Chapter 5
Political Determinants of Income Inequality: Panel Analysis

Abstract Most previous studies on the determinants of income inequality across countries included emerging and advanced democracies in one sample, which raises concerns that the independent variables' effect might be largely attributed to the differences between the emerging and advanced democracies. This study mainly addresses variations among emerging democracies while also outlining the differences between emerging and advanced democracies. Thus, it investigates the effects of political market failure and weak state capacity upon income inequality using an unbalanced panel dataset for the 1985–2012 period for emerging democracies across continents ($N = 57$), advanced democracies ($N = 18$), and all democracies ($N = 75$). The fixed effects (FE) model with a lagged dependent variable (LDV) was adopted because it controls for the country-specific effects, captures the gradual nature of changes in income distribution, and errs on the conservative (underestimate) side in coefficient estimation. The dependent variable is the estimated after-tax Gini coefficient. The challenge of finding measurements of incremental and cumulative change in institutional quality was addressed by choosing (1) the age of the largest opposition party for political market and (2) higher-order lags of the Quality of Government indicator and the control of corruption for state capacity. The analysis demonstrated that both political market quality and state capacity reduce inequality; however, the latter takes more time to show its effect. The results were supported by robustness checks for influential observations and an alternative dependent variable.

Keywords Democracy · Inequality · Political market · Party competition · State capacity · Corruption · Developing countries

The previous chapter examined the formation of equality preferences. This chapter shifts the focus to policy formulation, implementation, and their outcomes. Most previous studies on the determinants of income inequality across countries included emerging and advanced democracies in one sample, which raises concerns that the independent variables' effects might be largely attributed to the differences between the emerging and advanced democracies. This study mainly addresses variations among emerging democracies while also outlining the differences between emerging and advanced democracies. Thus, it investigates the effect of political

market failure and weak state capacity upon income inequality using an unbalanced panel dataset for the 1985–2012 period for emerging democracies across continents ($N = 57$), advanced democracies ($N = 18$), and all democracies ($N = 75$). The fixed effects (FE) model with a lagged dependent variable (LDV) was adopted as it controls for the country-specific effects, captures the gradual nature of change in income distribution, and errs on the conservative (underestimate) side in coefficient estimation. The dependent variable is the estimated after-tax Gini coefficient. The challenge of finding measurements of incremental and cumulative change in institutional quality was addressed by choosing (1) the age of the largest opposition party for political market and (2) higher-order lags of the Quality of Government indicator and the control of corruption for state capacity. The analysis yielded strong evidence that political market quality and state capacity reduce income inequality; however, the latter takes more time to show its effect. Robustness checks for influential observations (regions and time periods) and an alternative dependent variable (the poorest 20 % of the population) supported these results.

5.1   Conceptualization: Political Market and State Capacity

5.1.1   Political Market: Programmatic Competition and Political Kuznets Curve

As Chap. 2 elaborated, political market quality depends on the clarity of party orientation and programmatic party competition. A lack of clarity in party orientation and programmatic competition implies that voters choose parties not as an indication of policy preferences but due to (provided or expected) patronage (Hagopian 2009). Although the dataset complied by Kitschelt (2014) includes variables for clientelistic and programmatic tendencies, those variables pertain to a single time point (2008 or 2009) and are thus time-invariant. The FE model adopted in the current analysis can incorporate only those variables that change over time. Among possible time-variant variables, the mean age of political parties is often used to measure party system institutionalization (Hanusch and Keefer 2014; Gehlbach and Keefer 2012).[1] This measurement, however, comprises two components that have contrasting effects on programmatic party competition. On the one hand, the age of the governing party may mirror the lack of competition in predominant party systems—a situation that often characterizes emerging democracies (Mozaffar and Scarritt 2005; Doorenspleet and Nijzink 2013)—whereas in competitive party systems, the age of the governing party may simply reflect maturity. The general effect of the governing party's age on party competition for

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[1]The mean age of political parties is defined as the mean of the ages of the first government party, second government party, and first opposition party (Beck et al. 2001).

all types of party systems can be either weakly negative or mixed. On the other hand, opposition parties are particularly ephemeral in those predominant party systems; most of them gradually disappear every election (Mozaffar and Scarritt 2005). In competitive party systems, too, the lack of left–right (programmatic) party competition gives birth to new radical opposition parties that channel voter grievances; the presence of established opposition parties is a strong indication of programmatic competition (Roberts 2013).

The age of major opposition parties—in particular, that of the largest opposition party—thus better captures the level of programmatic competition than that of the governing party or the mean age of political parties. The largest opposition party represents the core element of the opposition and the strongest challenge to the incumbent in programmatic competition. Using the largest opposition party's age avoids conflating one-party dominance with political market quality. This variable is valid even when the largest opposition party is a former regime party. Former regime parties are generally well organized and well-known by the voters; new incumbent parties therefore face serious electoral challenge to present a clear policy to the electorate (Croissant and Völkel 2012; Hicken and Kuhonta 2011; Smith 2005).

In a broader context of political market quality, some scholars suggest that the distributive effect of democratization changes over time. According to the political Kuznets curve theory, democratization initially expands the income gap between the rich and poor but eventually narrows it (Acemoglu and Robinson 2002; Chong 2004; Tam 2008). This argument, primarily based on Western European history prior to the early 20th century, highlights the impact of a gradual expansion of suffrage and education. Their expansion initially increases inequality because only the elite benefit from them; however, later, universal suffrage and mass education help to reduce inequality (Acemoglu and Robinson 2002; Bourguignon and Verdier 2000). Supportive findings were obtained from analyses of panel datasets that include both democratic and non-democratic countries covering the period from the 1960s to the mid-1990s (Chong 2004; Tam 2008).

However, in almost all emerging democracies and their non-democratic predecessors analyzed in this study for the 1985–2012 period, universal suffrage has been established. Geddes (2007) also highlights that numerous non-democratic regimes in the late 20th century pursued redistribution at the expense of traditional elites through land reform, expanded education, and industrialization. Moreover, compared with the datasets used by Chong (2004) and Tam (2008), the panel dataset used in this chapter encompasses longer periods of democracy than non-democracy. The poor were underrepresented because of the lack of parties that represent their interests under non-democratic systems. In this sense, democratization provides the electorate a greater choice of representatives. Thus, greater competition for public office realized by democratization does not privilege the rich as in the case of suffrage expansion; on the contrary, it favors the poor over the rich who enjoyed easier access to state authorities than the poor when electoral competition was restricted. Although the effect of democratization is expected to benefit the poor immediately rather than later, this study's analysis tests for the presence of a political Kuznets curve.

5.1.2 State Capacity: Corruption's Kuznets Curve

The effect of state capacity on income equality hinges substantially on controlling corruption. Corruption has been considered to aggravate inequality by increasing tax evasion, thus benefiting the rich while also reducing social expenditures designed to assist the poor. This claim, however, is supported only by cross-sectional studies (Gupta et al. 2002; Gyimah-Brempong and de Gyimah-Brempong 2006) or a panel analysis of 10-year interval first-differentiated data (Chong and Gradstein 2007). Panel analyses of data with time intervals of four or fewer years do not report such a monotone relationship (Andres and Ramlogan-Dobson 2011; Dobson and Ramlogan-Dobson 2012). Even among cross-sectional studies, Chong and Calderón (2000) demonstrate that institutional quality has an inverted-U curve effect on inequality, while deriving the contrasting conclusion that institutional quality increases equality in developed countries but reduces equality in developing countries. We argue that these puzzling results arise because, in the short term, the spurious positive effect of corruption on inequality overwhelms the genuine negative effect of corruption.

The spurious positive effect of corruption emerges for two reasons. First, redistributive policies aimed at reducing inequality inherently foment corruption; greater corruption thus appears to reduce inequality while, in reality, redistribution is the actual cause. Alesina and Angeletos (2005) indicate that large governments and redistributive policies induce corruption through tax loopholes, project allocations, and regulations that favor rent seekers. Second, policy measures to rein in corruption affect the poor by reducing the informal sector that most rely on to generate their incomes (Andres and Ramlogan-Dobson 2011; Dobson and Ramlogan-Dobson 2012; Balafoutas 2011).[2] de Freitas (2012) argues that a large informal economy, by evading income taxes, induces the government to resort to indirect taxes, which are theoretically more regressive than income taxes. In the same context, Mahon (2011) shows that tax reforms in Latin America increased inequality, apparently because they relied heavily on indirect taxes. Changes in corruption may thus reflect policies for reducing inequality or those for controlling corruption. While a reduction in corruption may contribute to income equality in the long run, policies that reduce corruption (or inequality) may increase inequality (or corruption), at least in the short term.

