



THE WILLIAM DAVIDSON INSTITUTE
AT THE UNIVERSITY OF MICHIGAN

**Inequality, Fiscal Capacity and the Political Regime
Lessons from the Post-Communist Transition**

By: Christopher J Gerry and Tomasz Mickiewicz

William Davidson Institute Working Paper Number 831
July 2006

Inequality, Fiscal Capacity and the Political Regime

Lessons from the Post-Communist Transition

Christopher J Gerry^a and Tomasz Mickiewicz^{a,b}

First version: January 2006

This version: July 2006

Abstract

Using panel data for twenty-seven post-communist economies between 1987-2003, we examine the nexus of relationships between inequality, fiscal capacity (defined as the ability to raise taxes efficiently) and the political regime. Investigating the impact of political reform we find that full political freedom is associated with lower levels of income inequality. Under more oligarchic (authoritarian) regimes, the level of inequality is conditioned by the state's fiscal capacity. Specifically, oligarchic regimes with more developed fiscal systems are able to defend the prevailing vested interests at a lower cost in terms of social injustice. This empirical finding is consistent with the model developed by Acemoglu (2006). We also find that transition countries undertaking early macroeconomic stabilisation now enjoy lower levels of inequality; we confirm that education fosters equality and the suggestion of Commander *et al* (1999) that larger countries are prone to higher levels of inequality.

JEL classification: P26, P35, D31, H21

Keywords: income inequality, democracy, oligarchy, fiscal capacity, economic reform, transition

^a Department of Social Sciences, SSEES, University College London,
Gower Street - London - WC1E 6BT

^b Corresponding author. E-mail: t.mickiewicz@ucl.ac.uk

We are indebted to Simon Commander, Axel Heitmueller, Jens Hölscher, Branko Milanovic, and participants of seminars at London Business School and Brighton Business School for comments.

1. Introduction

During the last two decades a new and important literature addressing the complex relationship between economic performance, political regime and income inequality has emerged. This strand of recent research speaks to problems concerning the ‘first generation’ models of inequality, dating back to Kuznets (1955)¹. In particular, recognising the political system as the conduit through which demands for redistribution are channelled and delivered, attention has turned to examining the way in which political *and* economic factors shape the income distribution. Yet, many questions remain unanswered and the quest to unearth causal relationships, develop appropriate empirical tools and ultimately to inform economic policy remains paramount.

The diversity of experience across time and space draws attention to some of the underlying complexities. While in the democracies of the United States and parts of Western Europe, inequality has advanced contemporaneously to economic growth, in the former Communist countries of Central and Eastern Europe and Central Asia, the paths of inequality, economic liberalisation and political reform have varied considerably. In turn, the so-called ‘Asian Tigers’ have achieved economic growth alongside relatively stable income distributions under both more *and* less autocratic regimes. These examples all speak to the need for further research into the co-evolution of economic policies, political structure and inequality. The task of this paper is to subject these relationships to a detailed empirical examination in the unique ‘experimental’ context conferred by the ‘transition’ countries emerging from the Soviet block since 1989².

The exceptional scale and pace of this unique historical ‘experiment’ stem from the distinct features of these countries at the onset of ‘transition’ - semi-autarchic command economy systems remote from the co-ordinating mechanism of the market. From the late 1980s the transition economies have encountered the introduction of economic *and* political reform as the region has both globalised and democratised to varying degrees. In aggregate, during this period, the region has experienced rising inequality, a J-curve of economic growth and a progressive increase in both ‘democracy’ and economic reform (see Figure 1 below). These

¹ See for example Barro (2000) and Forbes (2000) among others.

² Following the established tradition, we also include here the former republics of Yugoslavia, and Albania. That produces the set of twenty-seven countries labelled by the European Bank of Reconstruction and Development (EBRD) as ‘transition economies’ (see: EBRD 1994-2005, and for recent discussion - Mickiewicz, 2005).

parallel processes allow us to address recent developments in the literature that bestow greater emphasis on issues pertaining to the political framework and to economic institutions³.

In this paper, we match a rigorously selected panel of compatible income inequality figures, drawn from the UN WIID2a dataset, with the Freedom House indicators of political rights and civil liberties, with macroeconomic indicators from the World Bank and with human capital indicators derived from the TransMonee database. The nature of the data prevents us from applying panel methods based on first-differencing. Accordingly, we investigate income inequality through the application of ‘effects models’, with our choice of estimators based on appropriate specification tests. This approach allows us to go some way towards articulating the tangled relationship between economic reform, political reorganisation and income inequality in the context of post-communist transition.

We find that full political freedom is associated with lower levels of income inequality. Under more authoritarian regimes, the level of inequality is conditioned by the state’s fiscal capacity. Specifically, oligarchic regimes with more developed fiscal systems are able to defend the prevailing vested interests at a lower cost in terms of social injustice. This empirical finding is consistent with the model developed by Acemoglu (2006) and offers some important lessons for policy makers in reforming countries. Additionally, we find that transition countries undertaking early programmes of macroeconomic stabilisation now enjoy lower levels of inequality; we confirm that education fosters equality and the proposition of Commander *et al* (1999) that larger countries are prone to higher levels of inequality. Finally, we speculate that countries experiencing a longer period under the communist regime are now less able to utilise fiscal tools to effectively raise revenue. We interpret this in the context of the recent work by Persson and Tabellini (2006), which stresses the importance of the ‘stock of democratic capital’. Those countries with a deeper and longer experience of communism have emerged with a lower stock of democratic capital.

We proceed as follows. In section 2, through surveying the relevant literature, we highlight some theories at the forefront of political economy approaches to the study of inequality and consider how these relate specifically to the transition countries. In section 3, we discuss our data, paying special attention to methodological nuances concerning the measurement of

³ See, for example, Kapstein and Milanovic, 2003; Mickiewicz, 2005; Havrylyshyn, 2006.

inequality and institutions. We then explain our specifications and consider some of the econometric issues associated with our estimations. In section 4, we present our results before forwarding cautious conclusions in section 5.

2. Motivation and Literature Review

2.1 *The Political Economy of Inequality and Liberalisation*

The modelling of inequality has evolved considerably in recent years, though the point of departure for much analysis remains the somewhat mechanistic approach, reflected in the “Kuznets hypothesis” (Kuznets, 1955, 1963; see also the discussion in Aghion *et al.*, 1999). The Kuznets approach associates the initial stage of industrialisation with high levels of inequality observed as the gap between the unskilled (old, agricultural) sector and the skilled (new) sector of the economy reaches a peak. Subsequently, as the economy develops, the distribution contracts. That is, as the sectoral structure of employment proceeds from the dominance of agriculture through the industrial phase towards eventual convergence on a service sector structure, the income distribution maps out an inverted U-shaped curve⁴. This is deterministic in so far as income differentials emerge over time in response to the shifting structure of production.

Yet this interpretation has a number of drawbacks. First, it cannot explain the global surge in inequality experienced in the 1980’s and 1990’s. Second, though not unrelated, this version of events says nothing of the diversity of economic processes and institutions evolving over time⁵. In particular, the recent literature witnesses a shift from the quest for unearthing uniform patterns of development to the increased recognition of the role played by political institutions and economic policies. Third, even if one can establish a correlation between economic development and inequality, both phenomena themselves may be driven by some other factor. If this is the case, it is an empirical challenge to isolate distinct causal effects.

⁴ A related version of this story identifies the role of a narrow class of capitalists at the first phase of the industrialisation process, with a high propensity to save and invest. The resultant inequality emerging during this early stage is seen as a necessary price for economic growth. Kuznets (1963) hints at this interpretation when pointing out that “a smaller proportion of the population amasses savings consistently” in developing countries (*ibid.*, p.48).

⁵ Kuznets (1963) chose to emphasise the role of technology and the structure of production though was fully aware of the interplay between the technological and institutional factors, and between income and wealth distribution and political power relations.

The 'new' strand of literature departs from the traditional approach in several respects. The customary emphasis placed on the role of concentrated savings in fuelling investment and growth is recast in the context of its dependence on both the level of financial sector development and the willingness of economic actors to invest. The efficient transmission from savings to investment is conditional on key capital market characteristics, such as the stability of property rights. Where little legal protection is offered, investment capacity will tend to remain concentrated in the hands of the richest and most influential at the expense of entrepreneurs with potentially more profitable investment projects (Glaeser *et al.*, 2003).

New themes emerging in the globalisation – inequality realm highlight the impact of skill-biased technological change (Katz and Murphy, 2002), evolving terms of trade, and factors affecting labour supply. Empirical evidence on the effects of liberalisation in developing countries is very mixed. It is now generally accepted that the potential impact of external openness on inequality is smaller than expected and may be counterbalanced by policy driven elements, such as education (Anderson, 2005a; Lundberg and Squire, 2003; Atkinson, 2000). If economic theories of globalisation are able to identify the potential effects of liberalisation and changing terms of trade then, implicitly or otherwise, they are identifying processes which create 'winners' and 'losers' and hence impact the income distribution. Likewise, if an income distribution containing 'winners' and 'losers' is an outcome of economic policies, processes and institutions, then those in turn must result from interaction with the prevailing political edifice. Milanovic and Kapstein (2003) provide evidence that the inequality augmenting effect of reforms is less pronounced in high-income countries. It may therefore be that the degree of inequality is conditioned more by the deficiencies of the democratic decision making process than by the level of economic development *per se*. A natural extension of Milanovic and Kapstein's (2003) findings may therefore be to shift attention from the level of income to the quality of the democratic process as the key characteristic defining the orbit of economic policies adopted.

The early empirical work linking democracy to inequality was typically inconclusive. Sirowy and Inkeles (1991), surveying the then published work up, found limited evidence that democracy lowers inequality. More recent studies, recapped in Gradstein and Milanovic (2004), find democracy to benefit those in the bottom quintile of the distribution. Yet any consensus on the ambiguity of the causal link necessarily overlooks that, while the direct association between democracy and inequality may be weak, there remains the possibility that democracy affects inequality indirectly through its impact on economic institutions and economic policies. In

short, it is clear that the link between economic variables, political institutions and the income distribution is close but complicated and that the dominant direction of influence is ambiguous. Whatever form these tangled relationships assume, political institutions mark out the decisive channel through which the demand and supply of redistributive policy is provided for. These institutions in turn are the product of a complex mix of contemporary and historical political decision-making. Characterised by their semi-autarchic initial conditions, rapid economic reform and introduction of democratic structures, the transition economy setting provides a convenient testing ground in which to explore many of these arguments.

