0.00314	-0.266	1.177	1.041	0.414*	0.263*	0.615**	0.526***
	(1.344)	(0.963)	(1.032)	(1.181)	(0.209)	(0.115	(0.206)	(0.131)
Kaitz index			19.02**	25.65***			4.299**	3.525***
			(5.87)	(5.743)			(1.393)	(0.843)
No minimum wage (dummy)			3.265	5.541*			2.268***	1.760***
			(2.671)	(2.469)			(0.587)	(0.382)
n =	60	50	58	51	241	217	232	212
Countries	14	14	14	14	18	18	18	17
R^2	0.889	0.961	0.945	0.975	0.993	0.996	0.991	0.996
Model	Regression with LDV, PCSE and common AR1 process (xtpcse, pairwise cor(ar1))				Regression with LDV, PCSE and panel-specific AR1 process (xtpcse, pairwise cor(psar1))			

Standard errors in parentheses; + p<0.1, * p<0.05, ** p<0.01, *** p<0.001.

Note: Corresponds to models (27) to (30) in Table 6 of Lupu and Pontusson (2011, 331). For consistency, the additional control variables (Kaitz index, minimum wage dummy) were subjected to the same data treatment as all other explanatory variables. Following the original publication, this table does not report the coefficients on the other control variables. In the redistribution models, the order of observations serves as the time variable. Due to missing data for the United Kingdom prior to 1993, the replications are missing two and nine cases, respectively. In the original publication, the negative sign on two coefficients was omitted in model (12).

Source: Lupu and Pontusson (2011); OECD, ILO and ICTWSS (see Appendix A).

Similar, but less straightforward effects emerge when replicating Tables 2 and 3 of the original analysis (Lupu and Pontusson 2011, 325ff.). The inclusion of minimum wages generally weakens the predictive power of skew, but does not always render coefficients insignificant (see Online Appendix, Tables 1 to 4). Given that minimum wages are not the only mediating variable between government policy and skew, an additional set of robustness

checks also enters EPL as a control and replaces the D9/D1 ratio (which measures overall wage inequality) with the D9/D5 ratio (to measure the part of the wage distribution largely unaffected by minimum wages). Now, the coefficients on skew become insignificant in each and every single model (with standard errors often approaching or outstripping the size of the coefficients, and signs frequently reversing). As expected, regression diagnostics indicate the presence of multicollinearity, with particularly high variance inflation factors for skew. The results should therefore not be interpreted in any substantiative way, beyond demonstrating the detrimental effect that additional controls have for the coefficients on skew.

In sum, the findings of this section leave little doubt that endogeneity is a serious constraint of the earnings data, and that the results obtained by Lupu and Pontusson (2011) were affected by omitted variable bias. However, the following section will argue that the social affinity hypothesis should not have been tested against earnings skew in the first place, but on data that capture skew in the distribution of household incomes.

MEASUREMENT VALIDITY: EARNINGS, INCOMES AND DISTRIBUTIONAL CONFLICT

A curious and generally overlooked aspect of the paper by Lupu and Pontusson is that it develops a theory that explicitly refers to the structure of income inequality, but then tests its predictions on data for skew in the distribution of earnings. The use of earnings data is not uncommon in comparative political economy (see Iversen and Soskice 2009), and "earnings" and "incomes" are often used synonymously in popular discourse. However, the two concepts differ in very significant ways: the OECD earnings data refer to the distribution of labor incomes among individuals in full-time employment; income inequality refers to the distribution of incomes from all sources among all households (usually adjusting and weighting for household size). Although the dispersion of earnings should influence the distribution of incomes, so do the distribution of capital income, the distribution of working hours and

unemployment between individuals, and the "sorting" of high- and low-wage earners across households (Blau and Khan 2011, 179).[8] In fact, the link is so complex that we still lack a unified theory and the "two strands of study, of wage dispersion on the one hand and household income distribution on the other, are miles apart" (Salverda and Checchi 2015, 1537).

What should be clear from this brief discussion is that the structure of earnings inequality does not map one-to-one into the structure of income inequality, raising questions about measurement validity (Adock and Collier 2001). Hence, it is doubtful whether earnings data can capture the theoretical concept of interest, relative income distances. But is this rather technical distinction relevant for the political dynamics of redistribution? Arguably, the answer depends on whether the structure of earnings captures the relevant conflicts over fiscal redistribution. Is the distributional conflict a within-group conflict among full-time wage workers, or is it also a conflict between those who are in full-time wage employment and those who are not?

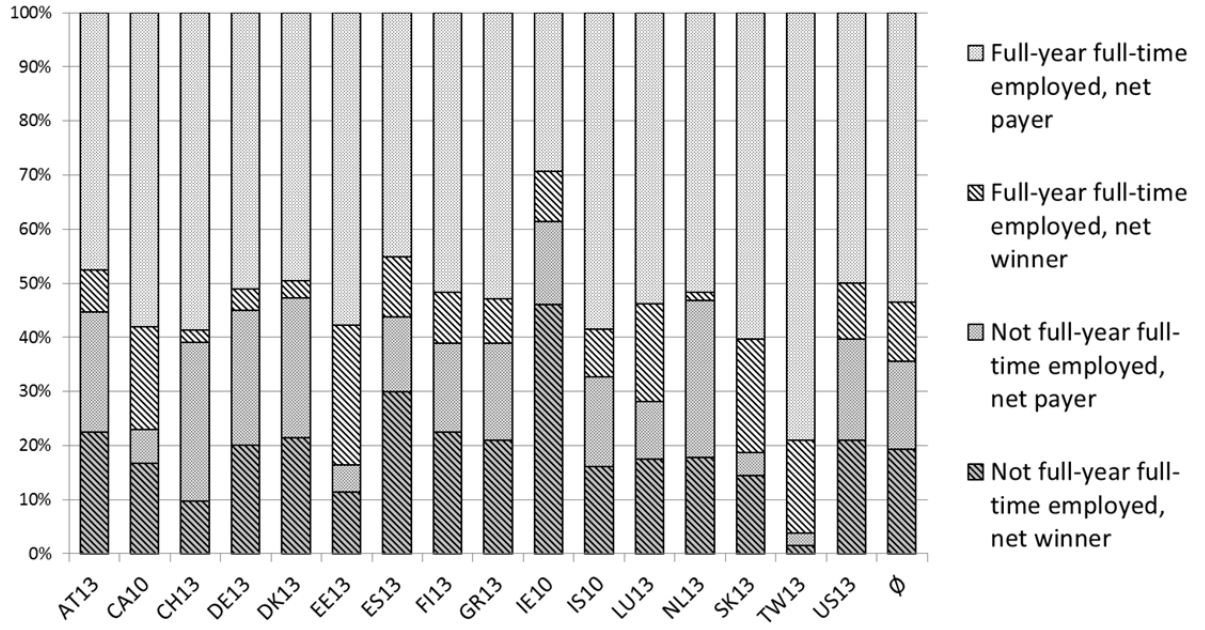
Labor market segmentation and between-group redistribution

One need not fully subscribe to Standing's (2011) dystopian views of an emerging precariat to appreciate that the exclusion of a large section of the population from stable, long-term employment should give rise to exactly the kind of fractionalization among economic lines that the social affinity hypothesis describes. Where the poor are long-term unemployed or in precarious employment, this should increase their social distance vis-à-vis the middle class which, for the larger part, still has access to stable employment (see also Pontusson and Weisstanner 2017, 17f.). Entrenched welfare-dependence among the poor could also undermine the idea of reciprocity that gives the middle class a stake in social insurance systems

[8] See also the comparison in Kenworthy and Pontusson (2005, 452), who argue that the earnings data "fail to capture the distributive effects of unemployment, underemployment, and labor force exit".