The current analysis tests our claims that (1) the contemporaneous effect of state capacity (including corruption) on income inequality is more spurious than real and (2) the long-term effect of state capacity on income inequality is negative. Although the negative effect of corruption on inequality was evidenced thus far only by cross-sectional studies or a panel analysis of very long-interval (10-year mean) data, we replicate that effect using an annual panel that includes levels of state capacity going more than four years back. The effect of state capacity reverses in its

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[2]For an empirical analysis of the informal economy, see Dreher and Schneider (2010), Blackburn and Forgues-Puccio (2009).

higher-order lags. The complex effect of state capacity is thus scrutinized in both the short and long term.

5.2   Research Design

5.2.1   Data and Samples

This study separately tests the effect of the three factors on income inequality for emerging democracies across continents ($N = 57$), advanced democracies ($N = 18$), and all democracies ($N = 75$), using an unbalanced panel dataset for the 1985–2012 period compiled from the Standardized World Income Inequality Database (SWIID), the International Country Risk Guide (ICRG), the Quality of Government Database, the World Development Indicators Database, and other sources. Democracies were defined as countries whose Polity2 score was at least 6 (in accordance with the definition of democracy in Polity IV) for any four consecutive years, which usually forms one presidential or legislative term, during the 2001–2012 period. This definition encompasses all democracies that have existed in the 21st century, including those that became a democracy or reverted to a non-democracy during the 12-year period. The democracies were then divided into (1) emerging democracies that became either independent after 1944 or democratic after 1959, and (2) advanced democracies that were both independent before 1945 and democratic prior to 1960. As exceptions to this definition, Colombia and Costa Rica were categorized as emerging democracies. See Table 5.1 for the sample of countries.

5.2.2   Panel Design

The panel analysis adopted the FE model with an LDV due to its better match with the current dataset in comparison with other models. Alternatives to the FE model such as a random effects model or a panel corrected standard errors (PCSE) estimation did not meet the dataset property. A random effects model was not chosen because the Breusch-Pagan test, by rejecting the null hypothesis of no dependence of variance on country, indicated that the independent variables were correlated with unobserved country effects. PCSE estimation is appropriate for a panel with a limited number of cross-sections for a long time period but not for a panel having more cross-sections than time points (Beck and Katz 1995), which is the case here. Hence, PCSE estimation was also rejected as an approach.

   The FE model mitigates a potential problem of selection bias arising from unbalanced panels (or different numbers of observations per country) such as this dataset, because the country-specific intercept, which represents unobserved effects, captures

Table 5.1 Number of observations by country for model 1 for all democracies in Table 5.5
(*N* = 1275)

		East Asia and Pacific	South Asia	Middle East	Sub-Saharan Africa	Europe	North America	Latin America and Caribbean
Emerging democracies (*n* = 854)								
1	Albania					8		
2	Argentina							22
3	Bangladesh		12					
4	Bolivia							9
5	Botswana				18			
6	Brazil							4
7	Bulgaria					19		
8	Chile							16
9	Colombia							13
10	Costa Rica							27
11	Croatia					10		
12	Cyprus					16		
13	Czech Republic					12		
14	Dominican Republic							12
15	Ecuador							18
16	El Salvador							15
17	Estonia					12		
18	Ghana				7			
19	Greece					24		
20	Guatemala							15
21	Guinea-Bissau				1			
22	Honduras							6
23	Hungary					19		
24	India		16					
25	Indonesia	24						
26	Israel			24				
27	Jamaica							2
28	Kenya				6			
29	Latvia					13		
30	Malawi				13			
31	Malaysia	27						
32	Mali				15			
33	Mexico							26
34	Mongolia	10						
35	Namibia				12			
36	Nicaragua							15
37	Niger				4			
38	Panama							17
39	Paraguay							20

		East Asia and Pacific	South Asia	Middle East	Sub-Saharan Africa	Europe	North America	Latin America and Caribbean
40	Peru							24
41	Philippines	12						
42	Poland					15		
43	Portugal					24		
44	Romania					20		
45	Russia					13		
46	Senegal				13			
47	Slovenia					12		
48	South Africa				16			
49	South Korea	27						
50	Spain					27		
51	Sri Lanka		13					
52	Thailand	17						
53	Trinidad and Tobago							13
54	Turkey					23		
55	Ukraine					11		
56	Uruguay							14
57	Zambia				1			
Region total		117	41	24	106	278	0	288
Advanced democracies (n = 421)								
1	Australia	17						
2	Austria					27		
3	Belgium					9		
4	Canada						13	
5	Denmark					26		
6	Finland					27		
7	France					27		
8	Germany					20		
9	Ireland					27		
10	Italy					27		
11	Japan	25						
12	Netherlands					23		
13	New Zealand	27						
14	Norway					27		
15	Sweden					27		
16	Switzerland					22		
17	United Kingdom					27		
18	United States						23	
Region total		69	0	0	0	316	36	0

the idiosyncratic likelihood of absent observations (Wooldridge 2013, pp. 473–74). Furthermore, the FE model can accommodate an LDV model, which has three appealing properties in the context of the current research. First, the model is appropriate for situations where the effect of a change in an independent variable is distributed over time. Second, although the inclusion of an LDV makes the FE (and OLS) estimator inconsistent, the FE (not OLS) estimator becomes consistent when T becomes large. An appropriate value for T is 20 or greater according to Beck and Katz (2011, p. 342) while Baltagi (2008, p.148) cites an example of relatively consistent estimators when T reaches 30.[3] As the mean observation per country in the dataset is 14.9 for the emerging democracies and 16.9 for all democracies, potential estimator inconsistency should be far from serious.[4] Third, misspecification in the LDV model would lead to underestimation rather than overestimation of regression coefficients (Beck and Katz 2011, p. 336).[5] This tendency for underestimation prevents us from erroneously asserting significant impacts of the variables of interests.

In sum, the FE model with a LDV has three major advantages over other models. First, it enables addressing the question of whether socioeconomic and political changes account for incremental change in each country's income distribution. Second, it controls for country-specific conditions such as colonial experiences and path dependence more generally; it also reduces the selection bias inherent in unbalanced panels. These features of the model well serve the major interest of this study, which is to determine the impact of political and economic reform on income equality in emerging democracies and not to undertake a comparison of income equality among countries at different levels of democracy. Third, conservative estimates of variable coefficients deter a false claim of new evidence. Such caution is all the more necessary when the operational hypotheses rest on less-than-solid ground. The FE model with a LDV used here takes the following form:

$$DV_{i,t} = \alpha + \beta_1(DV_{i,t-1}) + \beta_2(IV1_{i,t-1}) + \beta_3(IV2_{i,t-1}) + \ldots + \beta_k(IVh_{i,t-1}) + \upsilon_i + \gamma_t + \varepsilon_{i,t}$$

where $DV_{i,t}$ is a measure of the dependent variable in country i in year t, $IV1$, $IV2$, … IVh with h independent variables, α is the intercept, β_k are k coefficients to be estimated, υ_i are fixed group effects, γ_t are fixed time effects, and $\varepsilon_{i,t}$ is a white-noise error term.

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[3]Baltagi (2008) also shows that a random effects model may be erroneously rejected by the Hausman test when endogeneity is present and that a 2SLS random effects model is a better alternative in such circumstances.

[4]The robustness check for endogeneity using the Blundell and Bond System GMM estimator was initially considered. It is a superior extension of the Arellano and Bond GMM estimator, especially when the number of time points is small (Baltagi 2008, 160–162). However, using the SWIID for model estimation requires multiple imputations to incorporate into an analysis the standard errors for SWIID estimates. In STATA, multiple imputations are possible only for FE or random effects models, not for GMM estimators.

[5]Similarly, Angrist and Pischke (2009, 243–46) recommends adopting the FE and LDV models, respectively, to obtain the upper and lower bounds of the estimates.