2.2. The Political Economy of Inequality and of Political and Economic Transition

Aghion and Commander (1999) present a dynamic general equilibrium model examining the impact of various economic policy choices on inequality in transition economies. The model illustrates the shift from the rigid wage grids of the state sector (characterised by insider rent appropriation) to a private sector in which wages reflect the marginal product of labour. The important feature of the model is the distinction drawn between the short-term and long-term (equilibrium) effects of reforms on inequality. In particular, faster restructuring, privatisation methods focused on outsiders, greater fiscal equality between the state and private sectors and more generous unemployment benefits (pro-poor redistribution) are associated with both steeper initial increases in inequality but also with lower long-term (equilibrium) inequality. For our purposes, two important implications fall out of this model. First, rapid liberalisation produces an initial surge in inequality before the distribution equilibrates at a lower long-run level. Second, in so far as the maintenance of soft budget constraints is associated with deficit-based or inflationary finance, and is eliminated by macroeconomic stabilisation, early stabilisation reaps similar outcomes to early liberalisation.

A further important filter affecting the final distribution of incomes is freedom of entry and the evolution of the *de novo* sector. A reinterpretation of ‘new sector’ hiring in the Aghion and Commander (1999) model could illustrate this. Instead of capturing the balance of labour market states (i.e. unemployment/vacancy ratios), hiring into the ‘new sector’ may plausibly become a policy parameter itself. Indeed, this is consistent with the recent emphasis placed on the role of new entries in transition in which freedom of entry, resulting in the rapid expansion of new firm employment, is now seen as a major driver of economic performance (Jackson *et al.*, 2005). Examining two very different transition countries, Poland and Russia, Berkowitz and

Jackson (2006) find a significant positive relationship between the development of the *de novo* sector and the income share of the lower end of the income distribution. Re-interpreting the hiring rate as a proxy for new private firm creation, itself directly affected by entry barriers, the short-term impact of liberalisation on income equality is no longer unambiguously negative. That is, while liberalisation-induced restructuring may exacerbate levels of inequality, facilitating entrepreneurship and promoting the freedom of entry of new firms may attenuate it. To see the latter relationship more clearly, we refer to the new literature on the link between political and economic institutions, policy making and the income distribution. In this respect, the model of Acemoglu (2006) presents a political system in which an oligarchic class acts to defend their privileged share in the income distribution from both the middle class (entrepreneurs) and the working class. Two possible economic policies emerge, contingent on the institutional framework. The first (a more efficient route to income redistribution) involves manipulating the fiscal system to produce a combination of taxes and subsidies such that sufficient relative gains for the oligarchs are generated while still leaving the entrepreneurial class with the incentives to produce. However, where the fiscal system is underdeveloped, the best available option is to hamper entrepreneurial activity through explicit entry barriers and so achieve the desired income distribution via factor price manipulation. In particular, by restricting entry for new entrepreneurs and depressing aggregate output and labour demand, the wages of workers are driven down, furnishing the incumbent oligarchic producers with relative advantages. Greater inequality pertains in the second case⁶.

We believe that this line of argument conveys material significance for our understanding of the transition process. Most of the transition countries, which did not fully liberalise evolved into autocratic oligarchic systems in which entry barriers could lead to more unequal income

⁶ In addition, given the low wages (resulting from the insufficient number of active entrepreneurs), workers may not face incentives to invest in human capital. This, in turn, propagates ‘bad equilibria’ characterised by low education and low wages (see Dias and McDermott, 2006). One can link Acemoglu (2006) with an earlier seminal paper on regulation of entry by Djankov *et al.* (2002). In the latter, oligarchs pursue less efficient policies (via entry barriers) to protect their interests instead of efficient policies (through incentives in the fiscal system which allow for the entrepreneurial sector to grow, in order to tax it later) because their time horizon is shorter (see also: De Long and Shleifer, 1993). In contrast, according to Acemoglu (2006) the policy choice is conditional on the overall quality of the fiscal system (i.e. on the deadweight cost of fiscal redistribution), where the latter is seen as exogenous with respect to the contemporaneous policy choice taken by oligarchs. For our purposes, we refer to Section 3 of the Acemoglu (2006) paper. The model is general enough to allow for different interpretations of restricted entry. In particular, it is consistent with an interpretation emphasising the weak protection of property rights, inadequate judiciary systems and corruption, in which only the rich and influential have resources to protect themselves and small entrepreneurs are discouraged from entry and investment. This results in “King John’s” redistribution of income rather than “Robin Hood’s redistribution” (see Glaeser *et al.* (2003), Sonin (2003) and Hellman and Kaufmann (2003)).

distributions via the type of factor price manipulation described above. Russia provides just such a case (see for example, McKinsey 1999; Barkhatova, 2000; Aidis and Adachi, 2006; Estrin and Prevezer, 2006). The symbiosis between the incumbent, heavily concentrated business groups, the public administration and the financial sector renders the entry of independent producers problematic. Additionally, and in accordance with the Acemoglu (2006) model, regional government officials argue explicitly that the entry of strong foreign investors may hurt their local economies (read: incumbent businesses) by increasing wage levels⁷. Moreover, there are obstacles to local level entry in the form of incrementally more hostile tax and bureaucratic environments⁸. On the other hand, in countries that fully liberalised, entrepreneurship offered an important route away from the lower end of the income distribution (Berkovitz and Jackson, 2006; Keane and Prasad, 2006). This comparative line of reasoning concurs with the policy-oriented labour market diagnosis of the transition economies, which stresses the negative impact of entry barriers on the labour market (Rutkowski *et al.*, 2005). On another plane, it remains compatible with the conclusions of Djankov *et al.* (2002) that barriers to entry are strongly associated with autocracy.

The Acemoglu (2006) model also serves to underscore the importance of the government's fiscal capacity. While, it is true that "the weakness of fiscal policy makes it difficult for governments to redistribute public benefits to those at the bottom of the income distribution." (Kapstein and Milanovic, 2003, p.1; see also Aghion and Commander, 1999)⁹, a different effect may operate in the case of oligarchic systems. Specifically, without fiscal instruments, the privileged class may seek to protect its interests through more crude policy measures such as entry barriers. These measures not only depress output but also widen income gaps via the labour market. Accordingly, the public finance environment may have critical implications for the distribution of income.

With respect to the latter, there are marked differences between the transition countries. The Commonwealth of Independent States (CIS) experienced a dramatic implosion of tax collection relative to the countries of Central and Eastern Europe (CEE). Schaffer and Turley (2001) demonstrate that the ratio of effective to statutory taxation has been significantly lower in the

⁷ Estrin and Prevezer (2006) describe a situation equivalent to this in the context of Ivanova oblast.

⁸ In particular, see Barkhatova (2000) on Russia.

⁹ The issue may be of a more general nature. Aidt *et al.* (2006) speculate that the worldwide surge in public spending in middle and high income countries in the 1960s may be associated with improvements in tax-raising technology, i.e. enhanced administrative capacities of the government (*Ibid.*, pp. 274-275).

CIS than in Central Europe. While this measure is of limited availability, a wider comparison is possible using a more general indicator: the ratio of tax revenue to GDP (as also applied in Anderson, 2005b). This measure clearly demonstrates the tax implosion in the CIS countries during the 1990s (see figure 2d). The EBRD (1998) attributes this situation to the weakness of tax administration and corruption, which led to low levels of enforceability. Similarly, Lopez-Claros and Alexashenko (1998) point out that “the complex institutional set-up underlying the operations of the modern tax system, including modern accounting practices, computer facilities, and management expertise, simply did not exist when Russia embarked on reform” (*ibid.*, p.8)¹⁰. The CIS countries are typically those that endured communist regimes for the longest period of time and therefore are also those with the least developed fiscal capacity. It is possible that widespread tax avoidance was further fuelled by a legitimacy deficit in these largely oligarchic states. If so, the combination of an oligarchic state with an inefficient fiscal administration forms a vicious circle along the lines of that detected by Hellman and Kaufmann (2003). Congruous with the Acemoglu (2006) model, the vicious circle retards the development of fiscal capacity and therefore promotes the erection of entry barriers, so embedding the oligarchic state. Indeed, as documented by Johnson *et al.* (2000) and others, new private businesses faced more serious institutional obstacles in the CIS than in CEE.

In sum, in the 1990s, the CIS countries were confronted by a collapse of public revenue (and therefore expenditure) as the tax system appropriate for the new market environment proved difficult to implement. Soft budgeting of industrial enterprises through continued state control of energy prices, cheap credit and tax payment arrears substituted for formal income redistribution through the state budget and entry barriers facing new firms remained firmly rooted. It is well documented that the ensuing policy establishment, blighted by the leverage of special interests, was unable (or unwilling) to efficiently target those in need of redistribution. Indeed, though the subsidisation of industry was frequently justified by appeal to social concerns, in practice it often amounted to the protection of privileged industrial interests. The association of the CIS countries with generally higher inequality lends weight to this interpretation.

¹⁰ The ratio of taxes to GDP decreased in all transition economies *temporarily* following liberalisation and the initial fall in output (see Mickiewicz, 2005). However, these effects should be distinguished from the longer-term cross-country variation which refers to the institutional capacities of the fiscal system as discussed here.

Motivated by this literature, we turn next to the complicated endeavour of realising some of the theoretical insights empirically. Specifically, drawing on Acemoglu (2006) for (i) and (ii) and Aghion and Commander (1999) for (iii) we formulate the following testable hypotheses:

- i/ Liberalisation is associated with lower equilibrium levels of income inequality.
- ii/ Under authoritarian regimes, there is an important distinction to be drawn between fiscally efficient and inefficient regimes. We expect to observe higher levels of inequality in regimes with inferior fiscal capacity.
- iii/ While the short term impact of liberalisation tends to be associated with a surge in inequality, in the longer term, economies which were able to successfully liberalise and stabilise early in the transition process should experience less inequality, an effect parallel to that of political freedom.

3. Data and empirical approach

3.1. Measuring Inequality

An outcome of any particular estimation is likely to be misleading if it is based on low quality data. This trivial, if often neglected, conclusion is particularly true for inequality data. Atkinson and Brandolini (2001) survey the cross-country empirical literature on income inequality and cogently forward a number of problem areas. At the heart of these concerns is the issue of measurement. The majority of inequality studies centre on income, but inequality can also be measured in terms of consumption, wealth, health or any other sensible proxy for well-being. Once collected, the data may refer to net or gross figures, it may be measured at the unit of the household or of the individual, it may be equalised to account for the heterogeneity of household structure and it may be representative of different populations or sub-populations. In this context, without due care being taken in selection, cross-country differences may easily be reflecting artefacts of measurement technique as much as actual differences in the distribution. Atkinson and Brandolini demonstrate the kind of bias that can arise, not least when measurement methods are clearly correlated with country characteristics, as is the case for example with consumption-based measures, which are more typical for poor developing countries.