(Korpi and Palme 1998; Mau 2004). Indeed, Alt and Iversen (2017) develop an alternative model where greater labor market segmentation leads to an asymmetric distribution of risk, and by extension to less support for redistribution among middle-income voters. But even if one accepts social distance as the causal mechanism, it is plausible that the patterns of social identities (to use Shayo's term) cannot be deducted solely from the distribution of wages. In other words, with the days of full employment and the single breadwinner model long gone, there are good theoretical reasons why social affinity pertains to the structure of income inequality (as, indeed, is argued in Lupu and Pontusson 2011).

Figure 4. Net Payers and Net Winners of Fiscal Redistribution by Status of Household Head in Full-Time Full-Year Employment, 16 Developed Countries (2010-13)



Note: Employment status refers to the household head; only households headed by an individual aged 25 to 59 years. Net payers are households where disposable income is less than or equal to market income; net winners are households where disposable income exceeds market income. Market incomes include private transfers received. Weighted by household size. Country abbreviations are two-letter country codes (ISO 3166); 10 and 13 refers to 2010 and 2013.

Source: Own tabulation, based on Luxembourg Income Study (LIS) Database (accessed 21 March 2017).

The proposition that between-group distributional conflict matters in modern welfare states can be put to an empirical test. Based on data from the Luxembourg Income Study (LIS), Figure 4 distinguishes between households headed by somebody in full-year full-time employment (FYFT) and the remaining households, restricting observations to households with heads in the typical working-age bracket (keeping in line with the measure for

redistribution in Lupu and Pontusson 2011). It then identifies net payers and net winners from fiscal redistribution, according to whether disposable household incomes are lower (net payers) or higher (net winners) than market incomes.[9] The main finding is clear-cut: More than three-quarters of the net payers are found in households with a fully employed head, but almost two-thirds of the winners live in households headed by somebody who lacks full-year full-time employment. Moreover, the redistributive flows between groups are substantial: Averaging across all 16 countries, the tax and transfer system reduces the incomes of households with a head in FYFT by almost a quarter, whereas the remaining households are better off after taxes and transfers (not tabulated).

In sum, there are strong indications for between-group distributional conflict along the lines of employment status (with the potential exception of Taiwan, where full employment is still the norm). The OECD earnings data map within-group inequality among those in full-time employment, and hence cannot capture this conflict. All of this underlines that Lupu and Pontusson (2011, 318) have good reasons to build their theory of social affinities on the structure of income inequality, rather than relative earnings differentials.

Is earnings skew a valid proxy for income skew?

Can skew in the earnings distribution at least serve as a proxy for skew in the distribution of household incomes? Again, the question is best answered by consulting the data. The LIS database can be used to measure relative income distances between the poor, the middle class and the affluent. However, since those at the 10th percentile often have zero market incomes, the computation of skew ratios cannot be transferred one-to-one. Instead, the poor are defined

[9] This slightly awkward approach is necessitated by the structure of the data, which measure employment status at the level of individuals, but incomes at the level of households.

as those at the 25th percentile and, equivalently, the affluent as those at the 75th percentile.[10] Keeping in line with the measure for skew suggested in Lupu and Pontusson (2011, 334), and following them in restricting observations to the working-age population, this allows calculating income skew as the ratio of the upper and lower percentile ratios, or as (P75/P50)/(P50/P25).

While the data show substantial variation for income-based skew both within and between countries (see Online Appendix Table 10), they produce no evidence of a systematic relationship between the two measures for skew: The correlation between the income-based measure of skew and the measure for earning skew used in Lupu and Pontusson (2011) is in fact negative, with a Pearson's r of -0.211 (p-value: 0.077, n = 71). When compared to earnings skew calculated from the current version of the OECD database, the relationship becomes insignificant (Pearson's r = 0.152, p-value 0.112, n = 111). In short, earnings skew is neither a theoretically valid measure for relative income distances nor a close empirical proxy.

REDISTRIBUTION AND THE STRUCTURE OF INCOME INEQUALITY

The findings of the two preceding sections come down to two arguments against using earnings skew to test the predictions of the social affinity hypothesis: Firstly, there are practical obstacles to obtaining valid coefficient estimates in the presence of endogeneity. Secondly, earnings data are not a valid measure for the concept of theoretical interest, and do not capture between-group distributional conflict. A natural response to this double quandary is to use skew in the income distribution as the explanatory variable, in line with the theoretical model developed in Lupu and Pontusson (2011). This should not only improve measurement validity, but potentially also help to reduce endogeneity.

[10] This is done using standard LIS routines with respect to top-coding, bottom-coding, and equivalence scale. The income concept is market incomes, calculated as factor incomes plus private transfers received. Using post-tax and post-transfer incomes to explain (logically prior) redistribution runs into another set of obvious endogeneity problems (Milanovic 2000).

Main variables of interest and model specification

This section will therefore revisit the relationship between skew and redistribution, using skew in the distribution of incomes as the main explanatory variable. As in the original paper, redistribution is defined as the relative difference between the Gini coefficient for market and disposable incomes for households with heads aged between 25 and 59 years. Owing to the substantial expansion of the LIS database in recent years, the number of observation increases from 87 to 195 cases.[11] The measure for skew in the distribution of market incomes is derived from the same source, as outlined in the preceding section. Details on sources and definitions for other explanatory variables that are included in the updated data-set can be found in Appendix A.[12] In all cases, the intention was to stay as close as possible to the definitions and sources used in Lupu and Pontusson (2011).[13]

Incidentally, using the same harmonized source for the main explanatory variable (skew) and the main dependent variable (redistribution) also addresses the concerns regarding definitional differences raised in Lupu and Pontusson (2011, 320). Moreover, by construction, the main dependent and independent variables are now available for the same countries and years, doing away with the need to interpolate and extrapolate the main variables of interest. None of this, however, precludes the existence of endogeneity. Table 4 therefore repeats the earlier analysis of the determinants of skew for the income-based measure. Sargan-Hansen statistics signal that random effects are unsuitable, so separate models are run for within and between

[11] The new and the old data on redistribution match almost exactly, with Pearson's $r = 0.988$ ($p \leq 0.001$). In line with standard practice (Mahler and Jesuit 2006, 487), only so-called "gross" LIS data-sets are used. Compared to Lupu and Pontusson (2011), this leads to the exclusion of three observations from Spain, three observations from Ireland (all coded as "net" by LIS), and four observations from France (classified as "mixed").

[12] For descriptive statistics, see Online Appendix Table 10.

[13] The correlation for the new and old data on non-elderly public social expenditure is Pearson's $r = 0.967$. For the control variables, the correlation coefficients exceed 0.95 in seven out of nine cases, with weaker correlations for vocational training ($r = 0.829$) and the share of the population aged 65 years and above ($r = 0.858$) (all significant at the 0.001-level).

effects. The results show that within-country variation in skew is largely a function of cyclical fluctuations in unemployment and female labor force participation. Since both variables are also likely to influence redistribution, this provides a strong rationale to carry them over as controls (see also Pontusson and Weisstanner 2017, 6 and 15f.). By contrast, the two policy variables – minimum wages and EPL – exert no discernable influence within countries, while there is a small and significant effect of EPL in the between-effects model.[14] In the absence of strong evidence that income skew is a direct outcome of government policy, this section follows Lupu and Pontusson (2011, 332) and treats skew as exogenous.

Table 4. Influence of Cyclical Factors and Labor Market Institutions on Skew in the Income Distribution

	(19)	(20)	(21)	(22)
	Skew (incomes)		Skew (incomes)	
Unemployment rate	-0.553***	-0.509***	-0.405	-0.595
	(0.117)	(0.112)	(0.386)	(0.360)
Female labor force participation rate	-0.532***	-0.605***	0.0278	0.255
	(0.0605)	(0.0549)	(0.210)	(0.279)
Kaitz index		-0.0106		-0.211
		(0.0784)		(0.217)
No minimum wage (dummy)		-0.0729		-0.150
		(0.0646)		(0.101)
Employment protection legislation		-0.0143		0.0583*
		(0.0199)		(0.0216)
Constant	1.284***	1.391***	0.898***	0.759**
	(0.0447)	(0.0772)	(0.156)	(0.251)
n =	126	126	126	126
Countries	25	25	25	25
R^2	0.437	0.495	0.060	0.345
Model	Fixed effects with cluster-robust standard errors (xtreg, fe vce(r))		Between effects (xtreg, be)	

Standard errors in parentheses; + p<0.1, * p<0.05, ** p<0.01, *** p<0.001.