Table 5.2 Variables and data sources

Variable name	Source
Gini net (Gini after tax)	Solt (2009)
Income share held by the lowest 20 % of the population	World Bank
GDP per capita logged, constant US$	World Bank
Inflation (%)	World Bank
School enrollment secondary (% net)	World Bank
Urban population (% of total)	World Bank
Trade openness	World Bank
Foreign direct investment net inflows (% of GDP)	World Bank
ICRG Indicator of Quality of Government	Teorell et al. (2013)
Control of corruption	PRS (2013)
Ethnic peace	PRS (2013)
Age of largest opposition party	Keefer (2012)
Freedom House/Imputed Polity2	Teorell et al. (2013)

5.2.3 Variables

Table 5.2 presents the variables and their data sources. The variables of interest are political variables whereas control variables comprise economic, demographic, and year or group dummy variables. All independent variables (variables of interest and control variables) were lagged by one year in the standard specification of the model. The variables for which there are concerns about endogeneity—such as the Quality of Government (QOG) indicator, corruption, and logged GDP per capita—were lagged by more years in extended models (see below).

Dependent Variable

The dependent variable, the after-tax Gini coefficient, is derived from the SWIID compiled by Solt (2009), who estimated before-tax ("market") and after-tax ("net") Gini coefficients as well as changes in the Gini coefficient after taxation ("redistribution") using the World Income Inequality Database (UNU-WIDER 2008), the Luxemburg Income Study Database (LIS 2008), and more recent country-specific databases. In this study, the estimated before-tax Gini coefficient and the estimated redistribution were also used as alternative dependent variables; however, the estimated after-tax Gini coefficient returned the most substantive results. As a robustness check, the income share held by the lowest 20 % of the population was used as an alternative dependent variable.

Political Market

The quality of political market was measured by the age of the largest opposition party (Beck et al. 2001). The relative validity of the largest opposition party variable in comparison with alternative party age variables, such as the mean party age,

Table 5.3 Pearson correlation coefficients for party age variables and legislative polarization, all democracies ($N = 1912$)

	Polarization	
	3-level	Binary
Party age		
Largest opposition party	0.20	0.19
Three major parties, mean	0.17	0.13
Largest governing party	0.14	0.09
Executive party	0.14	0.08
Party age logged		
Largest opposition party	0.23	0.21
Three major parties, mean	0.19	0.14
Largest governing party	0.13	0.08
Executive party	0.10	0.05

Source Compiled by the author from the dataset
Note Calculated for country-year observations for advanced and emerging democracies. The three-level polarization score is the original data whereas the binary polarization score was generated by collapsing categories one and two, thus having values of only zero or one

the age of the executive party, or the age of the largest government party, can be checked by examining whether the relevant party age is associated with economic policy competition between the incumbent and opposition. Economic policy competition was measured by the (legislative) polarization variable (Beck et al. 2001). Despite its connotation, the polarization variable indicates whether party competition in the legislature is either left versus right (=2), center versus left or center versus right (=1), or no programmatic competition (=0).[6] The correlation Table 5.3 demonstrates that the age of the largest opposition party is more strongly associated with polarization than any other party age variable regardless of logarithmic transformation or recoding of those variables. The alternative party age variables as well as corresponding party seat variables were also used for preliminary panel analyses but none of them had a significant effect on income inequality.

As an alternative measurement of political market quality, the Freedom House/Imputed Polity2 variable in the Quality of Government Database (Teorell et al. 2013) was adopted, which is calculated as a composite indicator of the Freedom House score and Polity score. Freedom House uses minority rights as one criteria when calculating its score. The question on its checklist most relevant to

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[6] By definition, the polarization variable represents the "[m]aximum polarization between the executive party and the four principle parties of the legislature" (Keefer 2012, p. 19). As the polarization score is calculated as the difference between the executive party's economic orientation (1 = right, 2 = center, 3 = left) from that of any of the four principle parties whose economic orientation differs most from the former, the score yields values of zero, one, or two. The polarization variable was not used as an independent variable for the analysis in this chapter because it has low variation characterized by 63 % of the entire sample and 74 % of the emerging democracy sample having a value of zero.

minority rights asks, "Do cultural, ethnic, religious, or other minority groups have full political rights and electoral opportunities?"[7] In contrast, the Polity score focuses on checks and balances in political institutions but does not explicitly specify any element of minority rights. This composite variable thus captures political competition and minority representation in a balanced way. Although this variable is less focused on the level of programmatic party competition compared with the age of the largest opposition party, the fact that it comprehensively measures political competition among political parties and groups allows for testing the political Kuznets curve hypothesis that democratization initially increases income inequality because only the privileged enjoy political participation at its early stage (Acemoglu and Robinson 2002).

State Capacity

The effect of state capacity was measured by the Quality of Government (QOG) indicator (Teorell et al. 2013), calculated from three variables included in the International Country Risk Guide (ICRG) dataset (PRS 2013)—control of corruption (a ratio scale ranging from one to six), the rule of law (a ratio scale ranging from one to six), and bureaucratic quality (a ratio scale ranging from one to four)—and standardized to range between 0 and 1. The variables in the ICRG dataset are compiled by the Political Risk Service (PRS) using specialist evaluations of various political and economic risks of the countries around the world.[8] Among the three variables that form the QOG indicator, the control of corruption can have the most influential effect. QOG was thus replaced with the control of corruption per se in alternative models. The contemporaneous effect of state capacity was measured by the first lag of QOG or the control of corruption. Its long-term effect was gauged using different higher-order lags as well as means for five consecutive higher-order lags of QOG or the control of corruption.

Ethnic Peace

This study assumes that multidimensionality is a more proximate cause of policy input (preference formation) than that of policy outcome (redistribution or inequality reduction). The previous chapter demonstrated that the multidimensionality of policy issues, operationalized by ethnic fractionalization, discourages the formation of preferences for income equality. However, it does not preclude

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[7]See the fourth question under the category of political pluralism and participation in the Checklist Questions and Guidelines (Freedom House 2011).

[8]Broad definitions of the variables are made public in the PRS website but their coding rules are not disclosed for the purpose of protecting the originality of its models, according to the answers given by the PRS to the authors' request for clarification of the coding rules.

ethnic fractionalization from affecting income equality (1) directly or (2) indirectly through preferences. There is cross-national evidence that ethnic fractionalization negatively affects redistribution or income equality (Alesina and Glaeser 2005, pp.140–43; Huber and Stephens 2012, p. 145). While it is necessary to examine the (direct or indirect) effect of ethnic fractionalization on income equality, the fixed effects model adopted in this chapter cannot accommodate time-invariant variables such as ethnic fractionalization.

Instead, the following analysis redirects the focus onto an activation of multidimensionality. An activation of multidimensionality, measured by ethnic tensions, may exacerbate income inequality by facilitating ethnic-based coalitions rather than lower-income coalitions. Two caveats must be highlighted. First, although an activation of multidimensionality is not independent of ethnic fractionalization (because societies that are purely homogeneous in terms of ethnic groups cannot have ethnic tensions), it cannot be assumed that ethnically more heterogeneous countries trend to have greater ethnic tensions. Second, an activation of multidimensionality in ethnically heterogeneous countries may have a different effect on income inequality than in ethnically homogeneous counties. The analysis of activated multidimensionality is thus not a substitute for the analysis of multidimensionality per se; it involves more uncertainties and is more explorative than the latter. The variable that measures the absence of ethnic tensions is available at the PRS (2013). This variable, renamed in the current study as ethnic peace, measures tensions in a country that arise from racial, ethnic, or linguistic differences at a ratio scale ranging from one (the highest level of ethnic tensions) to six (the lowest level) in the same manner as used for the control of corruption variable.

Control Variables

Control variables were chosen in accordance with the literature (see Table 5.4). The following variables were used as correlates of income inequality (expected effects shown in parentheses): the logarithm of real GDP per capita (+) and its square (−), inflation (+), secondary school enrollment (−), the young population (−), the old population (+), the urban population (−), trade openness (±), and foreign capital investment (±).[9] Year dummies control for concurrent shocks (e.g., a world economic crisis) and time trends (e.g., neo-liberalism). Kuznets (1955) argued that economic development has an inverted-U curve effect on income inequality but there have been few panel studies to support his theory; most of the supporting evidence is derived from cross-section studies that are prone to unobserved

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[9]There are contrasting theories and mixed evidence regarding the effect of trade openness and foreign direct investment (Reuveny and Li 2003; Lee et al. 2007; Meschi and Vivarelli 2009; Ha 2012; Franco and Gerussi 2013; Goldberg and Pavcnik 2007).

