3. Politics and income distribution*

Martin Baur

3.1. INTRODUCTION

The relationship between growth and income distribution as well as political structure and economic performance has long been a subject of scrutiny for researchers. Whereas the reciprocal links between growth and income distribution have gained considerable attention in the last decades, the link between political and institutional variables and income distribution has not gained much emphasis so far. There are only a few studies investigating the connection between institutions, political variables and income distribution and most of them analyse the connection between aggregate democracy measures and income distribution with ambiguous results (Gradstein and Milanovic, 2000).

Considering the generally important role of transfers and redistributive policies in modern economies, the interactions between politics and income distribution deserve more detailed attention. The redistribution literature agrees that redistribution generally benefits politically influential groups. Therefore, the distribution of political influence determines the income distribution in a society.

The present chapter has two aims. In a first step, the research literature dealing with the connection between politics and income distribution is reviewed. In a second step, different propositions concerning the connection between political influence and income distribution are derived from the research literature and empirically tested.

The chapter is organised as follows: Section 3.2 gives a short overview of the most important theoretical and empirical findings concerning the connection between growth and income distribution. Section 3.3 deals with the literature on the relationship between politics and income distribution. In Section 3.4 the hypotheses are presented. The empirical analysis follows in Section 3.5. Section 3.6 concludes with a short summary of the most important results and possible strands for further research.

3.2. INCOME DISTRIBUTION AND GROWTH

Questions of growth and income distribution have always been a major concern for economists. In his seminal article (Kuznets, 1955) Kuznets proposed his hypothesis of an 'inverted-U' relationship between growth and income distribution. After examining empirical data for different industrial and developing countries, Kuznets found that income inequality increases in a first stage of economic growth and then begins to decrease after a certain point of growth. According to Kuznets the reason for this phenomenon lies in labour migration between a traditional agricultural sector and a modern, urban industrial sector. On the one hand, the inequalities between these two sectors rise during the development process, on the other hand, the share of the more unequal industrial sector, where wages differ more than in the agricultural sector, increases. According to Kuznets (1955, p. 17), the growing political power of the urban low-income groups, their political participation and the better chances for organisation lead to a variety of protective and supportive legislation by the state. This means that income inequality begins to decrease when all sectors of the working class are integrated into the political and economic structure of a country and have begun to gain political influence.

In the following years many economists have tried to find evidence for the Kuznets curve and to answer the question of how growth and income distribution affect each other (Adelman and Morris, 1973; Chenery et al., 1974; Ahluwalia, 1976; Papanek and Kyn, 1986; Fields, 1987; Ram, 1988; Bourgignon and Morrisson, 1990; Anand and Kanbur, 1993; Deininger and Squire, 1996; Li et al., 1998; Barro, 2000). Although many of the older cross-sectional studies found evidence for the Kuznets hypothesis, the more recent investigations working with newer and better data material and using time series data did not find proof for a systematic relationship between growth and income distribution (Deininger and Squire, 1996, p. 583–9; Li et al., 1998).

A new strand of research literature looks at the long-term evolution of the income distribution in particular countries (Piketty, 2003; Piketty and Saez, 2003; Atkinson, 2003; Dell et al., 2005; Piketty, 2005; Atkinson and Piketty, 2007). These studies report a strong decrease of income inequality throughout the first half of the 20th century, whereas the recent experience is quite diverse across countries, with some countries experiencing an increase in inequality since the 1970s. In general, the studies found no gradual, Kuznets type explanation for the decline of inequality but attributed most of the explanation of declining inequality to severe shocks to capital holdings between 1914 and 1945 (Piketty, 2005, p. 386). Whereas skill-based technological change and globalisation affect the income distribution

everywhere (Glaeser, 2005), economic structure, pursued policies and the geographic and historical heritage of the investigated countries play a more important role in explaining the differences in income distribution between countries than the level of development.

In the last few years interest in Kuznets' hypothesis decreased and the relationship between growth and income distribution was newly analysed from another point of view, i.e. the impact of income inequality on the growth rate of an economy (for a survey, see Alesina and Perotti, 1994; Perotti, 1996 and Bertola et al., 2006). Most of these studies came to the conclusion that a more equal distribution of income has a positive impact on the growth rate of an economy, whereas an unequal income distribution can affect growth negatively. These new findings contradicted the notion of inequality as a prerequisite for development ensuring the adequate incentives for work, savings and investment. Different channels were identified as possible links connecting income distribution and economic growth. The fiscal policy channel predicts that income distribution affects growth through the negative distortionary effects of government expenditures and taxes on investment and savings decisions (Persson and Tabellini, 1992; Perotti, 1993; Alesina and Rodrik, 1994; Persson and Tabellini, 1994). The endogenous fiscal policy approach, with its basis on the Median-voter theorem where the amount of government expenditures and the tax rates are decided, is theoretically persuasive but empirically problematic, not least because the correlation between inequality and tax rates was found to be negative and taxation and redistributive expenditures are often positively associated with growth (Saint Paul and Verdier, 1996; Perotti, 1996 and Josten and Truger, 2003). Furthermore, initial inequality is found to be associated with lower growth in non-democratic countries only, indicating that in the absence of democratic rights the high-income minority has the resources to protect their wealth and to lobby for policies which are beneficial to them but may be harmful to the rest of the economy and to growth (Li et al., 1998, a similar argument is pursued by Rodriguez, 2004). Another strand of literature identified the security of property rights as a link between inequality and growth, with higher income inequality turning property rights less secure through social polarisation, resulting in negative growth impacts (Knack and Keefer, 2000). Related approaches stress the impact of inequality on socio-political stability and its influence on growth with higher inequality leading to less socio-political stability which is considered detrimental for growth (Venieris and Gupta, 1986; Alesina and Perotti, 1996; Perotti, 1996 and Bourgignon, 1998). Non political models of the link between income distribution and growth consider factors such as education and fertility (Perotti, 1996; De la Croix and Doepke, 2003) credit market imperfections and human capital investments (Galor and Zeira, 1993; Bertola et al., 2006),

market size, demand effects and innovations (Murphy et al., 1989; Matsuyama, 2002; Foellmi and Zweimüller, 2006) and aspects of globalisation (Cornia, 2003, Dreher and Gaston, 2006).