Note: Sample is restricted to developed countries and observations with available data for the Kaitz index and EPL. Sargan-Hansen statistics indicate that the assumptions underpinning a random-effects model are violated, and hence separate models with within and between effects are run. For the between-effects models (21) and (22), a White test indicates that the null hypothesis of homoscedasticity cannot be rejected (*p*-values are 0.828 and 0.288, respectively).

Source: See Appendix A.

With the variables defined, the perennial question regarding model specification arises. While there are obvious benefits to staying close to the original specification in Lupu and Pontusson

[14] This may or may not be attributable to the larger institutional set-up that co-varies with EPL.

(2011), there are a number of drawbacks to their preferred PCSE model. The most obvious is that the data-set is an unbalanced panel with unevenly spaced observations and hence the order of observations has to be used as a pseudo-time variable. This implies that the first-order autoregressive processes may in fact be anything between an AR(1) and an AR(10) process (as in the case of the first and second observation from Switzerland, which are ten years apart). Likewise, the lagged dependent variable (LDV) may refer to the preceding year or an observation a decade old. This makes the assumption of a constant coefficient on the LDV less than obvious. Further, the PCSE design cannot leverage its strength and correct for contemporaneous correlation of error terms across units when observations with the same time code are, in fact, not contemporaneous.[15] The LDV design also absorbs substantively interesting between-country variation (Plümper, Tröger, and Manow 2005, 330) and comes at a heavy cost in terms of efficiency, removing up to 34 observations from the analysis. Additionally, an LDV can open up backdoor paths that produce non-causal correlations between independent and dependent variables (Morgan and Winship 2015, 111).

To side-step these potential problems, this section will employ a different estimation strategy. (Results obtained when replicating the original methodology are reported in the Online Appendix). Namely, it makes use of the time-series cross-section nature of the data-set by running both fixed-effects and between-effects models (i.e. regressions on country means).[16] The models are combined with cluster-robust standard errors to address heteroscedasticity and serial correlation of error terms within panels (Rogers 1993). In the case of the between-effects model, serial correlation does not arise and a conventional White test is applied to detect heteroscedasticity. Given that between-country differences account for some 88.5 % of the variation on redistribution in the data-set (not tabulated), the between-effects models are

[15] There is little merit in assuming that an exogenous shock that hit Canada in 1971 affected Australia 1981 and reached Belgium in 1992 (the first observations for these countries).

[16] Sargan-Hansen statistics indicate that a random effects model is not appropriate.

arguably at least as instructive as their fixed-effects counterparts – even though the former remain underused in the comparative political economy literature (for an exception, see Lupu and Pontusson 2011, 330f.).[17]

Income skew and fiscal redistribution

Table 5 re-analyzes the relationship between skew and redistribution that is at the heart of the social affinity hypothesis, using income skew instead of earnings skew. The fixed-effects model (23) and the corresponding between-effects model (26) start by introducing skew in the income distribution as the key explanatory variable, allowing for different slopes in developed and developing counties, and controlling only for overall income inequality (measured by the P75/P25 ratio). Models (24) and (27) then introduce two additional control variables, unemployment and female labor force participation, to take account of cyclical effects (see above). Finally, models (25) and (28) follow Lupu and Pontusson (2011, 325) in introducing a number of rival causes. Due to missing data, this last step reduces the number of observations from 195 to 136 (incidentally removing all developing countries from the sample).

Unlike in the analysis in Lupu and Pontusson (2011, 325), there is no longer any evidence that skew has a positive effect on redistribution. In fact, for developed countries (which provide the bulk of the sample), the coefficient on skew carries a negative sign in all six models. It is marginally significant for two of the fixed-effects models, and highly significant in all of the between-effects models. So instead of confirming that greater relative proximity between the middle class and the poor induces greater redistribution, the findings seem to suggest that the opposite is the case (see also Dallinger 2015, 744). Concerned that the relationship might be distorted by extraordinary swings in both skew and redistribution during the Great Recession (Pontusson and Weisstanner 2017), all models are re-run on observations prior to 2008. Again,

[17] Note that the convention to consider FE estimates as "unbiased" is contentious (see Plümper, Troeger, and Manow 2005, 334).

the coefficients on skew are either insignificant or carry the "wrong" sign (not tabulated). The main result remains robust under different model specifications: a replication that combines PCSE with either LDV or FE, the preferred method in Lupu and Pontusson (2011, 325), produces insignificant coefficients on income skew throughout (see Online Appendix Table 5).

Table 5. Explaining Redistribution with Skew in the Income Distribution

	(23)	(24)	(25)	(26)	(27)	(28)
		Redistribution			Redistribution	
Skew (incomes) × developed country	-0.274+	-0.159+	-0.0203	-0.872**	-0.834**	-1.452***
	(0.139)	(0.0904)	(0.147)	(0.243)	(0.248)	(0.355)
Skew (incomes) × developing country	0.155	0.134		-0.370	-0.328	
	(0.167)	(0.165)		(0.401)	(0.455)	
P75/P25 ratio (incomes)	0.00696	0.00301	0.0328*	-0.00667	-0.00480	-0.116*
	(0.00984)	(0.00655)	(0.0137)	(0.0117)	(0.0155)	(0.0468)
Unemployment rate		0.515**	0.370*		0.0965	-0.222
		(0.173)	(0.161)		(0.396)	(0.255)
Female labor force participation		0.0493	0.0420		0.227	-0.517*
		(0.105)	(0.115)		(0.186)	(0.192)
Voter turnout			0.00247			0.0797
			(0.0634)			(0.0785)
Proportionality			-0.0205			0.248**
			(0.0317)			(0.0678)
Vocational training			0.00932			0.0869
			(0.0661)			(0.0946)
Trade union density			0.111			0.0691
			(0.0820)			(0.0640)
Developing country (dummy)				-0.612	-0.606	
				(0.386)	(0.449)	
Constant	0.410**	0.262*	0.113	1.039***	0.847**	1.905**
	(0.145)	(0.114)	(0.137)	(0.231)	(0.281)	(0.488)
n =	195	195	136	195	195	136
Countries	34	34	24	34	34	24
R^2	0.161	0.267	0.343	0.605	0.626	0.850
Model	Fixed effects with cluster-robust standard errors (xtreg, fe vce(r))			Between effects (xtreg, be)		

Standard errors in parentheses; + p<0.1, * p<0.05, ** p<0.01, *** p<0.001.

Note: Due to missing observations for the additional control variables, all developing countries drop from the sample in models (25) and (28). Sargan-Hansen statistics indicate that the assumptions underpinning a random-effects model are violated, and hence separate models with within and between effects are run. For the between-effects models (26) to (28), a White test indicates that the null hypothesis of homoscedasticity cannot be rejected (*p*-values: 0.417, 0.802, and 0.404).

Source: See Appendix A.

Although they are not the main focus of the present paper, the results regarding cyclical effects and rival causes of redistribution deserve a brief discussion. Models (24) and (25) confirm that, within countries, upturns in unemployment are associated with an expansion of redistribution. This finding corresponds to the results obtained in Pontusson and Weisstanner

(2017, 15f.) and supports the idea that social insurance systems act as automatic stabilizers in times of crisis (see Dolls, Fuest, and Peichl 2012). By contrast, within-country changes in voter turnout, proportionality, vocational training or trade union density have no significant impact on redistribution. However, these results are sensitive to model specification: the LDV models in Online Appendix Table 5 suggest that both voter turnout and trade union density contribute to redistribution, in line with power resource theory (Korpi 1983). It is unsurprising that the proportionality of the electoral representation has no impact on within-country changes in redistribution, given that the former is partly a function of time-invariant features of the electoral system (see Gallagher 1991). However, when comparing between countries in model (28), the positive and highly significant coefficient lends support to the argument that proportional representation is more conducive towards redistributive policies than majoritarian electoral systems (see Iversen and Soskice 2006).