Table 5.4 Cross-section time-series studies on democracy, social spending, and income distribution in developing countries

Author	Theoretical argument	Dependent variable	Independent variable[a]	Control	Panel model	Sample size	Period
Brown and Hunter (1999)	Authoritarian regimes are more sensitive to economic constraints; democratic regimes are more sensitive to political constraints	Social spending per capita	GDP per capita ▲ (if authoritarian), change in GDP per capita, debt service ratio, population over 55 ▲ (if democratic)	Inflation (dropped due to insignificance)	OLS with PCSE	17: Latin America	1980–1992
Lake and Baum (2001)	Uncontestable political markets provide more rents and less public services than contestable political markets	Secondary education enrollment, safe water access, measles/DPT immunization, infant mortality	Optimally lagged democracy index × |change in optimally lagged democracy index|▲	Per capita GNP, land area, population, urban population, OECD member	GEE with AR(1) and RSE	Max: 110	Max: 1975–1995, annual, or 3- or 5-year mean
Kaufman and Segura-Ubiergo (2001)	Efficiency (not compensation) effects globalization	Central government aggregate social welfare spending (% of GDP, % of total government spending, per capita)	Trade ▼, capital flow, democracy, president from a popular-based party	GDP per capita, output gap, population over 65, revenues	OLS with PCSE,[b] lagged DV, IVs as lags and changes, and two-way fixed effects[c]	14: Latin America	1973–97
	Labor-based presidents protect pensions	Central government social security spending	Trade ▼, capital flow, lagged democracy ▼, president from a labor based-party ▲				
	Democratic regimes favor human capital spending	Central government health and education spending	Trade, capital flow, lagged democracy ▲, president from a popular-based party ▼				

Table 5.4 (continued)

Author	Theoretical argument	Dependent variable	Independent variable[a]	Control	Panel model	Sample size	Period
Rudra (2002)	Unskilled and unorganized labor fails to demand welfare spending	Central government social welfare spending (% of GDP, % of total government spending, per capita)	Potential labor power ▲, PLP × trade ▼,[d] PLP × capital flow CF ▼, democracy ▲	Young and aged dependents, urbanization, GDP per capita, GDP growth, debt, privatization	Country-fixed effects with lagged DV, 2S LS	53: Eastern Europe excluded	1972–95
Rudra (2004)	Social spending in developed countries protects the poor	Gini coefficient	Trade/GDP, portfolio flows, social security and welfare spending per capita ▼, education spending per capita ▼, health spending per capita	Real GDP growth rate, population over 65, decade dummies	2SLS, Prais-Winsten estimates, PCSE	11: OECD	1972–96
	Social spending in developing countries favors the better off, with social security, health, and education spending, in descending order, providing the greatest benefit; the variation in the unegalitarian effect of the three spending items depends on the difficulty in forming cross-class coalitions	Gini coefficient, bottom quintile income share	Trade/GDP ▲, portfolio flows, social security and welfare spending per capita ▲, education spending per capita ▲, health spending ▲, Trade/GDP × social security and welfare spending per capita ▲, Trade/GDP × education spending per capita ▼, Trade/GDP × health spending ▼, democracy ▼	GDP per capita, GDP per capita,[b] population over 65, urbanization, decade dummies		35: Developing countries	1972–96

Table 5.4 (continued)

Author	Theoretical argument	Dependent variable	Independent variable[a]	Control	Panel model	Sample size	Period
Avelino et al. (2005)	Trade openness (for globalization) is better measured using PPP than dollar.	Public aggregate social welfare spending	Trade openness in PPP ▲, capital mobility, democracy ▲,[e] trade openness × democracy ▲, capital mobility × democracy ▲	Population over 65, unemployment, GDP in PPP per capita, change in GDP in PPP per capita, inflation, urban population, debt service ratio	OLS with PCSE, lagged DV, and two-way fixed effects	19: Latin America	1980–99
	Democracy is sensitive to interests with a large constituency	Public education spending	Trade openness in PPP ▲, capital mobility, democracy ▲				
		Public health spending	Trade openness in PPP, capital mobility, democracy				
	Democracies cannot slash spending for a small group of supporters	Public social security spending	Trade openness in PPP ▲, capital mobility, democracy ▼				
Huber et al. (2006)	Long experience with democracy and leftist control of the legislature reduce inequality; social security and welfare spending is unegalitarian	Gini coefficient	Cumulated democracy indicator ▼, health and education spending/GDP, social security and welfare spending/GDP, legislative partisan balance ▼, democracy × social security and welfare spending ▼	GDP per capita, net secondary school enrollment, sector dualism,[f] inflation, youth population, stock of FDI, ethnic heterogeneity, repressive authoritarianism	OLS with robust-cluster standard errors (same results with PCSE, OLS, and REM)	18	1970–2000
Ross (2006)	Health spending benefits the middle- and upper-income households by subsidizing their health expenditure rather than targeting the poor	Infant and child mortality	Democracy indicator, democratic years	Period dummies, income per capita, economic growth, population density, HIV prevalence[g]	OLS with PCSE, country-fixed effects	168: Including high performing authoritarian regimes	1970–2000: five-year panel

(continued)

Table 5.4 (continued)

Author	Theoretical argument	Dependent variable	Independent variable[a]	Control	Panel model	Sample size	Period
Lee et al. (2007)	Taxation and social spending mitigate the negative effect of foreign capital penetration on income equality	Gini coefficient[h]	GDP per capita ▲▼, export commodity concentration ▼, foreign trade structure[i], stock per capita ▲▼, public sector size × FDI ▼	Sector dualism, labor force share in agriculture, natural rate of population growth, secondary school enrollment ratio	Random effects (also fixed effects for baseline models)	60: 15 developed countries and 45 non-communist developing countries	1970–94
Huber and Stephens (2012)	Democracy and left political power are positively associated with education and health spending	Education spending, Health spending, Social security and welfare spending	Democracy (cumulative since 1945) ▲, long-term democracy (democracy minus 20), left political strength, repressive authoritarianism (cumulative over the past 15 years) ▶	GDP per capita, female labor force, youth population, urban population, ethnic diversity, FDI stock, external debt, trade openness, IMF program (cumulative), FDI inflows, industrial employment, veto points (constitutional), budget deficits	OLS with PCSEs and Prais-Winsten estimates	18: Latin America	1970–2007
	Education and health spending improves income equality by enriching human capital but social security and welfare spending contributes to income equality only under democracy	Percentage of the households living in poverty	Democracy (cumulative since 1945) ▼, long-term democracy (democracy minus 20) ▼, left political strength ▼, education spending (cumulative average/GDP), health spending (cumulative average/GDP) ▼, average years of education ▼, social security and welfare spending (current/GDP) ▶	GDP per capita, Gini, informal employment, inflation, female labor force, youth population, ethnic diversity, FDI stock, external debt, trade openness, IMF program (cumulative), FDI inflows, industrial employment			

Table 5.4 (continued)

Author	Theoretical argument	Dependent variable	Independent variable[a]	Control	Panel model	Sample size	Period
		Gini coefficient	Democracy (cumulative since 1945) ▼, long-term democracy (democracy minus 20) ▼, left political strength ▼, education spending (cumulative average/GDP), health spending (cumulative average/GDP), average years of education ▼, social security and welfare spending (current/GDP) × democracy ▼	Sector dualism, inflation, female labor force, youth population, ethnic diversity, FDI stock, external debt, trade openness, IMF program (cumulative), FDI inflows, informal employment, industrial employment			

[a]Democracy or democratic indicators are included even if they are control variables in the cited studies

[b]On the right side of the equation, the dependent variable is a change value

[c]Angrist and Pischke (2009, 243–247) warned against an OLS model that combined FE with an LDV because the error term is correlated with the LDV. They recommend estimation using alternative models

[d]Potential labor power = skilled-to-unskilled labor ratio/surplus labor ratio

[e]The democracy indicator (continuous measurement) returned similar results

[f]Sector dualism was measured by the absolute difference between the percentage of the labor force in agriculture and agriculture as a share of GDP. The absolute difference was probably taken because the sector dualism variable was initially accompanied by the variable for employment in agriculture, which was subsequently dropped from the final models

[g]HIV prevalence represents health threatening conditions that are largely beyond the government's control

[h]Twelve technical indicator variables were used to incorporate various estimation methods and sources shown in the World Income Inequality Database (WIID)

[i]Foreign trade structure is maximized (minimized) when the country imports (exports) raw materials and exports (import) manufactured goods

Source Compiled by the author

Notes ▲ = positive effect. ▼ = negative effect. ▲▼ = inverted-U curve effect. No sign = insignificant effect. These signs indicate that all the models run returned coefficients with these signs and at least the majority of those coefficients were statistically significant

PCSEs Panel corrected standard errors for cross-sectional time-series data. PCSEs adjust for contemporaneous correlation of the error terms, but also require prior control for any serial correlation of the error terms (Beck and Katz 1995); AR(1): First-order autoregressive model; *RSE* Robust standard errors; *REM* Random effects model; *OLS* Ordinary least squares model; *2SLS* Two-stage least squares model; *GEE* Generalized estimating equation model

country-specific effects [see the review by Tam (2008)].[10] Among the control variables, young and old age groups in the population had inconsistent estimates for different models within the same sample. Therefore, the two variables were dropped from the final models shown in the results section. The data source for these control variables is the World Development Indicator Dataset.