The proposition that initial inequality seems to be associated with lower growth rates has gained much empirical support in recent years (Bénabou, 1996). But many new studies drawing on the Deininger-Squire database (Deininger and Squire, 1996), which is superior to data available to older studies, have questioned the supposed new consensus. Forbes (2000), for example, finds a significant and positive impact of inequality on economic growth. Knack and Keefer (2000) found the only surviving link between income inequality and growth to be the property rights channel. The coefficients for political violence, redistribution, capital market and market size all lose their significance when tested with higher-quality income distribution data. Deininger and Squire (1998) find the negative coefficient on initial income inequality in their regressions insignificant when a variable for asset inequality (the Gini coefficient for land ownership) is introduced into the model. Some subsequent studies found negative growth impacts of human capital inequalities (Birdsall and Londono, 1997; Castello and Domenech, 2002) and land inequality (Deininger and Olinto, 2001).

The current state of the debate can be summarised as follows: while it is not certain whether initial income inequality directly affects economic growth (Bourgignon, 2004), it is a proxy for more fundamental wealth and human capital inequalities. Once measures for wealth inequalities are included in the empirical analysis, there seems to be a significant negative relationship between asset inequality and economic growth. On the other hand, there seem to be no systematic links between the level of development and income distribution. Nevertheless, the research literature was able to identify certain factors affecting the income distribution such as land tenure, education and population growth (Kanbur, 2000, p. 818). In addition, most studies agree that not the level of development but economic structure and, most importantly, pursued policies are the most important factors determining income distribution.

3.3. POLITICS, INSTITUTIONS AND INCOME DISTRIBUTION

Income distribution and growth are definitely influenced by pursued policies and political institutions. However, the analysis of the relationship between institutions, the political process and income distribution has not gained much emphasis so far. While the impact of economic and political liberties on the economic growth performance of a country has been extensively

investigated (Scully, 1992; Przeworski and Limongi, 1993; Knack and Keefer, 1995; Baum and Lake, 2003; Przeworski and Limongi, 2003; Halperin et al., 2004), only few studies deal with the relationship between political institutions and income distribution (Meltzer and Richard, 1981; Olson, 1982; Scully, 1992; Li et al., 1998; Acemoglu and Robinson, 2000 and 2002; Gradstein et al., 2001; Mueller and Stratmann, 2003; Reuveny and Li, 2003; see also Gradstein and Milanovic, 2000 for a survey).

It has long been recognised that a more egalitarian distribution of political rights in the form of a political democracy should, according to the Median-voter model, be accompanied by a more equal income distribution (Meltzer and Richard, 1981). The model shows that the poorer the median voter is relative to the average voter, the higher his preferred tax rate and therefore the higher the amount of redistribution. So, inequality and the expansion of suffrage (with the assumption that the new voters are poorer than the median voter) lead to more redistribution from rich to poor and, accordingly, to a more equal income distribution. Empirical evidence, however, does not support the Median-voter model (Milanovic, 2000). Not only does redistribution from rich to poor constitute only a small fraction of existing redistribution (Tullock, 1997; Mueller, 2004), furthermore, higher inequality does not necessarily lead to more redistribution because different income groups have different political weights and political participation is endogenous with the poor having a lower participation than the rich, making the decisive voter richer than the median voter (Saint Paul and Verdier, 1996; Bassett et al., 1998; Bénabou, 2000; Josten and Truger, 2003 and Rodriguez 2004).

Another strand of literature, pioneered by Olson (1982) investigates the impact of interest groups on income distribution. The studies found that, since the possibility of organising interest groups is far more unequally distributed than productive abilities and the control of free-riding requires enough resources, poor-to-rich redistribution is the likeliest consequence of interest group activity (Olson, 1982; Mueller and Murrell, 1986; Tollison, 1997; Rodriguez, 2004). Therefore, the presence of interest groups and the inherent logic of their formation are assumed not only to lead to redistribution from poor to rich and from unorganised to organised, but also to increased income inequality in general. As of to date, there are no empirical studies investigating these theoretical assumptions.

There are some, albeit few, studies dealing with the impact of democratic institutions and participation on income distribution. Scully (1992) presents empirical evidence that politically open countries that are committed to the rule of law, respect private property and have a market allocation of resources have more equal income distributions than countries where these rights are restricted. Li et al. (1998) show that in the absence of democratic