In this study we constructed our inequality dataset in the following way. All data are drawn from the June 2005 version of the World Income Inequality Database (WIID2a) produced by the World Institute for Development Economics Research (WIDER), at the United Nations University¹¹. This dataset incorporates data obtained by the World Bank, UNICEF, OECD, and various individual research teams, in each case providing information on the origin of the data point, the coverage and the methodology employed. The WIDER dataset compiles all alternative assessments for given time-country data points. Not only do these sometimes differ considerably but, given the different methodologies utilised in their creation, are sometimes also incompatible and so the approach to constructing a dataset for analysis is far from trivial. With this in mind, we extracted what we believe to be a consistent set of inequality data, according to the following algorithm.

First, we retained income-based data and eliminated all data based on consumption measures¹² as well as all data points not based on representative coverage of the whole population¹³. Where possible we have preferred data emanating from studies based on the Canberra group definition (see WIDER 2005) where income includes production, barter and other non-cash income. The income in question is disposable income, not gross income (therefore, incorporating the impact of redistributive policies of the government). The preferred methodology identifies households as the appropriate sampling units, corrected with appropriate equivalence scales. Where two results based on similar methodology were available, we have taken the source that was (i) more recent, and (ii) covered a longer time series. As a supplementary criterion, we also used the quality ranking of studies, available from the WIDER database, which to large degree confirms the criteria enumerated above. Last but not least, the coefficients retained for analysis are, where applicable, those recalculated by WIDER, rather than those originally reported¹⁴.

¹¹ Accessed online in January 2006 and used in concert with the user guide produced by WIDER (2005).

¹² There are two reasons for doing this. First, the consumption based measures lead to problems of interpretation when used to assess short/medium-term effects (as in this paper). This is because consumption smoothing over time distorts the short-term impact of different economic policies and it is not clear how to value the use of durables in the consumption set. Second, more practically, the comparable consumption-based inequality data-set for transition economies is much smaller, making application of any formal tests very difficult. An example of robust consumption-based inequality data for transition economies is presented in Mitra and Yemtsov (2006). Preliminary investigations suggest that the (positive) gap between income and consumption measures of inequality are greater in less developed transition countries, where consumption data may overstate economic wellbeing at the lower end of the distribution.

¹³ Our only exceptions to this second criterion were to retain some estimates for the Communist period based on wage earner only households. We justify this on the basis that comparisons clearly indicate that – given the dominance of this category of income – the results were not sensitive to such a restriction. Moreover, we retained only the cases where such comparisons were possible.

3.2 Measuring Liberalisation

Empirically capturing the institutional features of any economy is a notoriously tricky problem. The most comprehensive set of economic measures available is provided by the EBRD. In the most fundamental sense, all reforms might be viewed as ‘institutional’, but in the transition frame of reference, there is a particular case for drawing a distinction between the reform components that can be introduced relatively quickly via the removal of existing barriers (so called ‘liberalisation’) and those that rely on a slower paced (re-) building of legal and administrative capacities. The EBRD indicators draw just such a contrast - between liberalisation and institutional reform (see EBRD 1995-2005; Balcerowicz, 1995; Mickiewicz, 2005 among many others). In the ‘liberalisation’ group of reforms, are (i) external liberalisation, (ii) internal price liberalisation and (iii) freedom of entry and small-scale privatisation¹⁵. The set of ‘institutional reforms’ include large-scale privatisation, competition policy, enterprise reform and corporate governance, bank reform and securities markets.

From the perspective of empirical implementation, in our context, there are at least three important issues: first, there are serious concerns about measurement error within the EBRD indicators; second, the indicators are themselves strongly correlated and; third, there is a close connection between indicators of economic liberalisation and political liberalisation.

The first issue has been documented recently by Campos and Horvath (2006), who persuasively argue that, not only do the EBRD criteria lack transparency but, more pertinently, the indicators of ‘policy inputs’ are mixed with those of ‘policy outputs’¹⁶. The issue of between-indicator correlation is equally serious and is amply illustrated, in Table 1, by the correlation coefficients between the economic reform indicators and the political freedom indicators.

¹⁴ The full resulting dataset is available on request from the authors.

¹⁵ This approach can be traced back to De Melo *et al.* (2001 [1997]), who used the aggregate indicator based on these three components, labelled as the ‘Cumulative Index of Liberalisation’.

¹⁶ Campos and Horvath (2006) produce their own, methodologically superior and narrower set of measures. Unfortunately, the data does not cover all of the period relevant to this study.

Table 1 Correlations between economic reform and political freedom indicators

	democra- -cy	free entry	price liberal.	trade liberal.	large privat.	corpor. govern.	compet. policy	banking sector	security markets
democracy/ freedom	1.0000								
free entry & small pri	-0.6207 0.0000	1.0000							
price liberalis.	-0.5793 0.0000	0.8205 0.0000	1.0000						
trade liberalis.	-0.7388 0.0000	0.8786 0.0000	0.8457 0.0000	1.0000					
large scale priv	-0.6272 0.0000	0.8536 0.0000	0.7393 0.0000	0.8389 0.0000	1.0000				
corporate governance	-0.7114 0.0000	0.8385 0.0000	0.7145 0.0000	0.8468 0.0000	0.8766 0.0000	1.0000			
competition policy	-0.6518 0.0000	0.7353 0.0000	0.6165 0.0000	0.7088 0.0000	0.8106 0.0000	0.8248 0.0000	1.0000		
banking sector	-0.7417 0.0000	0.8440 0.0000	0.7279 0.0000	0.8773 0.0000	0.8764 0.0000	0.9310 0.0000	0.7754 0.0000	1.0000	
securities markets	-0.6427 0.0000	0.7323 0.0000	0.5912 0.0000	0.7100 0.0000	0.7942 0.0000	0.8322 0.0000	0.8483 0.0000	0.8142 0.0000	1.0000

Notes: Pearson correlation coefficients, based on all available data points for 27 transition countries, 1987-2002 (403 data points); the second line shows significance level. 'Democracy/freedom' relates to the average of the Freedom House indicators of political rights and civic liberties (see discussion in Section 3.3). The higher value of the average of Freedom House indices represents the lower level of democracy. All other variables relate to the EBRD indicators of reforms (see discussion in Section 3.1), and are based on EBRD (1995-2005), and Falcetti *et al.* (2002), extended back where possible (full data set available on request).

These concerns remind us that we should eschew the temptation to focus on one or other particular component of reform when considering the relationship between economic development and inequality. Indeed, to estimate these relationships based on such logic would fall into the trap of omitted variable bias, as argued powerfully in Acemoglu (2005)¹⁷. Likewise, given the inevitable multicollinearity problem, we should also guard against the inclusion of the full set of indicators in a single estimation. The standard practice has been to use a simple average of the three liberalisation indices referred to as the ‘reform index’ (Falcetti *et al.*, 2002; De Melo *et al.*, 2001; Merlevede, 2003). However the insights of Campos and Horvath (2006) lead us to eschew such approximations.

In the quest to control distinctly for economic policy, our preferred solution is to focus on macroeconomic policy measures (they are not included in the EBRD set of reform indicators). Aside from being associated with fewer problems of measurement and reliability, the macroeconomic policy variables are less correlated with the democracy-autocracy (oligarchy) dimension, which is critical for testing our hypotheses. We include an indicator variable, **early stabilisation**, reflecting the successful implementation of a stabilisation programme by 1993 (as in Mickiewicz 2005; see also EBRD, 1999-2005) as well as a time-variant variable measuring government **budget balance** as a percentage of GDP.

With respect to both their centrality to our hypotheses and the clear imbrication of the usual economic and political liberalisation measures, we make our primary focus that of political institutions. The institutional political indicators have a long empirical tradition. The early empirical work tended to rely on comparisons either between ‘distinct’ regional blocks or between ‘stable’ and ‘unstable’ democracies (Lipset, 1959). Subsequent authors have used empirically realisable concepts such as the percentage participation in national elections. These rather crude measures have been widely criticised. Fortunately, we now have more sophisticated measures of democracy in our toolbox and are able to examine the complexities of the relationships with greater authority.

The measure of democracy we utilise in this paper is based on the well-regarded, subjective indicators of political rights and civil liberties deriving from work by Gastil (1990) and

¹⁷ The same argument could be applied to earlier non-transition literature that focused on external liberalisation indicators, while - typically - the increased internal openness was implemented jointly with other liberalisation and privatisation policies.

published by Freedom House. Gastil's separate subjective indices for political rights and civil liberties are each recorded on a scale from 1 to 7, with 1 indicating the 'most' democracy and 7 the 'least'. We believe these to be particularly appropriate in the transition context. In particular, inclusion of civic liberties may be critical and makes the Freedom House measure the preferred one in comparison with the Polity IV indicators (Marshall and Jagers, 2002), which focus only on the formal political institutions of democracy.

In our empirical work we utilise measures of political reforms in two ways. First, we follow Persson and Tabellini (2003) in taking a simple average of the political rights and civil liberties indices as our proxy for **democracy**. There is sufficient annual variation in our data to render this approach meaningful. Second, we look at the more fundamental regime differences between the transition countries, as represented by the Freedom House classification between free, partly free and non-free regimes. Here, the first of these three categories is our empirical proxy of what we have referred to in the literature section as democracy, and the latter two categories taken jointly correspond to the concept of oligarchy. The data are presented in Table 2.