While market incomes are the appropriate income concept when examining the impact of inequality on redistribution (Milanovic 2000), people arguably perceive income distances based on disposable incomes.[18] As a robustness test, the regressions in Table 5 were therefore re-run with skew in disposable household incomes; coefficients on skew are insignificant throughout (see Online Appendix Tables 6 and 7).[19] Following Lupu and Pontusson (2011, 327), all models were also re-run with social spending as an alternative dependent variable (see Online Appendix Tables 8 and 9). Again, the coefficients on skew are either insignificant or carry a negative sign. The fixed-effects models corroborates that more unemployment is accompanied by higher social expenditure, and there is some indication that countries with stronger trade unions devote more public resources towards social objectives.

[18] The author is grateful to Noam Lupu for pointing this out.

[19] Since all households have disposable incomes, the change in income concept allows measuring skew as (P90/P50)/(P50/P10) and as (P75/P50)/(P50/P25).

In sum, the findings do not confirm that skew in the income distribution is associated with redistribution. If anything, one could argue that countries with greater skew in market incomes redistribute *less* (see Models 26 to 28 in Table 5). While it is tempting to give a causal interpretation to this unexpected result, it is worth recalling that the data were approached with a different, one-sided question in mind: Is there evidence for a positive relationship between skew in the income distribution and fiscal redistribution, as postulated by the social affinity hypothesis? Here, the answer remains an unambiguous "no".

CONCLUSION

One of the most innovative recent contributions to the literature on the politics of redistribution is the hypothesis that the structure of inequality – and not its level – can explain variations in redistribution across time and countries. Applying the notion of social distance to the structure of the income distribution, Lupu and Pontusson (2011) argue that the relative proximity of the middle class to the poor and the affluent shapes their social affinities and their preference for redistribution. This affects the partisan composition of governments, and ultimately social spending and redistribution. The authors test the predictions of their theory across different model specifications, using skew in the earnings distribution as their primary explanatory variable. The results lead them to conclude that there is robust empirical evidence in support of the social affinity hypothesis (ibid., 332). Widely acclaimed and frequently cited, the paper had a significant impact on subsequent scholarship.

This paper has proposes a radically different interpretation of the causal links between earnings skew, redistribution and government policy. It argues that governments can respond to public pressure for greater equity by redistributing incomes through the tax and transfer system and through labor market regulation. The former is captured by the traditional measure for fiscal redistribution, the latter leads to a compression of the earnings distribution at the

bottom – in other words, to skew. In particular, minimum wage can explain a substantial portion of the variation in earnings skew. This means that earnings skew is the outcome of policy interventions and hence endogenous to the political economy of welfare states.

The findings reported in Lupu and Pontusson (2011) are perfectly compatible with both interpretations. However, the association between skew and redistribution is either causal in nature (social affinity hypothesis) or driven by a confounder in the form of government policy (labor market model). Crucially, the causal mechanism described in the social affinity hypothesis operates irrespective of the nature of labor market institutions. The predictive power of skew should therefore hold when further control variables are added to the regressions that underpin the social affinity hypothesis. The present paper has done precisely this, relying primarily on minimum wages as a proximate cause of earnings skew. The impact is striking: the relationship between skew and government partisanship collapses, and the link from skew to redistribution and social spending is similarly vulnerable.

All of this suggests that key results in Lupu and Pontusson (2011) are an artefact of endogeneity (the first central claim made in this paper).[20] In what might alternatively be interpreted as a second line of attack or an attempt to rescue the social affinity hypothesis, the present paper makes a second central claim: that earnings skew is neither a theoretically valid measure nor a close empirical proxy for the structure of income inequality. Instead, the predictions of the social affinity hypothesis should be tested against data for skew in the income distribution (and not the earnings distribution). However, when such a test is performed on a substantially expanded data-set, no evidence for a positive association between income skew and redistribution emerges. In other words, it appears that the social

[20] To be abundantly clear: Nothing in the present paper suggests any negligence in the original analysis. The disagreement concerns the question whether or not the findings in Lupu and Pontusson (2011) lend support to the causal mechanisms of the social affinity hypothesis.

affinity hypothesis, at least in its original formulation, does not offer a solution to Lindert's (2004) "reverse Robin Hood paradox" – the third central claim made in the present paper.

Two broader implications arise. First, regarding theory, it seems that advances in the sophistication of redistribution models have at times come at the expense of realistic micro-foundations. In the social distance model, for instance, voters are not only expected to judge their own position in the income distribution accurately, but also that of others – and then to assess relative income distances and make these the basis for their stance on redistribution. This is a demanding standard. As the OECD points out, "[m]ost of us have no idea – or the wrong idea – of how we compare with the rest of the population".[21] Hence, it is plausible that the level and structure of inequality matter only in so far as they actuate (mis)perceptions and value judgements (Luebker 2014; Gimpelson and Treisman 2015).

Second, the endogeneity of earnings skew highlights that government policy has distributive outcomes that go beyond fiscal redistribution. Hicks and Swank (1984, 266) refer to these as "direct normative redistribution", or the "relatively direct (and intentional) impacts of regulatory policies in labor and other factor markets" (ibid.). In this framework, the minimum wage is a redistributive policy tool (Freeman 1996). The present paper has only touched on these links, but it is arguably time for political science to fully reclaim the terrain – especially since the economic literature has conceded that the primary effects of labor market institutions are distributive (see Betcherman 2012, 41). In fact, the partisan control of government or the strength of trade unions may alter the income distribution primarily via their effects on wage dispersion and factor shares. That this is a promising avenue for research is evident from detailed case studies on labor market reform (e.g. Hassel and Schiller 2010) and the existing comparative work (e.g. Pontusson, Rueda, and Way 2002; Bradley et al. 2003; Rueda 2008).

[21] See "Compare your income" at http://www.oecd.org/statistics/compare-your-income.htm (, accessed on 21 April 2017). For a survey experiment, see Bublitz (2016).

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Appendix A. Variable Definitions and Sources for the Updated Data-Set