Previous studies also included variables related to social expenditures but these were not used in the current analysis for the following reasons. First, although social spending data are available from the IMF's Government Financial Statistics (GFS), significant discrepancies exist in the GFS data compiled before and after 1990. Specifically, in the post-1990 dataset, two different values were recorded to reflect both accrual and cash basis accounting.[11] One problem is that most records on cash-based activities do not include non-monetary flows, whereas those on the accrual basis include both monetary and non-monetary flows. For each country, data entries do not necessarily follow the accrual-based system, the cash-based system, or either in a consistent manner. Second, the above dataset has a large number of missing values for emerging democracies, which would significantly reduce their sample size. Third, previous studies indicate that democratic developing countries have higher social spending than non-democratic developing countries (Kaufman and Segura-Ubiergo 2001; Rudra 2002; Avelino et al. 2005) but income equality does not significantly differ between the two groups of countries (Lake and Baum 2001; Rudra 2004; Huber et al. 2006; Ross 2006; Lee et al. 2007). In particular, Huber and Stephens (2012) showed that social spending had no significant effect on income equality in Latin American countries. Therefore, it was judged more reasonable to drop social spending variables and retain the current sample size than to include them and reduce the sample size.

5.3   Results

The results of multiple imputations using the FE model with an LDV are presented in Table 5.5. Models 1 and 2 estimated short-term effects of the independent variables that were lagged by one year. Models 3 through 6 examined the long-term effect of state capacity. The six models were run for the three samples, namely, all democracies, emerging democracies, and advanced democracies. This section concentrates on results for emerging democracies while referring to the differences from the other two samples. The last two models for advanced democracies could

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[10]Kuznets (1955) suggested that economic growth initially increases inequality much more in developing than developed countries because the dearth of the middle class in the former concentrates more wealth in the hands of the rich.

[11]Spending calculated on an accrual basis is recorded "at the time the economic value is created, transformed, exchanged, transferred, or extinguished," whereas spending calculated on a cash basis is recorded "when the cash is received or disbursed" (International Monetary Fund 2001, pp. 28–29).

not be estimated because the set of omitted variables or categories was inconsistent for some imputations. This problem emerges when multiple imputations are applied to a small sample.

5.3.1 Political Market

The age of the largest opposition party—as the political market variable—has a negative effect on income inequality for the all democracies or emerging democracies groups at the 0.05 or 0.10 significance level depending on the model but not in advanced democracies as their political market quality is invariably very high. The Freedom House/Imputed Polity2 variable also has a negative effect on inequality in all or emerging democracies. Simultaneously, the effect of the Freedom House/Imputed Polity2 squared variable is positive. This indicates that democratization reduces inequality, at least at its initial phase. This difference from the earlier findings on the political Kuznets curve might be explained by the greater proportion of non-democracy observations in the previous studies than in this study. Furthermore, for the current sample, the effect of political market quality on inequality becomes positive only at the highest level that might be associated with growing income inequality in advanced democracies. In emerging democracies, therefore, even though democracy is immature, enhancing political competition and minority rights ensures greater income equality (Table 5.6).

5.3.2 State Capacity

The effect of state capacity, when measured by the QOG variable, on income inequality has an inverted-U curve, a finding that reflects the fact that the QOG variable and its square have positive and negative effects, respectively, as shown in Model 1.[12] The inverted-U curve is still present when the QOG variable is replaced with the control of corruption variable (Model 2) (or with Transparency International's Corruption Perception Index, the results of which are not shown in this study). The inverted-U curve effect of state capacity on inequality was reported by Chong and Calderón (2000) for cross-section data, but this study corroborates these earlier findings with a panel data. These findings are congruent with the argument made earlier in this study that the control of corruption spuriously increases inequality in the short term.

In the long term, however, the quality of government (or control of corruption) contributes to income equality. Models 3 through 6 demonstrate that the quality of

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[12]These effects remained intact when the logarithm of GDP per capita and its square, which controlled for the (orthodox) Kuznets curve effect, were dropped from the model.

Table 5.5 Estimation results

	All democracies					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
L. Gini net	0.863***	0.860***	0.819***	0.818***	0.838***	0.835***
	(0.0159)	(0.0158)	(0.0244)	(0.0244)	(0.0195)	(0.0194)
L. GDP per capita logged constant US$	1.412	3.716*	0.499	0.462	1.978	1.711
	(2.044)	(2.089)	(3.566)	(3.604)	(3.235)	(3.259)
L. GDP per capita logged constant US$ squared	-0.0660	-0.202*	0.0126	0.0205	-0.0819	-0.0640
	(0.110)	(0.114)	(0.200)	(0.202)	(0.177)	(0.179)
L. Inflation	0.0000464	-0.0000366	-0.00223	-0.00241*	-0.00197	-0.00208
	(0.000273)	(0.000273)	(0.00136)	(0.00137)	(0.00132)	(0.00133)
L. School enrollment secondary	-0.0105*	-0.0118**	-0.00960	-0.0111	-0.0132*	-0.0141**
	(0.00568)	(0.00562)	(0.00751)	(0.00758)	(0.00674)	(0.00678)
L. Urban population	-0.0271	-0.0233	-0.125***	-0.119**	-0.0826**	-0.0781**
	(0.0236)	(0.0235)	(0.0470)	(0.0469)	(0.0385)	(0.0384)
L. Trade openness	-0.00322	-0.00333	-0.00728	-0.00662	-0.00639	-0.00584
	(0.00422)	(0.00422)	(0.00626)	(0.00629)	(0.00534)	(0.00536)
L. Foreign direct investment net inflows	0.0185	0.0187	0.0204*	0.0179	0.0178	0.0172
	(0.0118)	(0.0118)	(0.0121)	(0.0122)	(0.0121)	(0.0122)
L. Age of largest opposition party	-0.00329*	-0.00356**	-0.00416**	-0.00369*	-0.00448**	-0.00429**
	(0.00169)	(0.00168)	(0.00197)	(0.00197)	(0.00189)	(0.00189)
L. Quality of Government	8.647***					
	(2.419)					
L. Quality of Government squared	-6.344***					
	(1.925)					
L. Quality of Government mean for 6th-10th lags			-4.136***			
			(0.917)			
L8. Quality of Government					-2.790***	
					(0.697)	
L. Control of corruption		1.140***				
		(0.307)				
L. Control of corruption squared		-0.156***				
		(0.0413)				
L. Control of corruption mean for 6th-10th lags				-0.480***		
				(0.120)		
L8. Control of corruption						-0.313***
						(0.0847)
L. Ethnic peace	0.0251	0.0439	-0.0333	-0.0494	-0.0495	-0.0555
	(0.0787)	(0.0790)	(0.123)	(0.123)	(0.102)	(0.102)
Constant	-2.623	-11.36	13.72	12.55	3.738	4.026
	(9.209)	(9.494)	(15.94)	(16.03)	(14.60)	(14.69)
Observations	1275	1275	913	913	1008	1008