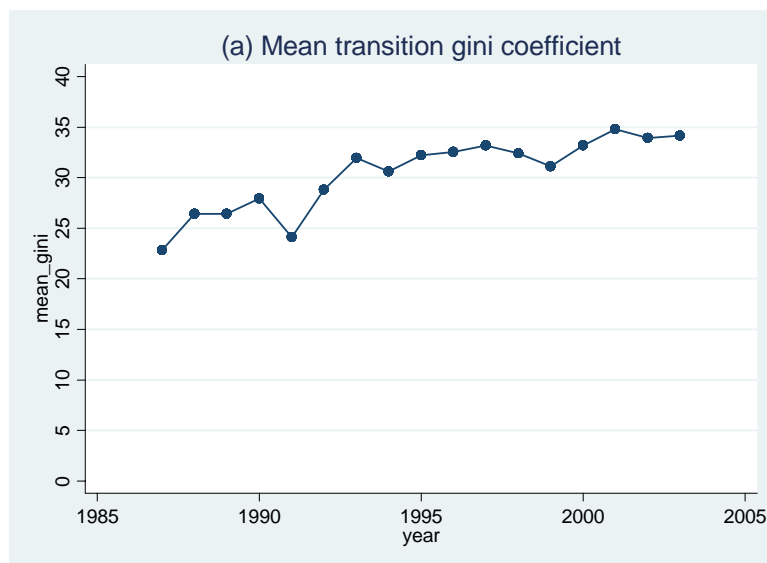
Table 2 'Free', 'partly free' and 'not free' regimes

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	free91
Albania	NF	NF	NF	NF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	0
Armenia	NF	NF	NF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	0
Azerbaijan	NF	NF	NF	PF	PF	PF	NF	NF	NF	NF	PF	PF	PF	PF	PF	PF	0
Belarus	NF	NF	NF	PF	PF	PF	PF	PF	PF	NF	NF	NF	NF	NF	NF	NF	0
Bosnia	PF	PF	PF	PF	NF	NF	NF	NF	NF	PF	PF	PF	PF	PF	PF	PF	0
Bulgaria	NF	NF	NF	PF	F	F	F	F	F	F	F	F	F	F	F	F	1
Croatia	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	F	F	F	0
Czech Rep.	NF	NF	NF	F	F	F	F	F	F	F	F	F	F	F	F	F	1
Estonia	NF	NF	NF	PF	F	PF	F	F	F	F	F	F	F	F	F	F	1
FYR Macedonia	PF	PF	PF	PF	NF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	0
Georgia	NF	NF	NF	PF	NF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	0
Hungary	PF	PF	PF	F	F	F	F	F	F	F	F	F	F	F	F	F	1
Kazakhstan	NF	NF	NF	PF	PF	PF	PF	NF	NF	NF	NF	NF	NF	NF	NF	NF	0
Kyrgyz Rep.	NF	NF	NF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	NF	NF	NF	0
Latvia	NF	NF	NF	PF	F	PF	PF	F	F	F	F	F	F	F	F	F	1
Lithuania	NF	NF	NF	PF	F	F	F	F	F	F	F	F	F	F	F	F	1
Moldova	NF	NF	NF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	0
Poland	PF	PF	PF	F	F	F	F	F	F	F	F	F	F	F	F	F	1
Romania	NF	NF	NF	NF	PF	PF	PF	PF	PF	F	F	F	F	F	F	F	0
Russia	NF	NF	NF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	0
Serbia	PF	PF	PF	PF	NF	PF	NF	NF	NF	NF	NF	NF	PF	PF	PF	F	0
Slovak Rep.	NF	NF	NF	F	F	F	PF	F	F	PF	PF	F	F	F	F	F	1
Slovenia	PF	PF	PF	PF	F	F	F	F	F	F	F	F	F	F	F	F	1
Tajikistan	NF	NF	NF	PF	PF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	0
Turkmenistan	NF	NF	NF	PF	PF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	0
Ukraine	NF	NF	NF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	0
Uzbekistan	NF	NF	NF	PF	PF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	0

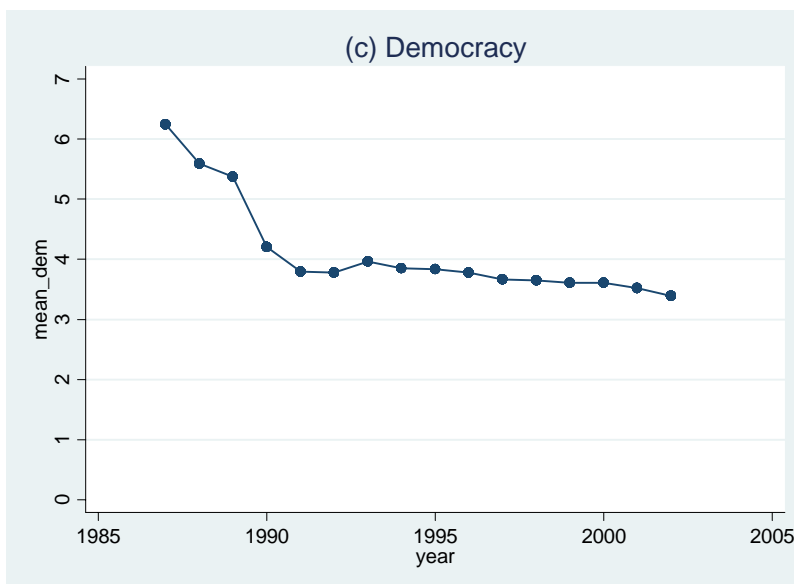
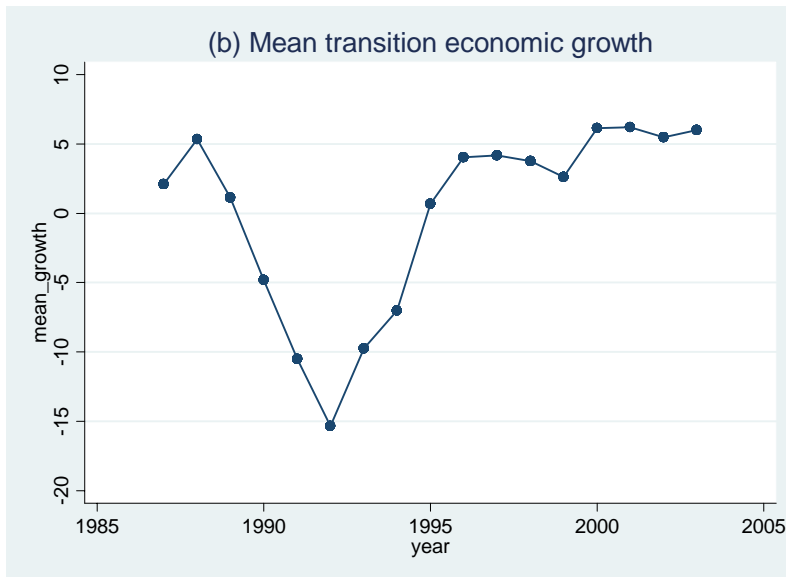
Source: Freedom House, last column: authors' definition, see discussion in section 3.2.

On inspection, one observes that, where there was a regime switch from the communism to democracy, it happened in the early 1990s and broadly speaking, the political regimes have remained remarkably stable subsequently. Three exceptions, relating to Latvia, Estonia and Slovakia in the early 1990's, merit discussion¹⁸. In each case the early variation in the Freedom House measures reflects initial uncertainty in classification rather than genuine regime switches. In the case of the two Baltic States mentioned above, the initial variation in classification is likely to relate to controversy over the granting of citizenship to ethnic minorities that was subsequently resolved. In the case of Slovakia, the variation refers to the period of the populist Prime Minister Vladimir Meciar and the perceived threats to democracy that his rule invited. With the benefit of hindsight (and the subsequent removal of Meciar via democratic elections), these threats can be characterised as more apparent than real. Notwithstanding these observations, we construct a time-invariant dummy variable **early democracy** distinguishing between the countries that introduced (and retained) full democracy in 1991 and those that did not. We include the three countries discussed above in the first category, even if there was some subsequent variation in classification, as discussed. The choice of 1991 reflects the fact that, although democracy had emerged by 1989-1990 in several Central European countries, 1991 was the first year in which democratic opportunities arose for all transition countries, due to the disintegration of the Soviet Union.

Figure 1: Inequality, Growth and Democracy in Transition Countries



¹⁸ Romania switched to full democracy in late 1990s and Serbia and Montenegro in 2002.



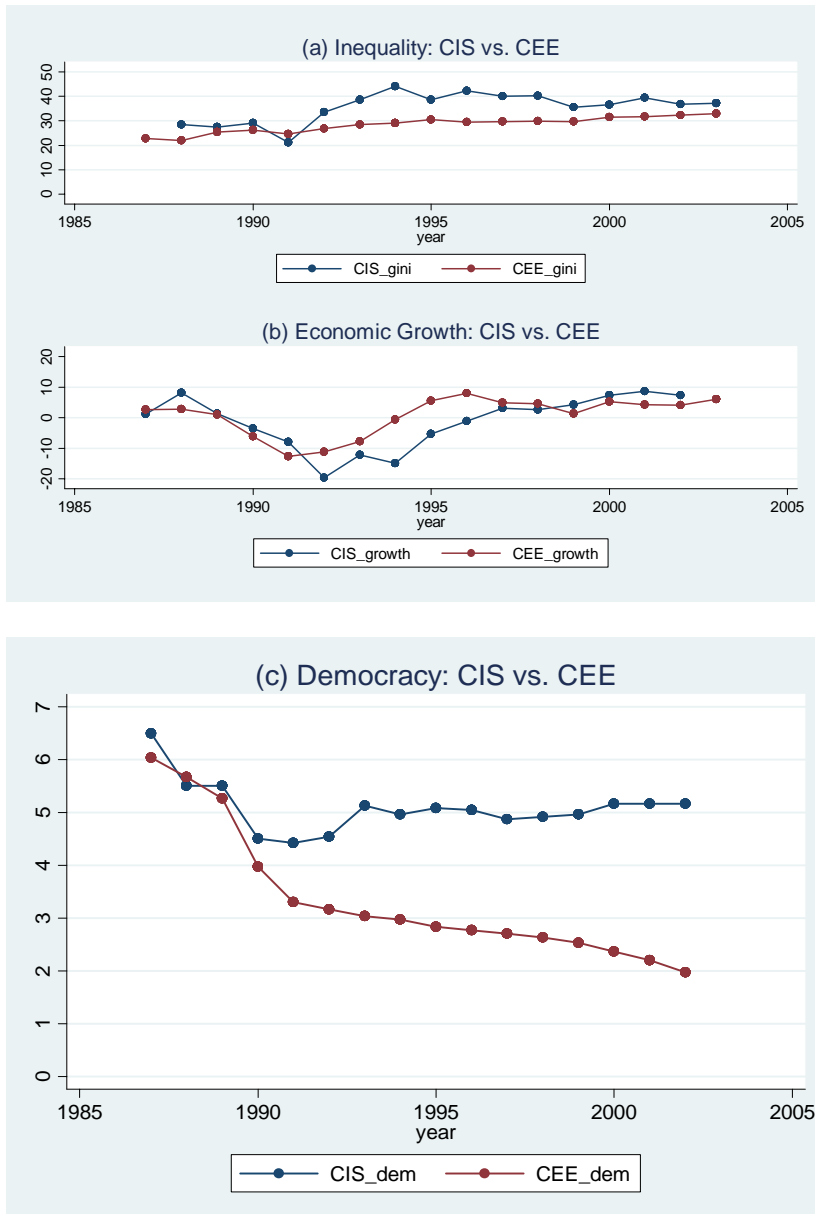
Note: Democracy increases as the value of the Freedom House democracy index *falls*.