Variable	Definition	Source
D9/D5 and D5/D1 ratio (earnings)	Decile ratios for gross earnings of full-time employees. D9, D5 and D1 refer to the upper limits of the respective decile.	OECD.
Skew (earnings)	Skew of the distribution in gross earnings of full-time employees, measured as (D9/D5)/(D5/D1).	OECD.
Kaitz index	Ratio of the minimum wages over median earnings, expressed as a fraction. Observations where no statutory minimum wage is in force are recoded from missing to zero (see below).	OECD, supplemented by ILO and national sources for Taiwan.
No minimum wage (dummy)	Dummy that takes the value of 1 for observations where no statutory minimum wage is in place. Corresponds to code 0 in the variable "National Minimum Wage" of the ICTWSS data-base. (For the Republic of Korea, observations for 1987 and 1988 were re-coded to reflect the minimum wage in manufacturing.)	Visser, Jelle. ICTWSS database, Version 5.1 (September 2016), supplemented by ILO (TRAVAIL legal database).
Employment protection legislation	OECD indicator for the strictness of regulation on dismissals and the use of temporary contracts (Version 1). Extrapolated for up to two years, based on the last available observation.	OECD.
Unemployment rate	Unemployment rate, as a fraction of the total labor force aged 15 years and above.	OECD, supplemented by ILO.
Female labor force participation	Civilian labor force participation for females aged 15 to 64 years, as a fraction of the corresponding population. Data as tabulated by the OECD; derived as LFPR = EPR × (1/(1-UE Rate)) for ILO data. Refers to females aged 15 years and above for Taiwan.	OECD, supplemented by ILO and national data for Taiwan.
Redistribution	Relative redistribution, or the change in the Gini coefficient as we move from market incomes to disposable incomes, expressed relative to the Gini coefficient for market incomes. Only households with a household head aged 25 to 59 years. Standard LIS routines with respect to equivalence scale, top- and bottom-coding were applied. Market incomes are equivalent to factor incomes plus, where available, private transfers received.	Luxembourg Income Study (LIS) Database (multiple countries, accessed 21 March 2017).
P75/P25 ratio (incomes)	Ratio of the 75th over the 25th income percentile, as ranked by market income (for details see under redistribution).	Luxembourg Income Study (LIS) Database (multiple countries, accessed 21 March 2017).
Skew (incomes)	Skew of the distribution in market incomes, measured as (P75/P50)/(P50/P25) (for details see under redistribution).	Luxembourg Income Study (LIS) Database (multiple countries, accessed 21 March 2017).
Voter turnout	Voter turnout in the most recent national election, as a fraction of eligible voters.	Armingeon, Klaus et al. 2016. Comparative Political Data Set 1960-2014. Berne: University of Berne. Supplemented by IPU (PARLINE data-base) and International IDEA (Voter Turnout Database).
Proportionality	Gallagher's measure for disproportionality of parliamentary representation inverted and standardized to range from 0 to 1. Higher values stand for greater proportionality.	Armingeon, Klaus et al. 2016. Comparative Political Data Set 1960-2014. Berne: University of Berne.
Vocational training	Percentage of students in secondary education enrolled in vocational programs, both sexes. Recoded as 0 if "Magnitude nil or negligible".	UNESCO Institute of Statistics.
Trade union density	Trade union density rate, calculated as the number wage and salary earners that are trade union members, divided by the total number of wage and salary earners.	OECD, supplemented by J. Visser, ICTWSS database, Version 5.1 (September 2016).

Variable	Definition	Source
Non-elderly public social expenditure	Non-elderly public social expenditure as a share of GDP, or total public social expenditure minus expenditure on the branches 'old age' and 'survivors'.	OECD Social Expenditure Database.
Globalization	2016 KOF Index of Globalization; composite index of globalization that aims to capture economic globalization, political globalization, and social globalization. Standardized to range from 0 to 1 and extrapolated to 2014.	Dreher, Axel (2006): Does Globalization Affect Growth? Evidence from a new Index of Globalization, *Applied Economics* 38 (10): 1091-1110. (Version as of March, 4, 2016).
GDP growth	Real GDP growth (change on prior year), expressed as a fraction.	World Bank, World Development Indicators.
Population aged 65 years and above	Share of population aged 65 years and above. Interpolated between observations.	UN Population Division, World Population Prospects (2015 Revision).
Developing (dummy)	Dummy that takes the value of 0 if a country is classified as 'advanced' in the IMF's World Economic Outlook and/or is a member of the EU, and the value of 1 for all other countries.	IMF, World Economic Outlook (October 2016), p. 208.

Can the structure of inequality explain fiscal redistribution?

Revisiting the social affinity hypothesis

Online Appendix

Online Appendix Table 1. Replication of "Determinants of Redistribution" with minimum wages and EPL as additional control variables (LDV models)

	(A1)	(A2)	(A3)	(A4)	(A5)	(A6)
	Redistribution		Redistribution		Redistribution	
Skew (earnings)	10.17*	12.99***	10.36*	14.31***	3.018	1.674
	(4.592)	(3.596)	(4.093)	(3.302)	(4.579)	(3.849)
D9/D1 ratio (earnings)	-0.0155	-0.162	0.904	0.988		
	(1.182)	(1.014)	(1.119)	(0.933)		
D9/D5 ratio (earnings)					4.297	9.465*
					(4.888)	(4.318)
Voter turnout	0.102**	0.0636*	0.104**	0.121***	0.121**	0.163***
	(0.0366)	(0.0297)	(0.0341)	(0.0275)	(0.0412)	(0.0327)
Proportionality	-0.0682	-2.376	0.0438	1.002	1.506	2.880*
	(2.173)	(1.633)	(1.863)	(1.586)	(2.060)	(1.452)
Vocational training	0.0199	0.0118	0.0763+	0.0737+	0.0572	0.0443
	(0.0393)	(0.0318)	(0.0452)	(0.0434)	(0.0456)	(0.0340)
Trade union density	9.013**	12.31***	15.08***	16.85***	12.66*	13.07***
	(3.337)	(2.277)	(4.180)	(3.516)	(5.059)	(3.815)
Unemployment rate	0.112	0.0512	0.00974	0.224	0.109	0.419*
	(0.181)	(0.148)	(0.190)	(0.158)	(0.244)	(0.175)
Female labour force participation	8.536	7.440+	8.134	8.545+	15.81*	27.55***
	(5.331)	(4.465)	(5.426)	(4.583)	(7.080)	(5.844)
Kaitz index			1.687	1.498	1.673	-2.228
			(4.984)	(4.114)	(4.619)	(3.773)
No minimum wage (dummy)			-2.143	-2.863	-1.785	-4.189*
			(2.649)	(2.247)	(2.477)	(1.832)
Employment Protection Legislation					0.728	2.537***
					(1.051)	(0.669)
Lagged dependent variable	0.492***	0.481***	0.439***	0.361***	0.453***	0.317**
	(0.0977)	(0.0776)	(0.113)	(0.0961)	(0.127)	(0.0971)
Constant	-14.73	-12.43	-18.42+	-24.73**	-24.25*	-43.61***
	(9.834)	(7.764)	(10.15)	(8.394)	(12.06)	(11.10)
n =	68	58	63	54	55	48
Countries	15	15	15	14	15	14
R^2	0.892	0.935	0.934	0.948	0.935	0.962
Model	Regression with lagged dependent variable, panel corrected standard errors and common AR1 process, corrected for heteroscedasticity only (xtpcse, pairwise cor(ar1) hetonly)					

Standard errors in parentheses; + p<0.1, * p<0.05, ** p<0.01, *** p<0.001.

Note: Corresponds to models (5) and (6) in Table 2 of Lupu and Pontusson (2011, 325). For all models, the order of observations within a panel serves as the time variable (e.g. order = 1 corresponds to 1971 for Canada, to 1981 for Australia and to 1992 for Belgium). Hence, the time variable cannot capture contemporaneous correlation of error terms and standard errors are only corrected for heteroscedasticity, explaining why they differ from those reported in the original publication. Models with even numbers drop outliers.

Source: Lupu and Pontusson (2011); OECD, ILO and ICTWSS for EPL, Kaitz index and minimum wage dummy (see Appendix A).

Online Appendix Table 2. Replication of "Determinants of Redistribution" with minimum wages and EPL as additional control variables (FE models)

	(A7)	(A8)	(A9)	(A10)	(A11)	(A12)
	Redistribution		Redistribution		Redistribution	
Skew (earnings)	24.47***	24.42***	17.28*	7.345	-2.304	-9.891
	(7.192)	(4.699)	(8.462)	(6.852)	(8.786)	(7.440)
D9/D1 ratio (earnings)	1.344	-1.537+	1.648	1.147		
	(1.502)	(0.914)	(1.639)	(1.179)		
D9/D5 ratio (earnings)					12.10	11.92*
					(7.826)	(4.684)
Kaitz index			-2.784	-1.181	-3.372	-6.890**
			(5.896)	(4.697)	(4.847)	(2.658)
No minimum wage			0.736	0.923	0.540	-1.116
(dummy)			(2.162)	(1.837)	(1.851)	(0.867)
Employment Protection					1.370	-0.888
Legislation					(5.079)	(2.191)
n =	77	67	70	63	58	52
Countries	15	15	15	15	15	15
R^2	0.887	0.968	0.895	0.953	0.932	0.970
Model	Regression with fixed effects, panel corrected standard errors and common AR1 process, corrected for heteroscedasticity only (xi: xtpcse i.country, pairwise cor(ar1) hetonly)					

Standard errors in parentheses; + p<0.1, * p<0.05, ** p<0.01, *** p<0.001.