Notes Standard errors in parentheses.* $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

| Emerging democracies | | | | | | Advanced democracies | | | |
Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 1	Model 2	Model 3	Model 4
0.855***	0.847***	0.810***	0.806***	0.833***	0.828***	0.888***	0.892***	0.871***	0.858***
(0.0194)	(0.0195)	(0.0278)	(0.0277)	(0.0228)	(0.0226)	(0.0210)	(0.0208)	(0.0324)	(0.0345)
1.976	3.793	0.240	0.264	3.029	2.637	-4.273	-5.630	-21.94	-23.72
(3.018)	(2.990)	(5.206)	(5.215)	(4.811)	(4.826)	(11.72)	(12.03)	(16.76)	(16.90)
-0.0817	-0.195	0.0753	0.101	-0.107	-0.0673	0.140	0.220	1.009	1.086
(0.172)	(0.171)	(0.306)	(0.307)	(0.278)	(0.279)	(0.565)	(0.579)	(0.804)	(0.811)
0.0000459	-0.0000343	-0.00219	-0.00245	-0.00182	-0.00203	-0.0349**	-0.0349**	-0.0245	-0.0282
(0.000294)	(0.000294)	(0.00157)	(0.00157)	(0.00151)	(0.00151)	(0.0172)	(0.0172)	(0.0197)	(0.0199)
-0.0100	-0.0134	0.00614	0.0101	0.00250	0.00453	-0.00664	-0.00720*	-0.0140***	-0.0118**
(0.0102)	(0.0102)	(0.0150)	(0.0149)	(0.0127)	(0.0127)	(0.00433)	(0.00434)	(0.00464)	(0.00479)
-0.0325	-0.0259	-0.170***	-0.155**	-0.119**	-0.109**	0.0120	0.0130	-0.00114	0.0265
(0.0322)	(0.0320)	(0.0648)	(0.0643)	(0.0524)	(0.0522)	(0.0220)	(0.0217)	(0.0320)	(0.0334)
-0.00518	-0.00599	-0.0102	-0.00957	-0.00909	-0.00870	0.00631	0.00700	0.00763	0.00713
(0.00529)	(0.00521)	(0.00788)	(0.00790)	(0.00667)	(0.00668)	(0.00480)	(0.00485)	(0.00542)	(0.00543)
0.0296*	0.0255	0.0314*	0.0299	0.0261	0.0264	0.00476	0.00393	0.00662	0.00775
(0.0177)	(0.0176)	(0.0184)	(0.0184)	(0.0183)	(0.0183)	(0.0104)	(0.0104)	(0.00912)	(0.00912)
-0.00483*	-0.00472*	-0.00634**	-0.00590**	-0.00675**	-0.00668**	-0.000466	-0.000287	0.000970	0.00117
(0.00259)	(0.00258)	(0.00291)	(0.00290)	(0.00283)	(0.00282)	(0.00134)	(0.00135)	(0.00140)	(0.00140)
8.055***						6.171			
(2.997)						(5.365)			
-6.296**						-3.098			
(2.609)						(3.327)			
		-3.692***						-1.109	
		(1.171)						(1.531)	
				-2.470***					
				(0.879)					
	1.344***						0.212		
	(0.432)						(0.338)		
	-0.206***						-0.0205		
	(0.0630)						(0.0386)		
			-0.522***						0.132
			(0.158)						(0.120)
					-0.359***				
					(0.113)				
0.120	0.0964	0.0777	0.0833	0.0459	0.0467	-0.0316	-0.0323	-0.161*	-0.175**
(0.112)	(0.111)	(0.183)	(0.183)	(0.145)	(0.146)	(0.0799)	(0.0812)	(0.0869)	(0.0867)
-4.522	-10.71	13.07	10.18	-1.480	-2.128	29.32	37.06	125.7	132.1
(13.18)	(13.13)	(22.75)	(22.63)	(21.06)	(21.02)	(61.05)	(62.61)	(87.67)	(88.10)
854	854	621	621	688	688	421	421	292	292

Table 5.6 Estimation results with an alternative political market quality measurement: Freedom House/Imputed Polity2

	All democracies					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
L. Gini net	0.872***	0.871***	0.829***	0.829***	0.849***	0.848***
	(0.0137)	(0.0136)	(0.0232)	(0.0231)	(0.0193)	(0.0192)
L. GDP per capita logged constant US$	1.254	3.178	1.343	0.920	0.524	0.358
	(1.878)	(1.942)	(3.497)	(3.558)	(3.164)	(3.198)
L. GDP per capita logged constant US$ squared	-0.0448	-0.160	-0.0631	-0.0375	0.0117	0.0194
	(0.104)	(0.108)	(0.197)	(0.201)	(0.175)	(0.177)
L. Inflation	0.0000646	0.000000167	-0.00197	-0.00219	-0.00181	-0.00194
	(0.000270)	(0.000269)	(0.00133)	(0.00134)	(0.00135)	(0.00136)
L. School enrollment secondary	-0.00948*	-0.0107*	-0.0103	-0.0112	-0.00966	-0.0105
	(0.00563)	(0.00555)	(0.00745)	(0.00750)	(0.00679)	(0.00680)
L. Urban population	0.000119	0.000937	-0.0738*	-0.0691*	-0.0475	-0.0446
	(0.0218)	(0.0216)	(0.0417)	(0.0417)	(0.0353)	(0.0353)
L. Trade openness	-0.00343	-0.00323	-0.00473	-0.00470	-0.00564	-0.00554
	(0.00377)	(0.00375)	(0.00583)	(0.00586)	(0.00507)	(0.00507)
L. Foreign direct investment net inflows	0.00254	0.00263	0.00284	0.00261	0.00249	0.00240
	(0.00485)	(0.00484)	(0.00459)	(0.00461)	(0.00480)	(0.00480)
L. Freedom House/Imputed Polity2	-0.882***	-0.867***	-1.377***	-1.327***	-1.100***	-1.087***
	(0.228)	(0.226)	(0.358)	(0.356)	(0.289)	(0.288)
L. Freedom House/Imputed Polity2 squared	0.0600***	0.0601***	0.0985***	0.0930***	0.0823***	0.0797***
	(0.0185)	(0.0184)	(0.0293)	(0.0291)	(0.0231)	(0.0230)
L. Quality of Government	6.938***					
	(2.080)					
L. Quality of Government squared	-4.838***					
	(1.704)					
L. Quality of Government mean for 6th-10th lags			-3.584***			
			(0.849)			
L8. Quality of Government					-1.931***	
					(0.660)	
L. Control of corruption		0.946***				
		(0.260)				
L. Control of corruption squared		-0.130***				
		(0.0358)				
L. Control of corruption mean for 6th-10th lags				-0.422***		
				(0.113)		
L8. Control of corruption						-0.234***
						(0.0815)
L. Ethnic peace	-0.0836	-0.0454	-0.0521	-0.0618	-0.129	-0.125
	(0.0725)	(0.0721)	(0.116)	(0.116)	(0.102)	(0.102)
Constant	-0.834	-8.150	12.47	13.41	9.264	9.765
	(8.308)	(8.620)	(15.41)	(15.57)	(14.09)	(14.20)
Observations	1445	1445	967	967	1082	1082