rights and civil liberties the high-income groups are able to protect their resources and lobby for policies which are beneficial to them but detrimental for the economy as a whole. This leads to persisting inequality and a negative impact of inequality on the growth rate. According to Acemoglu and Robinson (2000, 2002), the experience of some industrial countries between the middle of the 19th and the beginning of the 20th century shows that increasing inequality caused by industrialisation led to rising political instability. This forced the elite of the respective countries towards democratisation which then caused redistribution measures and a reduction of inequality. Analysing the historical experiences of these countries, the authors find support for a Kuznets curve with democratisation being the link between growth and income distribution. The reduction of inequality therefore depends on political participation. Gradstein et al. (2001) empirically show that the democratisation effect on income distribution works through ideology. In Judeo–Christian societies increased democratisation leads to lower inequality, whereas in Muslim and Confucian societies, which rely on informal transfers to reach the desired level of inequality, democratisation has an insignificant effect on inequality. Mueller and Stratmann (2003) present cross-national evidence that high levels of democratic participation in the form of high voter turnout at elections are associated with more equal distributions of income. Their reasoning shows that high voter participation rates affect government policies, which in turn affect the distribution of income. The reduction of income inequality is caused by larger government sectors, resulting in slower economic growth. Reuveny and Li (2003) investigate the effects of democracy and economic openness on income distribution. Their cross-country evidence shows that democracy has a positive effect on income distribution. The same applies to trade openness, whereas the level of foreign direct investment leads to more inequality.

The results from studies dealing with the connection between political institutions and inequality indicate that institutions seem to matter in the determination of the income distribution of a country. A few studies find democratic constitutional environments and participation to have an influence on income distribution whereas the supposed impact of interest groups on income distribution has so far not been empirically tested. Since political participation is endogenous and different income groups have different political weights in the political process, the voting process as modelled by the Median-voter model does not necessarily lead to an equalisation of the income distribution. Low-income individuals very often do not only stand outside of the economic market but they also have, for different reasons, a weak position in the political marketplace because their political participation is low. The important role of political participation

(and political representation) was already stressed by Kuznets (1955, p. 17) stating that increasing political participation and better chances for organisation of low-income groups constitute a necessary condition for falling inequality. Keeping this in mind, it is easy to see that for a concise analysis of income inequality in a society and between countries the political process, and especially political participation, has to be investigated more thoroughly.

3.4. HYPOTHESES

There is little empirical evidence so far regarding the connection between political variables and income distribution. The studies measuring the impact of aggregate regime variables on income distribution are at best inconclusive. The few studies investigating the relationship between participation and the income distribution on a more disaggregated level suggest that increasing participation leads to decreasing income inequality. The impact of interest groups on income distribution has so far not been empirically analysed.

The distribution of political income such as monetary transfers, favourable legislation (protection of markets, price subsidies, favourable wages and working conditions, tax exemptions), governmental expenditures on education, housing, health care, agriculture and the like, rents, patronage, jobs and many more is determined by activities of politicians, voters, interest groups and bureaucrats on the political marketplace. Only people who are represented in the political structure of a country can influence the decisions regarding the political income distribution and thus the overall income distribution. People can only become integrated into this political structure and gain influence through some sort of political participation. The amount of participation depends on the individual income situation and educational status with educated and high-income persons participating more than uneducated and low-income persons (Saint Paul and Verdier, 1996; Tullock, 1997; Bassett et al., 1999). From this it follows that uneducated and low-income individuals are more likely to stand outside the political marketplace in which the political income distribution is determined. Increasing participation would therefore lead to more people from lower-income groups to participate in the political marketplace, being able to influence the political income distribution. This can be considered to be a necessary condition for equalising the income distribution in general. Participation influences the integration of the population into the political structure of a country, therefore influencing the political income distribution and the general income distribution. Defined in purely political terms, participation involves voting, campaigning, interest group activity and lobbying (Ayee, 2000, p. 2), in other words, activities to get people involved collectively in efforts to

influence policy decisions. Political participation thus means taking part in elections and organising interest groups with the aim of influencing policy. Therefore, in the following empirical investigation, political participation and the integration into the political structure will be measured by the number of interest groups and voter turnout.

3.4.1. Interest Groups and Income Distribution

Interest groups are a means of promoting the interests of a certain group of people, focusing their energy on the redistribution of income. Common interests are only a necessary, but not a sufficient reason for successful group formation. In general, the possible formation of a group depends on group size, with small groups having less difficulty to overcome the free-rider problem than large groups (Olson, 1992, p. 5ff.). In addition, the control of free-riding depends on the availability of necessary resources to bear the coordination costs. Therefore groups with higher income are assumed to be organised more easily than poorer income groups (Rodriguez, 2004). The impact of the number of interest groups on the income distribution is not clear however. On the one hand, a large number of pressure groups means that a lot of different small groups get rents at the expense of the large unorganised population, thus resulting in an unequal income distribution (Olson, 1982). On the other hand, the rising number of interest groups enhances the possibility that an individual voter is represented by such a group and therefore gains more influence in the political process. A large number of pressure groups could therefore lead to more political participation and thus to a better integration of the population in the political structure of a country with the possibility of influencing the political income distribution. As a consequence, the political income distribution would be more equal and so would the general income distribution. From this follows, that the number of interest groups can have two opposing effects on the income distribution, which are both tested empirically:

– The ‘rent-seeking approach’ predicts that a larger number of interest groups leads to a less equal income distribution.
– The ‘political participation approach’ predicts that a larger number of interest groups leads to a more equal income distribution

3.4.2. Voter Turnout and Income Distribution

Voter turnout is a key element of democratic participation. Voters that do not bother or are not allowed to vote are likely not to be represented and have no influence in the political process. Although there are other ways to participate in the political process of a country (e.g. through interest groups,

public opinion, etc.), the most obvious way is to take part in elections. The higher the participation of a certain group, the higher is its influence in the political process. Voter turnout is different for different groups, depending on factors such as income and education (Mueller and Murrell, 1986, p. 139f.; Saint Paul and Verdier, 1996, p. 720f.; Bassett et al., 1999, p. 208), with high income classes participating more in the political process than low income classes. A higher level of participation would ceteris paribus lead to more people from lower-income groups taking part in the political process and influencing the political income distribution. The hypothesis with regard to voter turnout which will be tested later in this chapter is:

– More participation in the form of a higher voter turnout leads to a more equal income distribution.