Before we go on to our specifications it is instructive to review our raw data. The means of the key variables, showing a striking increase in inequality, democracy and growth are reproduced in Figure 1. While we forgo the opportunity of presenting a detailed presentation of trends in individual countries¹⁹, for well-established reasons (see Mickiewicz, 2005), we do pause to consider the distinction between CIS and non-CIS countries. As discussed in Section 3.1, the division between CIS and other transition countries is strongly correlated with the distinction

¹⁹ Such analysis is easily available elsewhere. See Milanovic (1998) for a comparative analysis, Commander *et al.* (1999) on Russia and Keane and Prasad (2006) on Poland. Among more recent contributions, Hölscher (2006) compares the Czech Republic, Hungary, Poland and Russia, showing that while in the three Central European countries income inequality increased up to the level observed in the ‘old’ EU countries, Russia experienced a ‘hollowing out of the middle class’.

between early liberalisers and late liberalisers, and between early stabilisers and late stabilisers. Figures 2 - 4 present the unfolding sub-group means for inequality, growth and democracy during transition and, referring to our fiscal capacity hypothesis, additionally include the evolution of government revenue as a percentage of GDP.

Figure 2: CIS vs. CEE



Note: Democracy increases as the value of the Freedom House democracy index *falls*.

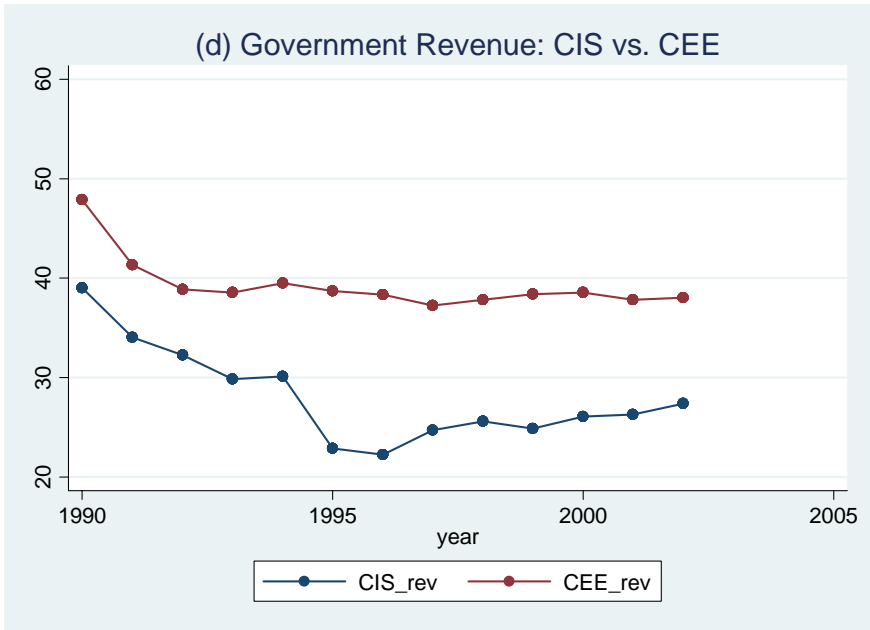
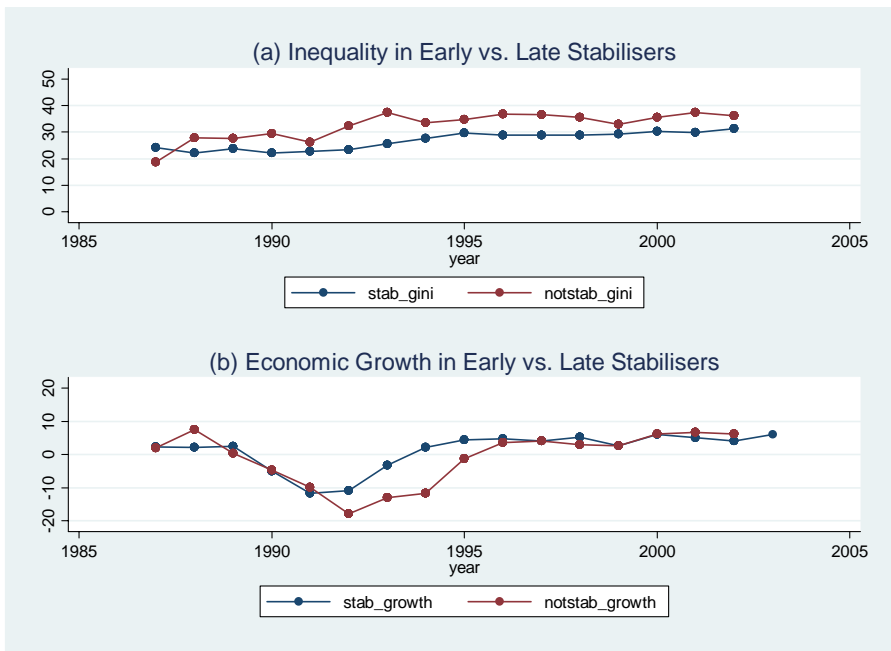
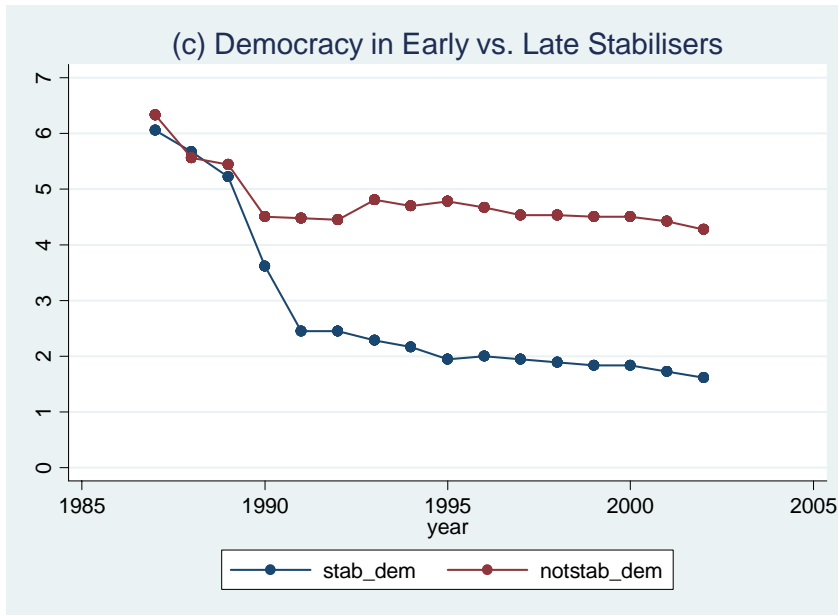


Figure 3: Early Stabilisers versus Non-early Stabilisers





Note: Democracy increases as the value of the Freedom House democracy index *falls*.

As expected CIS countries have experienced higher income inequality throughout the 1990's though there is evidence of some convergence in more recent years, in which growth in CIS countries has outstripped that in non-CIS countries. Also as anticipated, the democracy indicator for non-CIS countries has steadily improved over the whole period while, compared with 1995, the democracy indicator has worsened for the CIS countries. As discussed, government revenue declined more sharply in CIS countries than in CEE and is only slowly increasing. Consistent with these indications, equality, democracy and fiscal capacity have been consistently higher in those countries able to implement early macroeconomic stabilisation, while economic growth benefited from a relative surge in the early nineties. Of course, these are but descriptively suggestive of the heterogeneity in the trends in each of our key indicators and of the potential explanations for this. To investigate further we turn to our multivariate, panel data analysis.

3.3. Specifications and estimation

Given the necessity, outlined above, for applying a rigorous selection method when extracting the inequality data, the dataset that emerges inevitably comes with gaps. As a consequence, the application of panel methods based on first differencing and a longer time dimension is not

possible. We are left then with simple unobserved effects models as the only feasible alternative approach.

In order to properly subject our central hypotheses to empirical examination we supplement our core variables with additional important variables associated with inequality. It is well documented that human capital is key to economic development (Barro (1997, 2001), among others), not least through its capacity to aid technology-absorption. However, human capital is likely to be of equal importance for political reform and for inequality. To this end, Aghion, Caroli and Garcia-Penalosa (1999) argue that higher levels of human capital, promote improved governance and good health, which in turn prompt a greater leaning towards redistribution. We therefore add a variable capturing the **initial upper secondary education** enrolment rate. In the expectation that it may alleviate inequality, we also control for (lagged) **economic growth**, while, with the opposite expectation, we include the (lagged) **dependency ratio**, as a proxy for the size of the tax base. A weaker tax base diminishes the opportunity for redistribution. Further, since regional inequality would seem to have a decisive impact on country level inequality (see esp. Commander *et al.* 1999), as a crude proxy, we introduce an explanatory variable reflecting geographic **area**. Drawing on our descriptive analysis of democracy and inequality in CIS versus CEE countries we finally introduce another time-invariant control, years spent under **communism**, as in Fisher and Sahay (2000). This variable represents our attempt to capture, albeit crudely, some proxy for initial institutional conditions. Countries that remained under communism longer experienced a far more radical eradication of their existing liberal institutions and a destruction of their stock of democratic capital. In particular, this reflects the difference between Central Europe and the Baltic States, where communism arrived after the Second World War, and the countries of Eastern Europe and Central Asia, which became Soviet republics in the early 1920s and went through the full cycle of the Stalinist (pre-1950s) regime.

In all of our estimations we take time variant explanatory variables in lags to alleviate possible endogeneity problems and control for common time-specific shocks using annual dummies. The first variant (1) applies a GLS estimator assuming the correlation between unobservable individual effects and explanatory variables to be zero (i.e. it is a ‘random effects’ model)²⁰. Specifically, (1) incorporates time-invariant dummy variables defined as early stabilisation and

early democratisation (see discussion in Sections 3.1 and 3.2) as well as the initial education control. As important, to shed light on hypothesis (ii), we include a term interacting lagged government revenue with our early democracy indicator.