Notes Standard errors in parentheses.* $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Emerging democracies						Advanced democracies			
Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 1	Model 2	Model 3	Model 4
0.869***	0.865***	0.825***	0.822***	0.847***	0.846***	0.887***	0.890***	0.867***	0.852***
(0.0161)	(0.0162)	(0.0263)	(0.0261)	(0.0222)	(0.0220)	(0.0195)	(0.0194)	(0.0316)	(0.0340)
2.143	3.647	2.640	2.124	2.243	1.978	-5.695	-6.661	-18.45	-20.35
(2.677)	(2.674)	(4.850)	(4.879)	(4.535)	(4.550)	(11.03)	(11.27)	(16.27)	(16.50)
-0.0862	-0.179	-0.116	-0.0655	-0.0554	-0.0337	0.212	0.274	0.850	0.936
(0.158)	(0.158)	(0.289)	(0.291)	(0.266)	(0.267)	(0.533)	(0.543)	(0.781)	(0.792)
0.0000568	0.00000559	-0.00194	-0.00221	-0.00179	-0.00196	-0.0322*	-0.0327*	-0.0211	-0.0232
(0.000290)	(0.000289)	(0.00153)	(0.00153)	(0.00154)	(0.00154)	(0.0166)	(0.0166)	(0.0192)	(0.0194)
-0.00855	-0.0117	0.00388	0.00782	0.00635	0.00702	-0.00741*	-0.00817**	-0.0148***	-0.0124***
(0.00940)	(0.00934)	(0.0146)	(0.0145)	(0.0125)	(0.0124)	(0.00413)	(0.00412)	(0.00463)	(0.00468)
0.00321	0.00448	-0.105*	-0.0930	-0.0734	-0.0671	-0.00541	-0.00448	-0.0181	0.00330
(0.0294)	(0.0289)	(0.0588)	(0.0588)	(0.0485)	(0.0485)	(0.0205)	(0.0203)	(0.0299)	(0.0307)
-0.00518	-0.00574	-0.00842	-0.00831	-0.00923	-0.00923	0.00614	0.00663	0.00562	0.00507
(0.00481)	(0.00469)	(0.00762)	(0.00765)	(0.00651)	(0.00650)	(0.00414)	(0.00418)	(0.00451)	(0.00454)
0.0149	0.0119	0.0252	0.0248	0.0201	0.0205	0.000146	0.0000371	0.000134	0.000315
(0.0165)	(0.0165)	(0.0178)	(0.0178)	(0.0184)	(0.0184)	(0.00293)	(0.00293)	(0.00264)	(0.00263)
-0.884***	-0.883***	-1.299***	-1.246***	-1.063***	-1.048***	25.37	25.25	9.277	19.00
(0.258)	(0.257)	(0.397)	(0.394)	(0.323)	(0.322)	(16.22)	(16.32)	(21.90)	(21.51)
0.0607***	0.0617***	0.0922***	0.0871***	0.0791***	0.0768***	-1.307	-1.303	-0.472	-0.972
(0.0214)	(0.0213)	(0.0330)	(0.0327)	(0.0265)	(0.0263)	(0.838)	(0.843)	(1.132)	(1.111)
6.325**						6.401			
(2.534)						(5.114)			
-4.469**						-3.177			
(2.267)						(3.175)			
		-3.252***						-1.373	
		(1.047)						(1.550)	
				-1.615**					
				(0.800)					
	1.077***						0.209		
	(0.351)						(0.319)		
	-0.163***						-0.0182		
	(0.0525)						(0.0364)		
			-0.471***						0.125
			(0.148)						(0.119)
					-0.267**				
					(0.107)				
-0.0369	-0.0301	0.0387	0.0465	-0.0328	-0.0242	-0.0431	-0.0455	-0.144*	-0.158*
(0.0999)	(0.0995)	(0.172)	(0.172)	(0.143)	(0.143)	(0.0717)	(0.0732)	(0.0837)	(0.0835)
-4.303	-9.445	6.120	6.030	0.633	1.060	-85.45	-78.74	62.78	22.60
(11.37)	(11.39)	(20.68)	(20.71)	(19.33)	(19.36)	(90.07)	(91.23)	(137.9)	(134.2)
999	999	662	662	746	746	446	446	305	305

government (or control of corruption) as its eighth lag, or as the mean for its sixth to 10th consecutive lags, reduces inequality.[13] The negative effect of the quality of government (as well as control of corruption) on inequality was the strongest in its eighth lag, and statistical significance declined through the seventh to sixth lag on the one hand, and through the ninth to 10th lag on the other, until the effect became not statistically significant by the fifth and 11th lags. The effect of corruption on inequality became positive by the third lag. The effects of the second and first lags were stronger than those of the third but were very similar to each other. Such a lag effect was not observed for per capita GDP.

5.3.3 Ethnic Peace

The variable for ethnic peace is correctly signed except for two models for emerging democracies, but was only statistically significant in two of the four models for advanced democracies at the 0.10 level. These findings suggest that the activation of multidimensionality is more likely to increase rather than reduce inequality but the effect is far from substantive. The same analysis with split samples of more- and less-fragmented countries yielded results similar to those from the full sample for all, emerging, and advanced democracies. One might speculate that low multidimensionality does not necessarily alleviate the negative effect of ethnic tensions on the formation of a redistributive coalition.

5.3.4 Control Variables

Most control variables have the expected signs, though none are significant for all models. Three other findings are worthy of note. First, trade openness had insignificant but consistently negative signs for the "all democracies" and "emerging democracies" groups and insignificant but consistently positive signs for the "advanced democracies" group. These contrasting results indicate the possibility that trade liberalization in developing countries benefits lower-skilled workers and labor-intensive sectors of the economy while the major beneficiaries are higher-skilled workers and capital-intensive sectors in developed countries. Second, foreign direct investment consistently has positive signs in all samples, although they are only significant in a few models. Third, the logarithm of the GDP per capita and its square, although consistently correctly signed, are not statistically significant for most models. In the current context, income's Kuznets curve effect is

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[13]The lagged mean for the 6th–10th consecutive lags amounts to the mean for the 7th–11th consecutive lags; however, the variable name remains as the mean for the 6th–10th lags to keep consistency with other lagged variables (except for the eighth lag of QOG or the control of corruption).

absorbed by corruption's Kuznets curve. Models 1 and 2, when run without the QOG variable and the control of corruption variable, respectively, returned statistically significant estimates of the logarithm of the GDP per capita and its square (not shown in this study but available from the authors upon request).

5.3.5   Robustness Check

The robustness of the above findings was examined for the sample of emerging democracies in two ways. First, we searched for influential observations by rerunning the most parsimonious and fittest model, Models 3, with one region of countries at a time dropped from the sample for a total six regions (East Asia and

Table 5.7 Robustness check for influential observations: one region dropped from the sample of emerging democracies

	Region dropped from the sample of emerging democracies					
	(1) Eastern Europe and Former Soviet Union	(2) East Asia and Pacific	(3) South Asia	(4) Middle East	(5) Sub-Saharan Africa	(6) Latin America and Caribbean
L. Gini net	0.899***	0.799***	0.801***	0.808***	0.810***	0.788***
	(0.0252)	(0.0315)	(0.0325)	(0.0281)	(0.0278)	(0.0318)
L. GDP per capita logged	1.445	−3.020	3.577	0.598	0.240	1.782
	(4.635)	(5.916)	(6.215)	(5.287)	(5.206)	(6.054)
L. GDP per capita logged squared	−0.0871	0.242	−0.0555	0.0592	0.0753	0.0139
	(0.276)	(0.341)	(0.368)	(0.310)	(0.306)	(0.358)
L. Inflation	−0.00215*	0.00206	−0.00219	−0.00219	−0.00219	−0.00178
	(0.00121)	(0.00867)	(0.00182)	(0.00158)	(0.00157)	(0.00157)
L. School enrollment secondary	−0.00913	0.0126	0.00503	0.00496	0.00614	0.00765
	(0.0111)	(0.0175)	(0.0261)	(0.0152)	(0.0150)	(0.0155)
L. Urban population	−0.0840*	−0.179**	−0.217**	−0.161**	−0.170***	−0.151**
	(0.0504)	(0.0734)	(0.0884)	(0.0670)	(0.0648)	(0.0663)
L. Trade openness	−0.00823	−0.00969	−0.00681	−0.00993	−0.0102	−0.0102
	(0.00590)	(0.00949)	(0.0124)	(0.00806)	(0.00788)	(0.00809)
L. Foreign direct investment	0.0208	0.0777*	0.0212	0.0306	0.0314*	0.0356*
	(0.0135)	(0.0442)	(0.0227)	(0.0187)	(0.0184)	(0.0187)
L. Age of largest opp. party	−0.00457**	−0.00566*	−0.0108*	−0.00622**	−0.00634**	−0.00726**
	(0.00214)	(0.00318)	(0.00610)	(0.00295)	(0.00291)	(0.00292)
L. Quality of Gov't mean for 6th−10th lags	−1.445*	−3.349**	−4.281**	−3.712***	−3.692***	−4.569***
	(0.848)	(1.340)	(1.923)	(1.183)	(1.171)	(1.348)
L. Ethnic peace	−0.126	0.135	0.0727	0.0608	0.0777	0.160
	(0.137)	(0.203)	(0.249)	(0.189)	(0.183)	(0.197)
Constant	6.176	28.57	−3.003	10.95	13.07	4.339
	(19.53)	(26.07)	(28.03)	(23.24)	(22.75)	(25.87)
Observations	534	514	403	606	621	534

Notes Standard errors in parentheses.* $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Table 5.8 Robustness check with an alternative dependent variable: income share held by the lowest 20 % of the population