3.4.3. The Importance of Institutions

The extent of integration of the population into the political structure and the degree of their influence on the political income distribution depends on the institutional arrangements of the respective country. Thus, the integration of the population represents a link between institutions and income distribution. Freedom of speech, freedom of association and the right to vote are fundamental conditions for the representation and participation of groups and individual voters in the political process. Countries that curtail these rights are assumed to have lower representation and participation rates than countries where these rights are guaranteed. In addition, even if more authoritarian countries know some kind of forced political participation (e.g. compulsory voting, elections with no/limited alternatives, mandatory interest group membership) the restrictions of the political systems ensure that the political income distribution remains unaffected by political participation. Therefore, political participation (voting, organisation of interest groups) is assumed to have no impact on the income distribution in authoritarian states. Democratic institutions such as civil liberties and political rights are assumed to lead to high rates of integration of the population. The responsiveness of politicians who want to be re-elected ensures that the growing influence of lower-income classes translates into legislative and redistributing policy measures. Therefore, in a democratic setting, political participation leads to a more equal political income distribution and thus to a more equal general income distribution. The validity of these arguments can be tested by the following hypotheses:

– The more civil liberties and political rights in a country, the more equal its income distribution.

– In a democratic setting political participation (voting, organising interest groups) has an equalising effect on the income distribution.
– In a non-democratic setting political participation (voting, organising interest groups) has no effect on the income distribution.

3.5. EMPIRICAL ANALYSIS

3.5.1. The Data

In the following section, the 6 propositions about the connection between institutions, participation and income distribution will be tested empirically. A sample of 59 countries at 3 points in time with 156 observations in total is used. The choice of countries was influenced by the availability of the necessary data, with available data for all variables for a least two points in time being the necessary condition for inclusion of the respective country.

Table 3.1. Data and sources

Variable name	*Variable description*	*Variable source*
GINI	Gini coefficient, decade average 1970, 1980, 1990	Easterly 1999
IGP	Interest groups per 100'000 population, 1970, 1980, 1990	Coates, Heckelman & Wilson 2007
NOIG	Absolute number of interest groups, 1970, 1980, 1990	World Guide to Trade Associations 1973/4, 1985, 1999
VT	Voter turnout as % of VAP (voting age population), decade average 1970, 1980, 1990	www.idea.int
POLITY	Polity Score, decade average 1970, 1980, 1990	Polity IV Project, www.systemicpeace.org
SECED	Gross enrolment ratio, secondary education, % of relevant age group, 1970, 1980, 1990	Easterly 1999 and www.unesco.org
POPGR	Annual population growth rate, decade average 1970, 1980, 1990	Penn World Tables 6.1.
GDPPC	GDP per capita, decade average 1970, 1980, 1990, in 1'000 USD	Penn World Tables 6.1.
GOVTR	Government transfers as % of GDP, for 1975, 1985, 1995	www.heritage.org
OPEN	Sum of imports and exports as % of GDP, decade average 1970, 1980, 1990	Penn World Tables 6.1.
COMP	Dummy variable, 1 for countries with some degree of obligation to vote	ww.idea.int

The 59 countries in the total sample consist of 23 OECD-countries, 13 countries from Latin America and the Carribean, 12 countries from Africa and 11 Asian countries. Table 3.1 shows the variables employed in the empirical analysis. The source for data on the Gini coefficient (GINI) is Easterly (1999), who computed decade averages for the Gini coefficients for the 1970s, 1980s and 1990s using data compiled by Deiniger and Squire (1996). Interest group data (IGP) is taken from Coates et al. (2007) and the World Guide to Trade Associations (1973, 1974, 1985 and 1999). The variable (IGP) is the number of interest groups per 100'000 population for 1970, 1980 and 1990. Whereas Coates et al. (2007) argue that group strength might depend on the number of interest groups relative to country size, Olson (1982) focuses on the absolute number of groups in a society. Therefore, in some regressions, the absolute number of interest groups in a country (NOIG) is used in addition to the relative number of interest groups. According to Olson (1982) the influence of groups depends not only on the number but also on their strength. However, the data employed here assume that each group is equally powerful, while in fact groups vary in their influence. As proxies for group influence, group budget or membership could be used, but unfortunately, no such data are available for a cross-section of countries. Data for voter turnout are from the International IDEA website (www.idea.int/vt). Political participation is measured as voter turnout (VT) as % of the voting age population ('VAP'), whereas the voting age population is an estimation of the number of all those citizens over the legal voting age. Average voter turnout for 1970, 1980 and 1990 is used for all countries in the sample. For the classification of countries according to their political and civil liberties, the combinded Polity score (POLITY) is used, which stems from the Polity IV project (Marshall and Jaggers, 2007). The Polity score is one of the most comprehensive and widely used measures of political regime characteristics. The Polity score ranges from 10 (strongly democratic) to –10 (strongly autocratic). Average values for 1970, 1980 and 1990 are used for all countries in the sample.