Correspondingly, our first specification takes the following form:

$$\begin{aligned}
 (Gini)_{i,t} = & \alpha_1(Democracy)_{i,t-1} + \alpha_2(Gov_Revenue/GDP)_{i,t-1} + \alpha_3(GDP_Growth)_{i,t-1} + \\
 & \alpha_4(Gov_Balance)_{i,t-1} + \alpha_5(Dependency_Ratio)_{i,t-1} + \alpha_6(Early_stabilisation)_i + \\
 & \alpha_7(Early_democracy)_i + \alpha_8(Early_democracy*Gov_Rev/GDP)_{i,t-1} + \alpha_9(Initial_Education)_i \\
 & + \alpha_{10}(Area)_i + \alpha_{11}(Communism_years)_i + t_i + u_{i,t}
 \end{aligned} \tag{1}$$

To account for possible problems of endogeneity through the use of government revenue, we instrument both government revenue and the associated interactive term taking the ratio of exports to GDP and the infant mortality rate as instruments. Following Wooldridge (2002), we also add two interactive terms as additional instruments, replacing democracy in the interaction between fiscal revenue and our indicator of democracy with the export rate and mortality rate correspondingly. The resulting GLS (random effects) three-equation model (2a – 2c) is as follows:

$$\begin{aligned}
 (Gini)_{i,t} = & \alpha_1(Democracy)_{i,t-1} + \alpha_2(Gov_revenue/GDP)_{i,t-1} + \alpha_3(GDP_growth)_{i,t-1} + \\
 & \alpha_4(Gov_Balance)_{i,t-1} + \alpha_5(Dependency_Ratio)_{i,t-1} + \alpha_6(Early_stabilisation)_i + \\
 & \alpha_7(Early_democracy)_i + \alpha_8(Early_democracy*Gov_rev/GDP)_{i,t-1} + \alpha_9(Initial_education)_i + \\
 & \alpha_{10}(Area)_i + \alpha_{11}(Communism_years)_i + t_i + u_{i,t}
 \end{aligned} \tag{2a}$$

$$\begin{aligned}
 (Gov_revenue/GDP)_{i,t} = & \beta_1(Democracy)_{i,t-1} + \beta_2(GDP_growth)_{i,t-1} + \beta_3(Gov_Balance)_{i,t-1} + \\
 & \beta_4(Dependency_Ratio)_{i,t-1} + \beta_5(Early_stabilisation)_i + \beta_6(Early_democracy)_i + \\
 & \beta_7(Initial_education)_i + \beta_8(Area)_i + \beta_9(Communism_years)_i + \beta_{10}(Export_gdp)_{i,t} + \\
 & \beta_{11}(Export_gdp*Early_democracy)_{i,t} + \beta_{12}(Infant_mortality)_{i,t} + \\
 & \beta_{13}(Infant_mortality*Early_democracy)_{i,t} + t_i + u_{i,t}
 \end{aligned} \tag{2b}$$

²⁰ We also estimate this regression in a fixed effects form replacing the time-invariant variables with country fixed effects. See next section.

$$\begin{aligned}
(Early_democracy*Gov_rev/GDP)_{i,t} &= \gamma_1(Democracy)_{i,t-1} + \gamma_2(GDP_Growth)_{i,t-1} + \\
&\gamma_3(Gov_Balance)_{i,t-1} + \gamma_4(Dependency_Ratio)_{i,t-1} + \gamma_5(Early_stabilisation)_i + \\
&\gamma_6(Early_democracy)_i + \gamma_7(Initial_education)_i + \gamma_8(Area)_i + \gamma_9(Communism_years)_i + \\
&\gamma_{10}(Export_gdp)_{i,t} + \gamma_{11}(Export_gdp*Early_democracy)_{i,t} + \gamma_{12}(Infant_mortality)_{i,t} + \\
&\gamma_{13}(Infant_mortality*Early_democracy)_{i,t} + t_i + u_{i,t}
\end{aligned} \tag{2c}$$

Finally (model 3), as an alternative method of tackling the potential endogeneity and as another test of robustness, we run a specification similar to (1), but instead use the *lagged* values of government revenue and the corresponding interactive term. However, we see the link between income inequality and the size of the government as essentially contemporaneous. It is the *present* size of the budget, which affects (net) income inequality via government spending. Therefore we see this specification as supplementary only.

In the above equations:

- *Gini* refers to the Gini coefficient of income inequality (see discussion in 3.1),
- *Democracy* refers to the simple average of the Freedom House political rights and civil liberties indices (see discussion in 3.2)
- *Government_revenue* ratio to GDP, *Government_balance*, and *GDP_growth*, are taken from World Bank *World Development Indicators* 2005 (see definitions therein),
- *Early_democracy* assumes the value of one for countries labelled as free in 1991 by Freedom House (see discussion in Section 3.2),
- *Early_stabilisation* takes the value one for countries that stabilised in 1993 or earlier (see discussion in Section 3.2)
- *Communism_years* corresponds to the length of communist period in each country (taken from Fisher and Sahay, 2000),
- *Area* is the area of each country in square kilometres,
- *Initial_education* is the enrolment rate in upper secondary school in 1990, taken from the TransMonee database,
- *Infant_mortality* rate and *Dependency_ratio* (the ratio of number of individuals aged below 15 or above 64 to the number of individuals aged 15 to 64) are also taken from the TransMonee database,
- *Export_GDP*: this is an instrument for *Gov_revenue* (time-variant), defined as the ratio of exports to GDP,

- c refers to individual country effects,
- u is an error term, and
- the i and t subscripts relate to countries and years respectively.

The results of all these specifications are reported in Table 3 and discussed in the following section.

Table 3. Estimation results

	Model 1a: 'random effects' GLS	Model 1b: 'fixed effects'	Model 2a: 2stage'random effects' GLS	Model 2b: 2stage'random effects' GLS	Model 2c: 2stage'random effects' GLS	Model 3a: 'random effects' GLS	Model 3b: 'fixed effects'
Dependent variable	Gini	Gini	Government revenue	Gov. revenue x Early Dem	Gini	Gini	Gini
Independent variables:							
Gov. revenue	-.42*** (.10)	-.12 (.14)			-.53*** (.14)		
Gov. revenue lagged 1 year						-46*** (.09)	-.18 (.13)
Gov. revenue x Early democracy	.24* (.11)	.26* (.13)			1.21† (.71)		
Gov. revenue x Early dem.lag 1y						.26** (.10)	.30* (.12)
Democracy lag 1y	-1.27* (.57)	-.42 (.63)	.77 (.58)	.93* (.43)	-2.07* (.90)	-1.01† (.57)	-30 (.61)
Gov. balance lagged 1year	.13 (.08)	-.05 (.08)	.13 (.10)	-.13† (.07)	.29† (.16)	.20* (.10)	.01 (.09)
GDP growth lagged 1year	-.10 (.09)	-.07 (.08)	.09 (.08)	.17** (.06)	-.28† (.16)	-.14 (.11)	-.11 (.08)
Dependency ratio lagged 1 year	.44*** (.12)	.02 (.16)	.07 (.15)	-.16 (.11)	.53*** (.15)	.42*** (.12)	.04 (.17)
Early stabilis.	-.46(1.06)***		.40(1.71)	2.04(1.28)	-8.44*** (2.88)	-6.06*** (1.05)	
Early democracy	-5.03(3.85)		3.23(4.96)	45.4*** (3.71)	-42.03(27.2)	-5.87(3.85)	
Init. education	-.12** (.04)		.12* (.06)	-.02 (.04)	-.12* (.06)	-.10* (.04)	
Years under Communism	-.02 (.05)		-.31*** (.06)	-.07† (.04)	.03 (.07)	-.05 (.05)	
Area	8.58*** (1.11)		4.27** (1.45)	0.20 (1.08)	8.87*** (1.61)	8.21 (1.07)	
Inf. mortality			-.80*** (.15)	.04 (.11)			
Inf. mortality x Early dem.			.36† (.20)	-.17 (.15)			
Export / GDP			.24*** (.05)	.05 (.04)			
Export / GDP x Early dem.			-.22*** (.06)	-.10* (.04)			
Constant	29.3** (.1)	23.4* (.1)	49.7*** (9.3)	15.1* (7.0)	23.2 (14.4)	38.5*** (9.55)	22.5* (11.1)
R ²	.69	.03			.55	.70	.01
Wald χ^2	449.18***		392***	5001***	208***	462***	
F statistics		7.33***					6.12***
No of obs	176	176	175	175	175	175	175
No of groups	24	24	24	24	24	24	24

Notes to Table 3:

- (a) time effects (annual dummies) included in each specification but not reported;
- (b) reported standard errors are robust standard errors;
- (c) *** significant at .001; ** significant at .01; * significant at .05; † significant at .10;
- (d) for Model 1b: gov. revenue & interactive term with democracy jointly significant at .10 level;
- (e) Hausman specification test for Models 1a and 1b: $\chi^2(18) = 13.38$, insignificant at .10 level;
- (f) Hausman specification test for Models 1a and 2: $\chi^2(22) = 2.17$, insignificant at .10 level

4. Results

For all equations we run multiple Hausman specification tests. In particular, the difference in coefficients between random and fixed effects is highly insignificant (models 1a and 1b), given that we control for a sufficient number of time invariant variables in the former specification. Given the Hausman test results **and** the likelihood of measurement errors (see the discussion in Section 3 above), we see the fixed effects coefficients as of little value. The bias in the latter estimator is large in the case of measurement errors (Griliches and Hausman, 1998; Hauk and Wacziarg, 2004).

In addition, the Hausman specification test indicates that a less efficient but more consistent instrumental variable technique is not necessary²¹. Notwithstanding this, we report the latter results, noticing that the variation in coefficients is small and keeping in mind that the estimates given by Specification 1a represent our preferred ones accordingly. Since our key results are robust to the variations in specification and estimation technique, we discuss them here without reference to specific coefficients or marginal variations and comment only briefly on the results from instrumenting. Instead we concentrate on interpreting the qualitative results in the context of our three hypotheses, outlined in Section 2.

Our first hypothesis concerns the democracy-inequality relationship. For our transition sample, we can immediately observe a significant difference in the short-run and longer-run effects of liberalisation²². Firstly, we find evidence that liberalisation is associated with higher short-run inequality. Our speculative interpretation of this result is that the transfer to democracy and market economy is associated with institutional discontinuities, which result in (temporarily) more unequal distributions of income. Another obvious interpretation links our results with the literature relating the impact of economic liberalisation on inequality. In the transition context, it could be interpreted in line with Aghion and Commander (1999), as summarised in our hypothesis (iii). Second however, we garner some evidence demonstrating that countries that achieved full democracy early in the transition process and maintained it are characterised by

²¹ Our instrumental variable model is based on overidentifying restrictions (four instruments for two endogenous variables). Correspondingly, we performed another specification test comparing the reported specification with the one using two instruments (i.e. only the export to GDP ratio and its interactive term). We could not reject the more efficient specification, which uses four instruments. It was the latter, which was next compared with the model without instrumenting.