Note: Corresponds to models (7) and (8) in Table 2 of Lupu and Pontusson (2011: 325). For all models, the order of observations within a panel serves as the time variable (e.g. order = 1 corresponds to 1971 for Canada, to 1981 for Australia and to 1992 for Belgium). Hence, the time variable cannot capture contemporaneous correlation of error terms and standard errors are only corrected for heteroscedasticity, explaining why they differ from those reported in the original publication. Fixed effects are generated through dummy variables (coefficients not reported) and hence enter the R^2. Constant not reported since its value is a function of which country dummy is omitted. Models with even numbers drop outliers.

Source: Lupu and Pontusson (2011); OECD, ILO and ICTWSS for EPL, Kaitz index and minimum wage dummy (see Appendix A).

Online Appendix Table 3. Replication of "Determinants of Social Spending" with minimum wages and EPL as additional control variables (LDV models)

	(A13)	(A14)	(A15)	(A16)	(A17)	(A18)
	Non-elderly public social expenditure		Non-elderly public social expenditure		Non-elderly public social expenditure	
Skew (earnings)	1.742**	1.652***	0.945	0.708*	-2.198	-1.311
	(0.561)	(0.336)	(0.657)	(0.328)	(1.339)	(0.995)
D9/D1 ratio (earnings)	0.301*	0.146	0.538**	0.398***		
	(0.148)	(0.0907)	(0.168)	(0.0898)		
D9/D5 ratio (earnings)					2.925**	2.157***
					(1.026)	(0.605)
Voter turnout	0.00661	0.00386	0.00560	0.00297	0.00544	0.00415
	(0.00436)	(0.00315)	(0.00390)	(0.00245)	(0.00494)	(0.00364)
Proportionality	-0.884***	-0.663***	-0.928***	-0.679***	-0.859***	-0.620***
	(0.225)	(0.133)	(0.183)	(0.139)	(0.171)	(0.124)
Vocational training	0.0206**	0.00895*	0.0272***	0.0172***	0.0337**	0.0212**
	(0.00708)	(0.00392)	(0.00783)	(0.00367)	(0.0123)	(0.00753)
Trade union density	1.032***	0.931***	1.505***	1.424***	2.152***	1.771***
	(0.305)	(0.204)	(0.319)	(0.262)	(0.436)	(0.363)
Unemployment rate	-0.0682***	-0.0459**	-0.0679***	-0.0584***	-0.0713**	-0.0401**
	(0.0202)	(0.0148)	(0.0186)	(0.0118)	(0.0266)	(0.0144)
Female labour force participation	0.397	-0.129	0.826	0.249	0.881	0.783
	(0.861)	(0.640)	(1.084)	(0.657)	(1.916)	(1.333)
Population aged 65 years and above	-0.0919**	-0.0764***	-0.0918**	-0.0553*	-0.0893*	-0.0579*
	(0.0304)	(0.0189)	(0.0341)	(0.0228)	(0.0437)	(0.0290)
GDP growth	-0.183***	-0.197***	-0.198***	-0.197***	-0.202***	-0.219***
	(0.0197)	(0.0155)	(0.0191)	(0.0145)	(0.0217)	(0.0202)
Globalization	0.00956	0.0155***	0.00580	0.00713	-0.00764	0.000435
	(0.00788)	(0.00438)	(0.00804)	(0.00437)	(0.0112)	(0.00804)
Kaitz index			3.116***	2.682***	3.649***	3.096***
			(0.833)	(0.491)	(0.960)	(0.880)
No minimum wage (dummy)			1.749***	1.376***	1.865***	1.453***
			(0.375)	(0.229)	(0.405)	(0.374)
Employment Protection Legislation					0.162	0.106
					(0.152)	(0.0866)
Lagged dependent variable	0.903***	0.914***	0.871***	0.887***	0.863***	0.878***
	(0.0211)	(0.0136)	(0.0226)	(0.0110)	(0.0422)	(0.0223)
Constant	-0.611	-0.410	-1.764+	-1.172+	-1.714	-2.025+
	(0.982)	(0.739)	(1.014)	(0.624)	(2.187)	(1.212)
n =	311	277	285	256	208	183
Countries	18	18	18	17	18	18
R^2	0.991	0.997	0.992	0.997	0.991	0.996
Model	Regression with lagged dependent variable, panel corrected standard errors and panel-specific AR1 process, (xtpcse, pairwise cor(psar1))					

Standard errors in parentheses; + p<0.1, * p<0.05, ** p<0.01, *** p<0.001.

Note: Corresponds to models (13) and (14) in Table 3 of Lupu and Pontusson (2011, 327). Models with even numbers drop outliers.

Source: Lupu and Pontusson (2011); OECD, ILO and ICTWSS for EPL, Kaitz index and minimum wage dummy (see Appendix A).

Online Appendix Table 4. Replication of "Determinants of Social Spending" with minimum wages and EPL as additional control variables (FE models)

	(A19)	(A20)	(A21)	(A22)	(A23)	(A24)
	Non-elderly public social expenditure		Non-elderly public social expenditure		Non-elderly public social expenditure	
Skew (earnings)	9.668**	9.103***	7.285*	6.002*	1.818	-0.524
	(3.285)	(2.501)	(3.051)	(2.430)	(3.317)	(2.098)
D9/D1 ratio (earnings)	0.938+	1.053*	1.013+	1.380**		
	(0.531)	(0.505)	(0.540)	(0.450)		
D9/D5 ratio (earnings)					-1.254	-1.927
					(2.429)	(1.188)
GDP growth	-0.113***	-0.107***	-0.131***	-0.136***	-0.122*	-0.0691*
	(0.0297)	(0.0223)	(0.0323)	(0.0223)	(0.0515)	(0.0280)
Kaitz index			-0.639	-5.290+	4.024	7.206**
			(3.782)	(3.161)	(3.400)	(2.522)
No minimum wage			-1.596	-3.780*	0.991	2.188+
(dummy)			(1.865)	(1.495)	(1.548)	(1.139)
Employment Protection					6.117*	6.334***
Legislation					(2.652)	(1.061)
n =	320	284	292	259	209	181
Countries	18	18	18	18	18	18
R^2	0.961	0.981	0.961	0.986	0.980	0.993
Model	Regression with fixed effects, panel corrected standard errors and panel-specific AR1 process, (xi: xtpcse i.country, pairwise cor(psar1))					

Standard errors in parentheses; + p<0.1, * p<0.05, ** p<0.01, *** p<0.001.

Note: Corresponds to models (15) and (16) in Table 3 of Lupu and Pontusson (2011: 327). Fixed effects are generated through dummy variables (coefficients not reported) and hence enter the R^2. Constant not reported since its value is a function of which of the country dummy is omitted. Models with even number drop outliers.

Source: Lupu and Pontusson (2011); OECD, ILO and ICTWSS for EPL, Kaitz index and minimum wage dummy (see Appendix A).