In addition to the main explanatory variables, several control variables which are frequently used in income distribution studies are included. GDP per capita, population growth and education are identified to affect income distribution in several studies (Kanbur, 2000). The average GDP per capita in a country (GDPPC, in 1'000 USD) for the 1970s, 1980s and 1990s from the Penn World Tables 6.1 (Heston et al., 2002) and GDP^2 are included to test for the Kuznets curve – a positive sign of GDP and a negative sign for GDP^2 are expected. The average enrolment ratio in secondary education (SECED) for the 3 decades from Easterly (1999) and UNESCO (http://www.unesco.org/) is expected to have a positive effect (i.e. a negative coefficient) on the income distribution whereas the average population

growth rate (POPGR) for the 3 decades from the Penn World Tables 6.1. should have a negative effect (i.e. a positive sign). Following the arguments developed by the Globalisation literature (see Reuveni and Li, 2003 for an overwiev), trade is expected to influence the income distribution, but the results are inconclusive. Reuveni and Li (2003) found open countries to have a more equal income distribution. Therefore the average sum of imports and exports as % of GDP (OPEN), average for the 1970s, 1980s and 1990s from the Penn World Tables 6.1., is included in the equation and expected to have a negative sign. As a last control variable, government transfers (GOVTR) as % of GDP for the 3 decades from the Heritage Foundation (www.heritage.org) is included. Following the reasoning in Mueller and Stratmann (2003), governments affect the distribution of income in several ways (e.g. through transfers and expenditures). A larger share of government transfers is thus expected to lead to a more equal income distribution (i.e. a negative sign is expected). COMP is a dummy variable identifying countries with compulsory voting (www.idea.int). It serves to control for the impact of a high voter turnout, which does not result from an integration of the population into the political structure of a country but simply results from a legal obligation.

Table 3.2 presents the summary statistics for all variables used in this study. The table shows that the OECD countries do not only have a larger GDP than the non OECD countries, but also higher secondary education enrolment, slower population growth, larger voter turnout, more interest groups and less inequality. The mean for the Polity variable also shows that

Table 3.2. Means and standard deviations

Variable	Full sample			OECD countries			Non OECD countries		
	Mean	S.D.	n	Mean	S.D.	n	Mean	S.D.	n
GINI	40.48	9.28	156	34.03	6.51	62	44.74	8.34	94
IGP	2.18	3.59	155	4.62	4.63	62	0.56	0.84	93
NOIG	458.14	1012.26	155	1051.42	1407.31	62	62.61	81.83	93
VT	66.19	17.18	151	76.26	11.87	62	59.18	16.87	89
POLITY	3.91	6.59	154	8.26	4.08	62	0.99	6.34	92
GDPPC	6.02	6.10	156	11.06	6.61	62	2.69	2.28	94
SECED	53.37	28.86	156	79.84	18.15	62	35.91	19.91	94
POPGR	1.68	1.02	156	0.76	0.65	62	2.28	0.73	94
GOVTR	9.91	8.73	147	17.44	7.70	62	4.41	4.10	85
OPEN	60.63	42.52	156	55.91	27.04	62	63.75	50.08	94
COMP	0.18	0.39	156	0.21	0.41	62	0.16	0.37	94

the OECD countries are on average more democratic than the non OECD countries. Thus, the propositions are expected to receive more support in the OECD countries because the institutional structure is more open and the integration of the population into the political structure therefore appears to be easier. Differences in the variables for political participation are therefore hypothesised to have a stronger effect in the high-income countries where the democratic institutions are more developed than in the low-income countries.

3.5.2. Empirical Estimation and Results

The propositions will be tested empirically by using the following regression equation:

$$GINI = \alpha_1 + \alpha_2 IGP + \alpha_3 NOIG + \alpha_4 VT + \alpha_5 POLITY + \alpha_6 SECED + \alpha_7 POPGR + \\ + \alpha_8 GDPPC + \alpha_9 GDPPC^2 + \alpha_{10} GOVTR + \alpha_{11} OPEN + \alpha_{12} COMP + \varepsilon$$

This specification follows the standards set in other income distribution studies (Kanbur, 2000), where the income distribution is modelled as being linearly dependent on different exogenous variables such as the participation variables (interest groups, voter turnout), the institutional variable (openness of political institutions) and control variables (enrolment in secondary education, population growth, GDP government transfers and trade openness) plus a dummy variable for compulsory voting.

This unbalanced panel is estimated using Least Squares regression with fixed effects to control for bias resulting from omitted variables which are constant over time. In the present case of cross-country comparisons these fixed effects could account for historical and cultural differences between the investigated countries. Fixed effect specification is a way of dealing with endogeneity problems that can be traced to unobservable time-invariant country fixed effects. Heteroskedasticity is accounted for by using White-type robust standard errors.

Tables 3.3–3.5 show the regression results for different specifications of equation 1 and different samples. Table 3.3 presents the results for the full sample, including all 59 countries.

The coefficient of the interest group variable (IGP) has a statistically significant negative sign in all equations. This result indicates that more interest groups lead to less income inequality. The ‘participation and integration’ aspect of interest groups thus seems to be stronger than the ‘rent-seeking’ aspect. The relative number of interest groups appears to be the decisive variable, with the absolute number of interest groups (NOIG) not having a statistically significant impact on the income distribution. Voter turnout has the expected negative sign, indicating that a stronger voter

Table 3.3: Regression Results (dependent variable GINI, different specifications, full sample)