²² A note on interpretation may prove helpful. For the lagged democracy indicator a negative coefficient implies *increased* inequality, since higher numbers in the Freedom House index refer to lower levels of democracy, while for the time invariant democracy indicator, a negative coefficient implies *decreased* inequality.

lower levels of inequality. The ‘early democracy’ variable is marginally insignificant when considered alone, but the evidence is stronger when significance of the “early democracy” variable is evaluated jointly with its interactive effect. Thus, we claim tentatively some weak support for our hypothesis (i): embedding liberal institutions early on results in a more equal distribution.

Countries implementing macroeconomic stabilisation programmes successfully by 1993 would appear to reap long run social benefits in the form of lower inequality. Persistent inflation results in redistribution from the poor to the rich, as the latter are typically better equipped to protect their cash balances and hedge their incomes. This is consistent with our hypothesis (iii) (highly significant across specifications). On the other hand, the short-run effects of our macroeconomic policy variable (government balance) are insignificant.

Last but not least, we consider evidence for hypothesis (ii)). The more intriguing aspect of hypothesis (ii) invoked the possible distinction between authoritarian regimes of differing fiscal capacity. We immediately observe a strong positive association between the state’s capacity to raise revenue and *equality*²³ across all specifications. However, as the value of the interactive term with the democracy dummy demonstrates, there is a significant difference between democratic and oligarchic countries in this respect. In particular, the link is strong only for oligarchic regimes. Specifically oligarchies better able to raise revenue enjoy lower levels of inequality.

Thus, the results are suggestive of two different effects. In democratic regimes, the capacity to raise revenue was seen as functionally linked to a greater propensity to redistribute through social transfers (Persson and Tabellini, 1994). However, we find only weak evidence supporting this effect, apart from the (also weak) direct positive effect of democracy on *equality*. A much stronger effect may be at work in oligarchic regimes. Where oligarchic governments have greater control of their fiscal levers, transfers may act to protect the interests of the incumbents at a smaller social cost in terms of distribution, than the alternative, which is to use some form

²³ Since we consider government expenditure to be constrained by the government’s ability to collect taxes, rather than vice versa, we report our specifications with the ratio of revenue to GDP. The results, available on request, using an expenditure measure do not qualitatively differ. More generally, it would be better to have a direct measure of the quality of the fiscal system. However, such measures are simply not available for our sample. Anderson (2005), who focuses of fiscal reforms in transition countries faces the same problem, and analogous to us uses the ratio of tax revenue to GDP as a proxy of the quality of the fiscal system in his empirical specifications.

of entry barriers. This effect is entirely consistent with our ‘fiscal capacity hypothesis’ (ii) based on Acemoglu (2006).

We interpret the results in the light of our earlier discussion of liberalisation in transition economies unleashing conflicting forces on the distribution of income. Subsequent to the initial thrust given to inequality through the freeing up of wages and the relaxation of regulations (Milanovic, 1998), the relevant contrast becomes that of countries based on democracy, as opposed to more ‘oligarch’ oriented economic systems. In the latter, barriers to entry protect the interests of incumbent economic actors and act as a rein on the economic advancement of those in the lower half of the income distribution. As discussed above, this is based on the additional qualification concerning the fiscal capacity of the oligarch government.

Turning to our other control variables, consistent with the literature, we find strong evidence that transition countries with more comprehensive education systems have been able to achieve greater equality in income distribution, while as expected and consistent with Commander *et al.* (1999), we find bigger countries to be less equal. Interestingly, the dependency ratio is clearly associated with higher inequality suggesting, as one would expect, that a lower tax base works against redistribution and the alleviation of inequality. Years spent under the communist regime do not affect inequality directly, but as indicated by the instrumental variables regression may have another, equally interesting, indirect effect. We turn to this below.

Referring to equation 2a, we find that the lagged share of exports in GDP has a strong positive effect on government revenue and that more democratic, better educated societies and larger countries *per se* are also associated with enhanced fiscal capacity. Most interestingly for our discussion, the variable, which has the most significant negative impact, is ‘years under communism’. Here, our results are entirely consistent with the assessment and interpretation presented by EBRD and others, as discussed above. Government revenue collapsed dramatically in those transition countries with the most pronounced problems over the implementation of efficient tax administration and regulation. Our results indicate that this in turn was affected by the inherited level of institutional distortions, as proxied by the time-span under communist rule. This is entirely consistent with the recent work of Persson and Tabellini (2006) who emphasise the importance of historical experience with democracy and the accumulation of a ‘stock of democratic capital’. It is difficult to argue that our findings result from a specification error, as the ‘years under communism variable’ appears in the second stage

equation as well, where it is highly insignificant. This is interesting, as one would expect the link between ‘years under communism’ and inequality to come with a significant negative sign, reflecting stronger social preferences towards equality. Thus, the result is consistent with the argument that the communist regime has not been necessarily associated with more equality²⁴.

5. Conclusions

In this paper, informed by the prevailing literature, we revisit the determinants of income inequality in the context of the transition and the ongoing process of economic liberalisation. In particular, we motivate and investigate three important hypotheses, derived from models presented in Acemoglu (2006) and Aghion and Commander (1999), referring to political and economic liberalisation and fiscal capacity.

We find evidence that political reform has a direct short-term effect increasing income inequality. This however is counter-balanced by a longer-term effect working in the opposite direction: the transition countries that achieved stable democracies are characterised by lower levels of income inequality. Also, perceived as the crucial part of economic reform, macroeconomic stabilisation would appear to be an essential strand of medium term macro policy: early successful stabilisations bestowed a positive legacy of greater longer-term equality.

To the extent that democratic countries are able to effectively raise revenue, they are better equipped to offset inequality through targeted redistribution. Interestingly however, the positive link between fiscal capacity and *equality* is much stronger for oligarchies than for democracies. This is the central empirical finding of this paper, which we interpret in line with Acemoglu (2006). An oligarchy unable to protect its interests via the fiscal mechanism may resort to policies (discouraging entries via legal restrictions and/or weak protection of property rights), which are even more distortionary and come with higher social costs.

In the final throes of the command economy system, the communist countries were in crisis, output was falling, markets were in disequilibria and support for democratisation and reforms

²⁴ To check the latter hypothesis directly, we run a model for the worldwide sample using the same set of inequality indicators and controlling for a standard set of variables. The Communism dummy was insignificant in our estimation (results available on request) and this is robust to variation in specification.

was widespread and growing. Our results suggest tentatively that those countries most effectively embracing democracy were most able to build the required consensus around reforms and growth, regardless of their immediate distributional implications. This does not imply that the more democratic countries in the region are characterised by higher levels of social injustice. Quite the contrary, the democratic system enables the voters to accept the reforms, which support growth, at the cost of a short-term negative effect on income distribution. Within the democratic framework, they are open to the possibility (or promise) that these policies may be outweighed by other compensating policy elements. Our findings regarding the longer-term effects of early democratisation may suggest that this promise was not disingenuous.

References:

Acemoglu, D. (2005), "Constitutions, Politics and Economics: A Review Essay on Persson and Tabellini's The Economic Effect of Constitutions", *Journal of Economic Literature*, **43**, 1025-1048.

Acemoglu, D. (2006), "Modeling Inefficient Institutions", *NBER Working Paper No 11940* (Cambridge, MA: National Bureau of Economic Research).

Aghion, P., E. Coroli, and E. Garcia-Penelosa (1999), "Inequality and Economic Growth: The Perspective of New Growth Theory", *Journal of Economic Literature*, **37**, 1615-1660.

Aidis, R. and Y. Adachi (2006), "Russia: Firm Entry and Survival Barriers", paper presented at CNEM seminar, London Business School, mimeo.

Aidt, T., J. Dutta and E. Loukoianova (2006), "Democracy Comes to Europe: Franchise Extension and Fiscal Outcomes 1830-1938", *European Economic Review*, **50**, 249-283.

Aghion, P. and S. Commander (1999), "On the Dynamics of Inequality in the Transition", *Economics of Transition*, **7** (2), 275-298.

Anderson, E. (2005a), "Openness and Inequality in Developing Countries: A Review of Theory and Recent Evidence", *World Development*, **33** (7), 1045-1063.

Anderson, J. (2005b), "Fiscal Reform and Its Firm-Level Effects in Eastern Europe and Central Asia", Working Paper No 800, William Davidson Institute, University of Michigan.

Atkinson, A. (2000), "The Changing Distribution of Income: Evidence and Explanations", *German Economic Review*, **1**, 3-18.

Atkinson, A., and A. Brandolini (2001), "Promise and Pitfalls in the Use of 'Secondary' Data-Sets: Income Inequality in OECD Countries as a Case Study", *Journal of Economic Literature*, **49**, 771-799.

Balcerowicz, L. (1995), *Socialism, Capitalism, Transformation*, Budapest: Central European University Press.

Barkhatova, N. (2000), "Russian Small Business, Authorities and the State", *Europe Asia Studies*, **52** (4), 657-676.

Barro, R. (1997), "Determinants of Economic Growth: A cross-country empirical study. Cambridge, MA: MIT Press.

Barro, R. (2000), "Inequality and Growth in a Panel of Countries", *Journal of Economic Growth*, **5**, 5-32.

Barro, R. (2001), "Human Capital and Growth.", *American Economic Review*, **91**(2), 12-17.

Birdsall, N. and J. Nellis (2003), "Winners and Losers: Assessing the Distributional Impact of Privatisation", *World Development*, **31** (10), 1617-1633.

Campos, N. and R. Horvath (2006), "Reform Redux: Measurement, Determinants and Reversals", IZA Discussion Paper No. 2093.

Commander, S., A. Tolstopyatenko, R. Yemtsov (1999), "Channels of Redistribution. Inequality and Poverty in the Russian Transition", *Economics of Transition*, **7** (2), 411-477.

De Long, B. and A. Shleifer (1993), 'Princes and Merchants: European City Growth before the Industrial Revolution', *Journal of Law and Economics*, **36** (2), 671-702.

De Melo, M. and A. Gelb (1997), 'Transition to Date: A Comparative Overview', in: S. Zecchini (ed.), *Lessons from Economic Transition*, Dordrecht: Kluwer, 59-78.

De Melo, M., C. Denizer, A. Gelb and S. Tenev (2001), 'Circumstance and Choice. The Role of Initial Conditions and Policies in Transition Economies', *World Bank Economic Review*, **15**, 1-31.