Online Appendix Table 5. Replication of "Determinants of Redistribution" with skew in the income distribution as the primary explanatory variable and updated data-set (LDV and FE models)

	(A25)	(A26)	(A27)	(A28)
	Redistribution		Redistribution	
Skew (incomes)	-0.115	0.108	-0.102	-0.105
	(0.104)	(0.0802)	(0.144)	(0.0944)
P75/P25 ratio (incomes)	-0.00770	0.00474	-0.00660	-0.00772
	(0.0170)	(0.0124)	(0.0246)	(0.0169)
Voter turnout	0.000582*	0.000553**		
	(0.000242)	(0.000169)		
Proportionality	0.0278	-0.00968		
	(0.0196)	(0.0143)		
Vocational training	-0.0000850	-0.0000801		
	(0.000211)	(0.000174)		
Trade union density	0.000653*	0.000728***		
	(0.000316)	(0.000201)		
Unemployment rate	0.000244	0.000403		
	(0.000853)	(0.000596)		
Female labor force participation rate	-0.000226	0.000562+		
	(0.000503)	(0.000334)		
Lagged dependent variable	0.680***	0.737***		
	(0.0804)	(0.0561)		
Constant	0.138	-0.131	0.362+	0.368**
	(0.150)	(0.109)	(0.188)	(0.125)
n =	119	103	146	130
Countries	23	21	26	25
R^2	0.859	0.920	0.874	0.941
Model	Regression with lagged dependent variable, panel corrected standard errors and common AR1 process, corrected for heteroscedasticity only (xtpcse, pairwise cor(ar1) hetonly)		Regression with fixed effects, panel corrected standard errors and panel-specific AR1 process, (xi: xtpcse i.country, pairwise cor(psar1))	

Standard errors in parentheses; + p<0.1, * p<0.05, ** p<0.01, *** p<0.001.

Note: Estimation technique corresponds to models (5) to (8) in Table 2 of Lupu and Pontusson (2011, 325). Based on updated data-set. Skew (incomes) and the P75/P25 ratio are observed at the same point in time as the dependent variable, all other explanatory variables are averages for the years between observations for the dependent variable. Models with even numbers drop outliers. In models (A27) and (A28), fixed effects are generated by introducing dummies for each country (hence contributing to the R^2). Coefficients on the country dummies are not reported. Sample includes developed countries only. Models with even numbers drop outliers.

Source: See Appendix A.

Online Appendix Table 6. Explaining Redistribution with Skew in the Income Distribution, based on Disposable Incomes and Skew Measured as (P75/P50)/(P50/P25)

	(A29)	(A30)	(A31)	(A32)	(A33)	(A34)
		Redistribution			Redistribution	
Skew (disposable incomes) × developed country	0.0677 (0.222)	0.126 (0.160)	-0.139 (0.184)	-0.661 (0.749)	-0.0995 (0.882)	0.110 (1.043)
Skew (disposable incomes) × developing country	-0.0519 (0.0610)	-0.109 (0.278)		0.273 (0.368)	-0.0501 (0.466)	
P75/P25 ratio (incomes)	-0.0294 (0.0252)	-0.0879* (0.0341)	-0.175** (0.0583)	-0.0503 (0.0464)	-0.0452 (0.0490)	-0.0796 (0.131)
Unemployment rate		0.725*** (0.167)	0.881*** (0.183)		0.600 (0.528)	0.170 (0.472)
Female labor force participation		0.208+ (0.103)	0.112 (0.122)		0.219 (0.224)	-0.520+ (0.260)
Voter turnout			0.0506 (0.0602)			0.111 (0.129)
Proportionality			0.0197 (0.0350)			0.146 (0.0971)
Vocational training			0.0968 (0.0588)			-0.0436 (0.172)
Trade union density			-0.141 (0.100)			0.175 (0.110)
Developing country (dummy)				-1.008 (0.838)	-0.145 (1.116)	
Constant	0.230 (0.196)	0.121 (0.190)	0.565* (0.251)	0.978 (0.769)	0.233 (0.942)	0.385 (1.205)
n =	195	195	136	195	195	136
Countries	34	34	24	34	34	24
R^2	0.017	0.349	0.380	0.442	0.480	0.630
Model	Fixed effects with cluster-robust standard errors (xtreg, fe vce(r))			Between effects (xtreg, be)		

Standard errors in parentheses; + p<0.1, * p<0.05, ** p<0.01, *** p<0.001.

Note: Robustness test for Table 5 in the main text, based on an alternative specification of the main explanatory variable. Skew is measured based on the distribution of disposable incomes, defined as (P75/P50)/(P50/P25). Due to missing observations for the additional control variables, all developing countries drop from the sample in models (A41) and (A43). Refers to households that have a head in the main working-age bracket (25 to 59 years).

Source: See Appendix A.

Online Appendix Table 7. Explaining Redistribution with Skew in the Income Distribution, based on Disposable Incomes and Skew Measured as (P90/P50)/(P50/P10)

	(A35)	(A36)	(A37)	(A38)	(A39)	(A40)
	Redistribution			Redistribution		
Skew (disposable incomes) × developed country	0.0371 (0.150)	0.154 (0.107)	-0.0459 (0.0963)	-0.0895 (0.261)	0.156 (0.308)	-0.258 (0.398)
Skew (disposable incomes) × developing country	0.00194 (0.0500)	0.0306 (0.129)		0.0850 (0.173)	-0.00801 (0.195)	
P75/P25 ratio (incomes)	-0.00415+ (0.00206)	-0.00776* (0.00361)	-0.0577** (0.0174)	-0.00218 (0.00627)	-0.00452 (0.00677)	-0.0431 (0.0378)
Unemployment rate		0.693*** (0.161)	0.898*** (0.174)		0.668 (0.520)	0.0770 (0.527)
Female labor force participation		0.177+ (0.0968)	0.111 (0.105)		0.290 (0.222)	-0.512+ (0.258)
Voter turnout			0.0325 (0.0544)			0.0808 (0.136)
Proportionality			0.0144 (0.0375)			0.148 (0.0958)
Vocational training			0.0944 (0.0558)			-0.0268 (0.187)
Trade union density			-0.170+ (0.0979)			0.147 (0.112)
Developing country (dummy)				-0.320 (0.288)	0.0236 (0.383)	
Constant	0.211+ (0.123)	-0.0357 (0.0979)	0.375* (0.159)	0.328 (0.246)	-0.128 (0.366)	0.758 (0.561)
n =	195	195	136	195	195	136
Countries	34	34	24	34	34	24
R^2	0.015	0.315	0.427	0.420	0.474	0.647
Model	Fixed effects with cluster-robust standard errors (xtreg, fe vce(r))			Between effects (xtreg, be)		

Standard errors in parentheses; + p<0.1, * p<0.05, ** p<0.01, *** p<0.001.

Note: Robustness test for Table 5 in the main text, based on an alternative specification of the main explanatory variable. Skew is measured based on the distribution of disposable incomes, defined as (P90/P50)/(P50/P10). Due to missing observations for the additional control variables, all developing countries drop from the sample in models (A47) and (A50). Refers to households that have a head in the main working-age bracket (25 to 59 years).

Source: See Appendix A.

Online Appendix Table 8. Explaining social expenditure with skew in the income distribution (FE and BE models)

	(A41)	(A42)	(A43)	(A44)	(A45)	(A46)
	Non-elderly public social expenditure			Non-elderly public social expenditure		
Skew (incomes)	-0.00767	0.0336	0.0569	-0.348*	-0.318+	-0.0509
	(0.0842)	(0.0522)	(0.0353)	(0.150)	(0.171)	(0.141)
P75/P25 ratio (incomes)	0.0252*	0.0114	0.00860+	-0.0326+	-0.0315	-0.00405
	(0.0120)	(0.00802)	(0.00423)	(0.0174)	(0.0213)	(0.0191)
Unemployment rate		0.355*	0.398*		0.151	0.000476
		(0.148)	(0.142)		(0.169)	(0.104)
Female labour force participation		0.0898+	0.0113		0.04317	-0.0876
		(0.0457)	(0.0576)		(0.102)	(0.0789)
Voter turnout			-0.0118			0.0587
			(0.0634)			(0.0329)
Proportionality			-0.00575			0.0346
			(0.0143)			(0.0287)
Vocational training			0.0497			-0.0349
			(0.0371)			(0.0424)
Trade union density			-0.128+			0.0667*
			(0.0688)			(0.0271)
Population aged 65 years and above			0.100			0.0760
			(0.135)			(0.209)
GDP growth			-0.0809			-0.339
			(0.0816)			(0.283)
Globalization			-0.0518			0.160+
			(0.0718)			(0.0868)
Constant	0.0716	-0.0159	0.100	0.521**	0.451+	0.0289
	(0.0981)	(0.0620)	(0.121)	(0.172)	(0.243)	(0.222)
n =	146	146	125	146	146	125
Countries	25	25	23	25	25	23
R^2	0.163	0.331	0.492	0.197	0.229	0.839
Model	Fixed effects with cluster-robust standard errors (xtreg, fe vce(r))			Between effects (xtreg, be)		

Standard errors in parentheses; + p<0.1, * p<0.05, ** p<0.01, *** p<0.001.