Variable	Full sample								
	1	2	3	4	5	6	7	8	9
Constant	41.27	42.16	41.14	42.00	39.74	41.22	39.81	42.32	42.93
	(6.77)	(6.82)	(6.54)	(6.55)	(7.70)	(6.66)	(8.00)	(6.71)	(6.70)
IGP	–0.37***	–0.24**	–0.36**	–0.24**	–0.34**			–0.34**	–0.23*
	(–2.62)	(–2.08)	(–2.53)	(–2.05)	(–2.48)			(–2.36)	(–1.89)
NOIG								–0.0006	–0.0004
								(–1.21)	(–0.93)
VT	–0.02	–0.03	–0.01	–0.02		–0.02		–0.03	–0.03
	(–0.29)	(–0.45)	(–0.24)	(–0.38)		(–0.28)		(–0.44)	(–0.55)
POLITY	0.07	0.09					0.02	0.07	0.09
	(0.39)	(0.54)					(0.13)	(0.42)	(0.56)
SECED	–0.12***	–0.13***	–0.12***	–0.12***	–0.13***	–0.13***	–0.13***	–0.12**	–0.12***
	(–2.71)	(–2.79)	(–2.68)	(–2.74)	(–2.97)	(–2.84)	(–3.09)	(–2.57)	(–2.68)
POPGR	3.23**	3.09**	3.21**	3.06**	3.68***	3.48***	3.89***	3.05**	2.96**
	(2.58)	(2.52)	(2.40)	(2.31)	(2.73)	(2.72)	(3.05)	(2.41)	(2.37)
GDPPC	1.06	0.98	1.08*	1.03	1.10*	1.04	1.07	1.07	0.99
	(1.50)	(1.39)	(1.66)	(1.56)	(1.71)	(1.62)	(1.53)	(1.52)	(1.40)
$GDPPC^2$	–0.04	–0.03	–0.04	–0.04	–0.04	–0.04	–0.04	–0.04	–0.03
	(–1.48)	(–1.36)	(–1.64)	(–1.53)	(–1.61)	(–1.59)	(–1.44)	(–1.43)	(–1.32)
GOVTR	–0.16	–0.21**	–0.15	–0.20**	–0.13	–0.20**	–0.20**	–0.17*	–0.22**
	(–1.56)	(–2.26)	(–1.53)	(–2.25)	(–1.41)	(–2.31)	(–2.07)	(–1.65)	(–2.30)
OPEN	0.004	0.0006	0.003	–0.001	0.003	–0.002	0.0002	0.002	–0.001
	(0.29)	(0.04)	(0.20)	(–0.06)	(0.20)	(–0.14)	(0.02)	(0.13)	(–0.06)
COMP		3.03**		2.91*					2.93*
		(1.99)		(1.84)					(1.89)
n	141	141	142	142	146	143	145	141	141
R^2 adj.	0.48	0.50	0.49	0.50	0.52	0.48	0.50	0.48	0.49

Notes:
T-statistics in parantheses:
*** statistically significant on the 99%-level
** statistically significant on the 95%-level
* statistically significant on the 90%-level

turnout leads to less inequality. However, the coefficient is not statistically significant. The coefficient of the institutional variable (POLITY) does not have the expected negative sign and is not statistically significant. With the exception of the variable measuring openness towards trade, all the other control variables have the expected signs and the coefficients of the education and population growth variable even have strong statistical significance, which is in line with the findings of other income distribution studies. The coefficients of the two GDP variables hint at a Kuznets-type relationship between state of development and income distribution, but the results are in general not significant (with two exceptions). In addition, government transfers are found to lead to lower income inequality (expected sign in all and statistical significance in 6 of 9 equations).

In regressions 2, 4 and 9 a dummy variable for countries with compulsory voting regimes was added. The coefficient has a statistically significant positive sign in all equations indicating that countries with some sort of obligation to vote have a more unequal income distribution. In addition, the dummy variable for compulsory voting has an impact on some of the other coefficients, most notably the coefficients for voter turnout and government transfers, which both increase in absolute size and in their statistical significance. Countries with compulsory voting seem to have a more unequal income distribution, but government transfers have a stronger income equalising effect in these countries compared to countries without compulsory voting. A first tentative explanation for the findings in table 3 could be that they are an indicator that unequal countries try to ensure that all parts of its diverse population take part at elections. The significant role of government transfers in reducing income distribution in countries with compulsory voting might be an indicator for the attempt of governments in unequal societes to mitigate inequality. This explanation would be in line with some results from the research literature finding that compulsory voting not only leads to higher welfare spending but that compulsory voting has mainly been adopted by countries with commitments to social democratic outcomes (Jackman, 2001; Chong and Olivera, 2005). In general, the research literature on compulsory voting is, until now, inconclusive, especially with regard to the origins and impacts of compulsory voting and its connection to income distribution (Jackman, 2001; Chong and Olivera, 2005; Helmke and Meguid, 2008). To be able to consider compulsory voting adequately in models of income distribution (e.g. through instrumental variable estimation), more research is needed to clarify the reasons for introduction of compulsory voting and its connection to income distribution (see chapter 6).

Overall, the regressions for the full sample are able to explain around 50 percent of the total variation of the Gini coefficient through the variation of the independent variables, which is a good result for models trying to explain the income distribution. Generally, the t-statistics and the coefficients of determination are mostly satisfactory and heteroscedasticity is accounted for. The problem of omitted variables is considered by estimating a model with fixed effects.

In Table 3.4 the sample is divided along OECD membership. As noted above, the propositions are expected to receive more support in OECD countries because their institutional structure is more open and therefore integration of the population into the political structure is assumed to be easier. However, the results presented in Table 3.4 do not support this assumption. The voter turnout variable still has the expected sign but is still not statistically significant. The interest group variable has the expected and

(in 3 of 4 cases) significant sign in the OECD sample, but in the non OECD sample, the coefficient becomes positive and even statistically significant in equation 16. The compulsory voting variable is positive for both samples and statistically significant in the non OECD sample. The other variables do not much differ from the results in the full sample, with the exception of the variables measuring state of development (GDPPC and $GDPPC^2$), which become strongly significant, indicating a Kuznets-type relationship between GDP and income distribution at least in less industrialised countries.