	Political market = age of largest opposition party					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
L. Income share held by lowest 20 %	0.119	0.142*	0.0414	0.0514	0.0742	0.0858
	(0.0784)	(0.0766)	(0.0687)	(0.0691)	(0.0764)	(0.0769)
L. GDP per capita logged	0.339	0.486	−0.0112	−0.0783	0.639*	0.514
	(0.356)	(0.364)	(0.327)	(0.330)	(0.333)	(0.336)
L. Inflation	0.00197	0.00278	0.00294	0.00307	0.00395**	0.00418**
	(0.00179)	(0.00183)	(0.00248)	(0.00251)	(0.00188)	(0.00191)
L. School enrollment secondary	0.00503	0.00448	0.00393	0.00168	0.00614	0.00379
	(0.00426)	(0.00440)	(0.00396)	(0.00388)	(0.00427)	(0.00428)
L. Urban population	−0.0191	−0.0232	0.0193	0.00391	−0.0306	−0.0481*
	(0.0241)	(0.0234)	(0.0235)	(0.0272)	(0.0227)	(0.0243)
L. Trade openness	−0.00246	−0.00354	−0.00793***	−0.00752***	−0.00772**	−0.00712**
	(0.00267)	(0.00267)	(0.00281)	(0.00283)	(0.00308)	(0.00309)
L. Foreign direct investment	−0.0214**	−0.0182*	−0.0167*	−0.0146	−0.0223**	−0.0210**
	(0.0100)	(0.0100)	(0.00955)	(0.00969)	(0.0103)	(0.0105)
L. Age of largest opposition party	0.00126**	0.00118**	0.000995*	0.000679	0.00117**	0.000953*
	(0.000595)	(0.000581)	(0.000518)	(0.000539)	(0.000568)	(0.000572)
L. Quality of Government	−0.839					
	(1.667)					
L. Quality of Government squared	0.175					
	(1.387)					
L. Quality of Government mean for 6th −10th lags			0.691**			
			(0.279)			
L8. Quality of Government					0.811***	
					(0.242)	
L. Control of corruption		−0.273*				
		(0.153)				
L. Control of corruption squared		0.0390*				
		(0.0230)				
L. Control of corruption mean for 6th-10th lags				0.105**		
				(0.0518)		
L8. Control of corruption						0.113***
						(0.0379)
L. Ethnic peace	0.0775	0.0794	−0.122*	−0.112*	−0.0217	−0.0156
	(0.0638)	(0.0642)	(0.0651)	(0.0657)	(0.0677)	(0.0683)
Constant	−0.434	−1.620	0.896	2.412	−1.919	0.163
	(3.489)	(3.625)	(3.182)	(3.336)	(3.281)	(3.366)
Observations	173	173	148	148	156	156

Standard errors in parentheses.* $p < 0.10$, ** $p < 0.05$, and *** $p < 0.01$.

Note The number of observations by country is as follows:

Argentina 17; Bolivia 5; Brazil 4; Bulgaria 1; Colombia 7; Costa Rica 20; Croatia 1; Dominican Republic 7; Ecuador 5; El Salvador 9; Estonia 4; Guatemala 2; Honduras 5; Hungary 4; Latvia 3; Panama 5; Paraguay 10; Peru 13; Poland 10; Romania 9; Russia 6; Slovenia 2; Thailand 2; Turkey 6; Ukraine 7; Uruguay 9

	Political market = Freedom House/Imputed Polity2					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
L. Income share held by lowest 20 %	0.159**	0.169**	0.0556	0.0599	0.122	0.136*
	(0.0769)	(0.0763)	(0.0713)	(0.0703)	(0.0775)	(0.0769)
L. GDP per capita logged	0.340	0.507	−0.0517	−0.0161	0.746**	0.715**
	(0.338)	(0.360)	(0.325)	(0.323)	(0.328)	(0.328)
L. Inflation	0.000304	0.00113	0.00210	0.00303	0.00174	0.00185
	(0.00169)	(0.00169)	(0.00249)	(0.00247)	(0.00176)	(0.00177)
L. School enrollment secondary	0.00263	0.00190	0.00195	0.000244	0.00348	0.00177
	(0.00433)	(0.00451)	(0.00408)	(0.00396)	(0.00442)	(0.00442)
L. Urban population	−0.00614	−0.0107	0.0193	0.00265	−0.0144	−0.0250
	(0.0234)	(0.0227)	(0.0236)	(0.0251)	(0.0226)	(0.0234)
L. Trade openness	−0.000836	−0.00135	−0.00814***	−0.00748**	−0.00420	−0.00284
	(0.00242)	(0.00239)	(0.00297)	(0.00292)	(0.00270)	(0.00262)
L. Foreign direct investment	−0.0253**	−0.0214**	−0.0211**	−0.0206**	−0.0245**	−0.0248**
	(0.0103)	(0.0104)	(0.0101)	(0.0100)	(0.0109)	(0.0109)
L. Freedom House/Imputed Polity2	0.0491	0.0363	0.0301	0.0413	0.0323	0.0454
	(0.0327)	(0.0322)	(0.0310)	(0.0301)	(0.0344)	(0.0338)
L. Quality of Government	0.0195					
	(1.658)					
L. Quality of Government squared	−0.505					
	(1.398)					
L. Quality of Government mean for 6th−10th lags			0.705**			
			(0.296)			
L8. Quality of Government					0.707***	
					(0.258)	
L. Control of corruption		−0.211				
		(0.157)				
L. Control of corruption squared		0.0285				
		(0.0239)				
L. Control of corruption mean for 6th-10th lags				0.133***		
				(0.0480)		
L8. Control of corruption						0.0994***
						(0.0375)
L. Ethnic peace	0.0786	0.0884	−0.138*	−0.133*	0.0215	0.0303
	(0.0655)	(0.0663)	(0.0720)	(0.0714)	(0.0683)	(0.0681)
Constant	−1.543	−2.638	1.150	1.733	−4.289	−3.515
	(3.157)	(3.404)	(3.066)	(3.053)	(3.074)	(3.091)
Observations	182	182	154	154	163	163

Pacific, South Asia, Middle East, Sub-Saharan Africa, Eastern Europe and the former Soviet Union, and Latin America and Caribbean). Although the fixed effects model controls for country-specific effects, certain independent variables might exert particularly strong effects in some countries but only weak effects in others. The estimation results for the six rounds presented in Table 5.7 shows, however, that both the age of the largest opposition party and QOG were statistically significant. In other words, regardless of the region of the world, political market quality and state capacity help to reduce income inequality. The same model was also tested for two shorter time periods, namely 1991–2012 and 1996–2012. For both periods, the age of the largest opposition party ($p = 0.030$ and $p = 0.069$, respectively) and QOG ($p = 0.002$ and $p = 0.002$, respectively) were statistically significant.

Second, since the SWIID is based on the standardization of various types of Gini coefficients, the most common alternative measurement of income inequality, i.e., the income share held by the lowest 20 % of the population, was used to check the robustness of the above findings. The country and year coverage of these data are much smaller than that of the SWIID. They do not include advanced democracies and the number of emerging democracies had to be reduced to 26, less than half the original size. The six models for emerging democracies in Table 5.5 were replicated with the lowest 20 % income share as the dependent variable.[14] The results shown in Table 5.8 reveal remarkable similarities with the earlier results regarding the effect of political market quality and state capacity. For political market quality, the age of the largest opposition party is correctly signed and significant except for Model 4. Freedom House/Imputed Polity2 is correctly signed although not significant for any model. For state capacity, both QOG and control of corruption in their 8th lag or their means for the 6th–10th lags were significant. Although the results for socioeconomic control variables were less consistent throughout the six models, the estimates for the two political variables of interest, i.e., market quality and state capacity, thus give strong support for the earlier findings presented in Table 5.5.

In conclusion, the evidence presented in this chapter supports the hypotheses that political market failure and weak state capacity increase income inequality in emerging democracies; however, the activation of multidimensionality does not significantly affect inequality in emerging democracies although it partly accounts for variations in inequality for advanced democracies. In sum, the main political reason for the failure of emerging democracies in improving income equality lies in the lack of party system institutionalization and governance reform. Ephemeral opposition parties are more likely to be personalistic or catch-all than programmatic and thus fail to generate policy competition with the incumbent. Anti-corruption policies exert ambivalent effects on equality in the short term; the merit of enhanced governance takes time to materialize as greater levels of equality.

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[14]The GDP per capita logged squared and Freedom House/Imputed Polity2 squared were dropped because these variables did not display any curve linear effect.

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