Note: Robustness test for Table 5 in the main text, based on alternative dependent variable. Due to missing observations for the dependent variable, the sample contains only developed countries. Sargan-Hansen statistics indicate that the assumptions underpinning a random effects specification do not hold, and hence separate models for within and between effects are run. For the between-effects models (A32) to (A34), a White test indicates that the null hypothesis of homoscedasticity cannot be rejected (*p*-values are 0.461, 0.306, and 0.402, respectively).

Source: See Appendix A.

Online Appendix Table 9. Explaining social expenditure with skew in the income distribution (LDV and FE models with AR(1) process)

	(A47)	(A48)	(A49)	(A50)
	Non-elderly public social expenditure		Non-elderly public social expenditure	
Skew (incomes)	0.0212	-0.00703	0.0226	0.0389
	(0.0465)	(0.0172)	(0.0513)	(0.0477)
P75/P25 ratio (incomes)	0.00686	-0.000555	0.0235***	0.0203***
	(0.00619)	(0.00194)	(0.00525)	(0.00417)
Voter turnout	0.00281	0.00277		
	(0.0142)	(0.00725)		
Proportionality	0.00889	0.000390		
	(0.0232)	(0.00313)		
Vocational training	0.0151	0.00543+		
	(0.0203)	(0.00328)		
Trade union density	0.0255	0.00447		
	(0.0195)	(0.00457)		
Unemployment rate	0.00753	-0.0445*		
	(0.0378)	(0.0186)		
Female labour force participation rate	-0.0398	-0.00694		
	(0.0371)	(0.0109)		
Population aged 65 years and above	0.122	-0.0380		
	(0.134)	(0.0328)		
GDP growth	-0.275*	-0.136***	-0.257*	-0.228***
	(0.121)	(0.0372)	(0.0999)	(0.0470)
Globalization	0.00263	-0.0126		
	(0.0352)	(0.0126)		
Lagged dependent variable	0.688***	0.902***		
	(0.170)	(0.0430)		
Constant	-0.00196	0.0425+	0.0123	0.00713
	(0.0626)	(0.0232)	(0.0558)	(0.0498)
n =	124	121	146	126
Countries	23	23	25	24
R^2	0.926	0.992	0.928	0.945
Model	Regression with lagged dependent variable, panel corrected standard errors and panel-specific AR1 process (xtpcse, pairwise cor(psar1))		Regression with fixed effects, panel corrected standard errors and panel-specific AR1 process (xi: xtpcse i.country, pairwise cor(psar1))	

Standard errors in parentheses; + p<0.1, * p<0.05, ** p<0.01, *** p<0.001.

Note: Robustness test for Table 5 in the main text, based on alternative dependent variable and estimation technique that corresponds to models (13) to (16) in Table 3 of Lupu and Pontusson (2011, 327). Based on updated data-set. Skew (incomes), the P75/P25 ratio and GDP growth are observed at the same point in time as the dependent variable, all other explanatory variables are averages for the five years preceding the observation of the dependent variable. In models (A37) and (A38), fixed effects are generated by introducing dummies for each country (hence contributing to the R^2). Coefficients on the country dummies are not reported. Sample includes developed countries only. Models with even number drop outliers.

Source: See Appendix A.

Online Appendix Table 10. Descriptive statistics for the updated data-set on redistribution and skew in the income distribution

	Observations			Redistribution			Skew (incomes)		
Country	Number	First	Last	Mean	Min.	Max.	Mean	Min.	Max.
Australia	8	1981	2010	0.252	0.227	0.279	0.870	0.809	0.951
Austria	4	2004	2013	0.294	0.272	0.314	0.908	0.872	0.937
Belgium	2	1992	1997	0.382	0.369	0.395	0.884	0.869	0.900
Brazil	4	2006	2013	0.110	0.100	0.123	0.922	0.898	0.946
Canada	12	1971	2010	0.224	0.166	0.271	0.872	0.807	0.936
Colombia	4	2004	2013	0.026	0.000	0.052	1.066	1.039	1.134
Czech Republic	7	1992	2013	0.276	0.241	0.321	0.933	0.893	0.958
Denmark	8	1987	2013	0.370	0.292	0.433	0.841	0.788	0.868
Dominican Republic	1	2007	2007	0.016	0.016	0.016	1.032	1.032	1.032
Estonia	4	2004	2013	0.172	0.160	0.189	0.905	0.888	0.925
Finland	8	1987	2013	0.365	0.321	0.460	0.888	0.862	0.914
Germany	12	1973	2013	0.226	0.092	0.289	0.946	0.852	1.019
Greece	3	2007	2013	0.192	0.169	0.211	0.910	0.865	0.941
Guatemala	1	2006	2006	0.053	0.053	0.053	0.901	0.901	0.901
Iceland	3	2004	2010	0.225	0.159	0.302	0.934	0.904	0.952
Ireland	4	1987	2010	0.356	0.301	0.441	0.682	0.548	0.739
Israel	9	1979	2012	0.254	0.195	0.310	0.867	0.818	0.947
Japan	1	2008	2008	0.089	0.089	0.089	0.955	0.955	0.955
Korea, Republic of	4	2006	2012	0.052	0.048	0.060	0.984	0.973	0.996
Luxembourg	4	2004	2013	0.268	0.244	0.285	0.922	0.879	0.971
Netherlands	9	1983	2013	0.312	0.247	0.421	0.958	0.871	1.035
Norway	9	1979	2013	0.307	0.210	0.361	0.918	0.872	0.978
Panama	3	2007	2013	0.063	0.055	0.075	0.884	0.872	0.906
Peru	4	2004	2013	0.041	0.027	0.052	0.832	0.779	0.853
Poland	5	1999	2013	0.236	0.183	0.273	0.884	0.857	0.904
Romania	2	1995	1997	0.172	0.170	0.173	0.918	0.917	0.919
Slovak Republic	5	1992	2013	0.260	0.186	0.413	0.908	0.872	0.931
South Africa	3	2008	2012	0.108	0.097	0.115	0.620	0.480	0.734
Spain	3	2007	2013	0.190	0.158	0.224	0.856	0.813	0.911
Sweden	8	1967	2005	0.381	0.278	0.479	0.895	0.817	0.971
Switzerland	8	1982	2013	0.106	0.060	0.152	0.997	0.974	1.027
Taiwan	10	1981	2013	0.026	0.002	0.072	1.022	1.001	1.034
United Kingdom	12	1969	2013	0.238	0.169	0.281	0.801	0.565	1.021
United States	11	1974	2013	0.183	0.163	0.212	0.863	0.824	0.915
All countries	195	1967	2013	0.201	0.000	0.479	0.899	0.480	1.134

Note: Redistribution refers to relative redistribution or the change in the Gini coefficient as one move from market incomes to disposable incomes, expressed relative to the Gini coefficient for market incomes. Only households with a household head aged 25 to 59 years. Standard LIS routines with respect to equivalence scale, top- and bottom-coding; observations with zero disposable income and missing income components dropped. Market incomes are equivalent to factor incomes plus, where available, private transfers received. Skew (incomes) refers to the distribution in market incomes, measured as (P75/P50)/(P50/P25).

Source: Own tabulation, based on Luxembourg Income Study (LIS) Database (multiple countries, accessed 21 March 2017).