Table 3.4. Regression Results (dependent variable GINI, different specifications, OECD/non OECD sample)

Variable	OECD sample					Non OECD sample		
	10	11	12	13	14	15	16	17
Constant	48.54	51.04	48.36	44.60	48.83	35.64	36.28	34.53
	(7.44)	(6.47)	(7.34)	(12.16)	(7.49)	(4.55)	(4.68)	(4.30)
IGP	–0.14*	–0.07	–0.13*	–0.14*		2.32	3.45*	1.32
	(–1.67)	(–0.53)	(–1.67)	(–1.66)		(1.20)	(1.74)	(1.08)
VT	–0.05	–0.09	–0.05		–0.05	–0.01	–0.009	–0.006
	(–0.83)	(–1.21)	(–0.83)		(–0.84)	(–0.18)	(–0.13)	(–0.08)
POLITY	0.07	0.01				–0.007	0.02	
	(0.49)	(0.08)				(0.04)	(0.13)	
SECED	–0.10**	–0.08	–0.10**	–0.10**	–0.09**	–0.11	–0.12*	–0.13*
	(–2.13)	(–1.59)	(–2.14)	(–2.16)	(–2.04)	(–1.63)	(–1.81)	(–1.98)
POPGR	4.32***	4.02**	4.24***	4.56***	4.42***	2.42	2.57*	2.49
	(3.46)	(2.83)	(3.66)	(4.56)	(3.80)	(1.55)	(1.78)	(1.52)
GDPPC	–0.73	–0.78	–0.64	–0.61	–0.80	5.24***	4.66***	5.90***
	(–1.34)	(–1.27)	(–1.06)	(–1.01)	(–1.32)	(3.07)	(2.80)	(3.65)
$GDPPC^2$	0.02	0.01	0.01	0.01	0.01	–0.39***	–0.35***	0.46***
	(1.12)+	(0.90)	(0.85)	(0.88)	(0.99)	(2.92)	(–2.69)	(–3.73)
GOVTR	0.02	0.04	0.03	0.008	0.03	–0.11	–0.26	–0.05
	(0.15)	(0.35)	(0.26)	(0.08)	(0.35)	(0.49)	(–1.41)	(–0.23)
OPEN	–0.02	–0.03	–0.02	–0.03	–0.03	–0.02	–0.03*	–0.01
	(–0.79)	(–0.89)	(–0.89)	(–1.05)	(–1.46)	(–1.57)	(–1.80)	(–1.08)
COMP		1.91					4.15**	
		(1.14)					(2.12)	
n	62	62	62	62	62	79	79	80
R^2 adj.	0.68	0.68	0.69	0.69	0.69	0.13	0.15	0.16

Notes:
T-statistics in parantheses:
*** statistically significant on the 99%-level
** statistically significant on the 95%-level
* statistically significant on the 90%-level

In general, the separation of the sample into OECD and non OECD countries does not shed more light into the relationship between institutions, participation and income distribution. It is nevertheless possible that the participation propositions receive more support in more democratic countries, as the division of the sample into OECD and non OECD countries might not be accurate enough. If we look at OECD members closely, we see that there are countries such as Mexico, Turkey and South Korea which are not labelled as free and democratic countries for the period 1970 to 1990. Other OECD members such as Spain, Portugal and Greece got rid of their authoritarian regimes not until the middle of the 1970ies. On the other hand, non OECD countries include countries with a long democratic tradition such as India, Mauritius and Costa Rica. To better account for the assumed differences of the impact of the participation variables on the income distribution in democratic and non-democratic countries, the sample will now be divided into 'strong democratic' and 'weak democratic' countries according to the score of the Polity index for political rights and civil liberties (countries with a value of 7 and more are labelled 'strong democratic', the others are termed 'weak democratic'). This differentiation allows for a better separation of democratic from non-democratic countries because it now includes the non OECD countries with a long democratic tradition whereas some OECD members with a less democratic history are excluded. In addition, to control for the robustness of the results, two interaction terms between institutions and participation (POLITY*IGP and POLITY*VT) are tested as well.

The results are presented in Table 3.5. In the strong democratic sample, voter turnout and interest groups now both have a statistically significant equalising impact on the income distribution. The impact of voter turnout on income distribution slightly increases when compulsory voting is controlled for, on the other hand, the coefficient of the interest group variable loses its significance. In the weak democratic sample, the coefficients of the voter turnout variable and the interest group variable both have a positive insignificant sign. The equations with interaction terms (equations 22 and 23) support these results. The total marginal effect of the number of interest groups and voter turnout on the Gini coefficient is determined by adding the respective marginal effects of the individual coefficients and the coefficients of the interaction terms multiplied by the value of the Polity variable (Brambor et al., 2006). The results indicate, albeit weakly, that the impacts of interest groups and voter turnout on income distribution depend on the extent of democracy in a country. Only in countries which are very strongly democratic (Polity score at least 9 in equation 22 or 9.6 in equation 23), do interest groups have an equalising effect on the income distribution. If democratic institutions are not strong enough, interest groups have a negative

impact on the income distribution. The marginal effect of voter turnout on the Gini coefficient is negative for all countries with a democracy score of more than 1 (equation 22) or 0 (equation 23), i.e. voter turnout has an equalising effect on the income distribution in countries with democratic institutions. Even though statistical significance is at best weak, the results nevertheless support the results found in equations 18–21. All other variables remain relatively stable and have the expected signs indicating the robustness of the model.

Table 3.5. Regression Results (dependent variable GINI, different specifications, strong democratic/weak democratic sample)

Variable	Strong democratic sample		Weak democratic sample		Full Sample	
	18	19	20	21	22	23
Constant	42.49	44.16	28.65	28.77	38.05	38.52
	(5.20)	(5.54)	(3.10)	(3.01)	(6.36)	(6.40)
IGP	-0.29*	-0.24	2.41	3.64	2.70	3.05
	(-1.84)	(-1.59)	(0.94)	(1.43)	(1.36)	(1.56)
VT	-0.10**	-0.13**	0.05	0.05	0.002	-0.007
	(-2.13)	(-2.25)	(0.64)	(0.65)	(0.03)	(-0.13)
POLITY					0.72*	0.89**
					(1.92)	(2.35)
POLITYIGP					-0.30	-0.32*
					(-1.52)	(-1.64)
POLITYVT					-0.009	-0.01*
					(-1.27)	(-1.65)
SECED	-0.05	-0.06	-0.18***	-0.17***	-0.11***	-0.11***
	(-1.01)	(-1.15)	(-3.09)	(-2.91)	(-2.78)	(-2.85)
POPGR	3.71***	3.54***	4.79***	5.06***	3.66***	3.59***
	(2.94)	(2.77)	(2.94)	(3.03)	(3.25)	(3.27)
GDPPC	0.66	0.70	4.50**	3.87**	0.99	0.92
	(0.69)	(0.75)	(2.57)	(2.30)	(1.38)	(1.28)
$GDPPC^2$	-0.03	-0.03	-0.31*	-0.27	-0.04	-0.034
	(-0.93)	(-0.97)	(-1.81)	(-1.57)	(-1.45)	(-1.35)
GOVTR	-0.18	-0.19	0.10	-0.09	-0.08	-0.13
	(-1.40)	(-1.52)	(0.49)	(-0.47)	(-0.71)	(-1.33)
OPEN	0.05	0.05	-0.01	-0.02	-0.003	-0.007
	(1.11)	(1.11)	(-0.86)	(-1.20)	(-0.21)	(-0.43)
COMP		2.09		4.59*		3.70***
		(1.19)		(1.75)		(2.71)
n	80	80	61	61	141	141
R^2 adj.	0.61	0.62	0.14	0.17	0.51	0.53

Notes:
T-statistics in parantheses:
*** statistically significant on the 99%-level
** statistically significant on the 95%-level
* statistically significant on the 90%-level

These results suggest that in democratic countries participation of the population in the form of organising interest groups and taking part in elections has an equalising effect on the income distribution because it leads to a larger part of the population being integrated into the political structure of a country and being able to influence the distribution of political income. In weakly democratic/authoritarian states, elections are often symbolic and do not influence the composition of the government or the outcome of policies and therefore do not allow the population to influence the political income distribution. The same seems to be true with regard to the organisation of interest groups. In weakly democratic states the interest groups that matter are often informal groups which are not taken into account here. Therefore it is likely that the impact of interest groups on income distribution is underestimated especially in weakly democratic countries.

The results in general show that participation of the population constitutes a link between the institutional structure of a country and the income distribution. Participation per se is more important than the institutional structure in its effect on income distribution, but the institutional structure influences the size of the effect of participation on income distribution. A more democratic institutional structure of a country leads to a larger effect of political participation on income distribution. The general results support Kuznets' notion about the importance of the working class' integration into the political structure of a country as a necessary condition for falling income inequality. The formation of interest groups such as trade unions seems to have an important equalising effect on the income distribution because it integrates the population into the political structure and allows them to influence the political income distribution. The results for the government transfers variable indicate that the resulting government transfers have an equalising effect on the income distribution. So redistribution by the state seems to go from richer to poorer segments of the population. Voter turnout seems to be less important than interest group formation for integrating the population into the political structure and equalising the income distribution. However, in a strong democratic setting, voter turnout has a more significant effect on income distribution because the institutional structure allows for the impact of voting on the political income distribution.

3.6. CONCLUDING REMARKS

The results of this study show that democratic institutions, i.e. civil liberties and political rights, alone are no guarantee for a more equal income distribution. Participation in the pure political term is more important for explaining income distribution differentials across countries than institutional

variables. The coefficient of the number of interest groups is robust and almost always significant. The coefficient of voter turnout is robust and significant in the strong democratic sample. Democratic participation in the form of being organised through interest groups and to a lesser extent taking part in elections has an equalising effect on the income distribution. The effect of interest groups on the integration of the population seems to be far stronger than the distortionary effect of interest groups through redistribution to themselves. Even if the ability of forming interest groups is far more unequally distributed in a society than resource endowments, the presence of interest groups integrates the population into the political structure of a country and allows them to influence the political income distribution. This influence leads to a variety of policy responses (transfers, legislation etc.). As the political income distribution becomes more equal so does the general income distribution.

The study presented here is one of only a few studies dealing with the institutional determination of income distribution and the first to measure the impact of interest groups on income distribution for a panel of countries. Further research on the topic of institutions and income distribution could focus on a more detailed analysis of the underlying political process and the interactions between groups and politicians regarding the political income distribution, taking into account further factors such as the voting system (proportional or majority voting), the origins and impacts of compulsory voting with regard to income distribution, the political system (direct versus representative democracy) and institutionally determined restrictions (the budget restriction, the administrative restriction and so on).

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