Dias, J., and J. McDermott (2006), 'Institutions, Education and Development: The Role of Entrepreneurs', *Journal of Development Economics*, **80**, 299-328.

Djankov, S., R. La Porta, F. Lopez-de-Silanes, and A. Schleifer (2002), 'The Regulation of Entry', *Quarterly Journal of Economics*, **117**, 1-35.

EBRD (1994-2005), *Transition Reports*, London: European Bank for Reconstruction and Development.

Estrin, S. and M. Prevezer (2006), "On the Role of Institutions in Firm Entry and Survival in Emerging Markets; A Cross-Country Case Study Approach", paper presented at CNEM seminar, London Business School, mimeo.

Falcetti, E., M. Raiser, and P. Sanfey (2002), "Defying the Odds: Initial Conditions, Reforms and Growth in the First Decade of Transition", *Journal of Comparative Economics*, **30**, 229-250.

Fischer, S. and Sahay (2000), "The Transition Economies after Ten Years", IMF Working Paper, WP/00/30.

Forbes, K. (2000), "A Reassessment of the Relationship between Inequality and Growth", *American Economic Review*, **90** (4), 869-887.

Gastil, R.D. (1990), "The Comparative Survey of Freedom: Experiences and Suggestions.", *Studies in Comparative International Development*, **25**, 25-50.

Greene, W. (2003), *Econometric Analysis* (Upper Saddle River, NJ: Prentice Hall).

Glaeser, E., J. Scheinkman and A. Schleifer (2003), "The Injustice of Inequality", *Journal of Monetary Economics*, **50** (1), 199-222.

Gradstein, M. and Milanovic, B. (2004), "Does Liberte = Egalite? A Survey of the Empirical Links between Democracy and Inequality with Some Evidence on the Transition Economies", *Journal of Economic Surveys*, **18** (4), 515-537.

Griliches, Z. and J. Hausman (1998), "Errors in Variables in Panel Data", in: Z. Griliches, *Practicing Econometrics. Essays in Method and Application* (Cheltenham: Edward Elgar), 248-273.

Hauk, J., W. Waciarg (2004), "A Monte Carlo Study of Growth Regressions", Technical Paper No 296, National Bureau of Economic Research, Cambridge MA.

Havrylyshyn, O., 2006, *Divergent Paths in Post-Communist Transformation* (Houndmills: Palgrave Macmillan)

Hellman, J. and D. Kaufmann (2003), "The Inequality of Influence", paper presented at Stanford University Corruption Workshop, mimeo.

Hölscher, J. (2006), "Income Distribution and Convergence in the Transition Process – A Cross-Country Comparison", *Comparative Economic Studies*, **48** (2), forthcoming.

Jackman, R., R. Layard, M. Manacorda, and B. Petrongolo (1997), "European versus US Unemployment; Different Responses to Increased demand for Skills?", *Discussion Paper No. 349* (London: Centre for Economic Performance, London School of Economics).

Jackson, J., J. Klich and K. Poznanska (2005), *The Political Economy of Poland's Transition: New Firms and Reform Governments* (Cambridge: Cambridge University Press).

Johnson, S., J. McMillan, and C. Woodruff (2000), "Entrepreneurs and the ordering of institutional reform. Poland, Slovakia, Romania, Russia and Ukraine compared", *Economics of Transition*, **8**, 1-36 .

Kapstein, E. and B. Milanovic (2003), *Income and Influence* (Kalamazoo, Michigan: Upjohn Institute).

Katz, L. and K. Murphy (1992) "Changes in Relative Wages, 1963-1987: Supply and Demand Factors", *Quarterly Journal of Economics* **107**(1): 35-78

Keane, M. and E. Prasad (2006), "Changes in the Structure of Earnings During the Polish Transition", *Journal of Development Economics*, **80**, 389-427.

Kuznets, S. (1995), "Economic Growth and Income Inequality", *American Economic Review*, **45**, 1-28.

Kuznets, S. (1963), "Quantitative Aspects of the Economic Growth of Nations", *Economic Development and Cultural Change*, **11**, 1-80.

Landa, D. and E. Kapstein (2001), "Inequality, Growth and Democracy", *World Politics*, **53**, 264-296.

Lipset, S.M. (1959), "Some Social Requisites of Democracy: Economic Development and Political Legitimacy.", *American Political Science Review*, **53**, 69-105.

Lopez-Claros, A. and S. Alexashenko (1998), "Fiscal Policy Issues during the Transition in Russia", Occasional Paper, 155, International Monetary Fund, Washington D.C.

Lundberg, M. and L. Squire (2003), "The Simultaneous Evolution of Growth and Inequality", *Economic Journal*, **113**, 326-344.

Marshall, M. and K. Jagers (2002), *Polity IV Project. Political Regime Characteristics and Transitions, 1800-2002*, Centre for International Development and Conflict Management, University of Maryland.

McKinnon (1993), *The Order of Economic Liberalisation* (Baltimore, MD: John Hopkins University Press).

McKinsey (1999), "Report on Russian Economic Performance", McKinsey and Co, mimeo.

Merlevede, B. (2003) 'Reform Reversals and Output Growth in Transition Economies', *Economics of Transition*, **11**, 649-669.

Mickiewicz, T. and J. Bell (2000), *Unemployment in Transition*, Amsterdam: Harwood Academic Publishers.

Mickiewicz, T. (2005), *Economic Transition in Central Europe and the Commonwealth of Independent States*, Houndmills: Palgrave-Macmillan.

Milanovic, B. (1998), *Income, Inequality and Poverty during the Transition from Planned to Market Economy*, Washington DC: World Bank.

Milanovic, B. (2005), *Worlds Apart: Measuring International and Global Inequality*, Princeton: Yale University Press.

Mitra, P. and R. Yemtsov (2006), "Inequality and Growth in Transition: Does China's Rising Inequality Portend Russia's Future?", paper presented at the annual ABCDE World Bank Conference, St. Petersburg, January 2006, mimeo (see <http://siteresources.worldbank.org/INTDECABC2006/Resources/pradeepmitra.PDF>)

Persson, T. and G. Tabellini (1994), "Is Inequality Harmful for Growth?", *American Economic Review*, **84** (3), 600-621.

Persson, T. and G. Tabellini (2003), *The Economic Effects of Constitutions* (Cambridge MA: MIT Press).

Persson, T. and G. Tabellini (2006), *Democratic Capital: The Nexus of Political and Economic Change*, NBER Working Paper No. 12175.

Rutkowski, J., S. Scarpetta, A. Benerji, P. O'Keefe, G. Pierre, M. Vodopivec (2005), *Enhancing Job Opportunities. Eastern Europe and the former Soviet Union*, Washington D.C.: World Bank.

Schaffer, M. and G. Turley (2001), "Effective versus Statutory Taxation: Measuring Effective Tax Administration in Transition Economies", EBRD Working Paper No. 62. London: European Bank for Reconstruction and Development.

Siegle, J., M. Weinstein, and M. Halperin (2004), "Why Democracies Excel", *Foreign Affairs*, **83** (5), 57-71.

Sirowy, L. and A. Inkeles (1990), "The Effects of Democracy on Economic Growth and Inequality: A Review.", *Studies in Comparative International Development*, **25**, 126-57.

Sonin, K. (2003), "Why the Rich May Favor Poor Protection of Property Rights", *Journal of Comparative Economics*, **31** (4), 715-721.

WIDER (2005), “World Income Inequality Database V. 2.0a June 2005. User Guide and Data Sources”, Helsinki: United Nations University – World Institute for Development Economics Research, mimeo accessible online from << <http://www.wider.unu.edu/>>>

Wooldridge, J. (2002), *Econometric Analysis of Cross Section and Panel Data* (Cambridge MA: MIT Press).

DAVIDSON INSTITUTE WORKING PAPER SERIES - Most Recent Papers

The entire Working Paper Series may be downloaded free of charge at: www.wdi.umich.edu

CURRENT AS OF 7/14/06

Publication	Authors	Date
<i>No. 831: Inequality, Fiscal Capacity and the Political Regime Lessons from the Post-Communist Transition</i>	Christopher J. Gerry and Tomasz Mickiewicz	July 2006
<i>No. 830: Business Groups in Emerging Markets - Financial Control and Sequential Investment</i>	Christa Hainz	June 2006
<i>No. 829: Sophisticated Discipline in Nascent Deposit Markets: Evidence from Post-Communist Russia</i>	Alexei Karas, William Pyle and Koen Schoors	June 2006
<i>No. 828: Financial Deregulation and Financial Development, and Subsequent Impact on Economic Growth in the Czech Republic, Hungary and Poland</i>	Patricia McGrath	June 2006
<i>No. 827: The Determinants & Excessiveness of Current Account Deficits in Eastern Europe & the Former Soviet Union</i>	Aleksander Aristovnik	June 2006
<i>No. 826: Privatization with Government Control: Evidence from the Russian Oil Sector</i>	Daniel Berkowitz and Yadviga Semikolenova	February 2006
<i>No. 825: Corruption & Bureaucratic Structure in a Developing Economy</i>	John Bennett and Saul Estrin	February 2006
<i>No. 824: Regulatory Barriers & Entry in Developing Economies</i>	John Bennett and Saul Estrin	March 2006
<i>No. 823: Enterprise Restructuring in Belarus</i>	Marina Bakanova, Saul Estrin, Igor Pelipas and Sergei Pukovic	May 2006
<i>No. 822: Reforms, Entry and Productivity: Some Evidence from the Indian Manufacturing Sector</i>	Sumon Kumar Bhaumik, Shubhashis Gangopadhyay and Shagun Krishnan	March 2006
<i>No. 821: Falling Walls and Lifting Curtains: Analysis of Border Effects in Transition Countries</i>	Yener Kandogan	March 2006
<i>No. 820: Home versus Host Country Effects of FDI: Searching for New Evidence of Productivity Spillovers</i>	Priit Vahter and Jaan Masso	March 2006
<i>No. 819: Earnings Inequality in India: Has the Rise of Caste and Religion Based Politics in India had an Impact?</i>	Kumar S. Bhaumik and Manisha Chakrabarty	March 2006
<i>No. 818: Financial Deregulation and Industrial Development: Subsequent Impact on Economic Growth in the Czech Republic, Hungary and Poland</i>	Patricia McGrath	February 2006
<i>No. 817: The Politics of Institutional Renovation & Economic Upgrading: Lessons from the Argentine Wine Industry</i>	Gerald Mc Dermott	Dec 2005
<i>No. 816: Worker Morale in Russia: An Exploratory Study</i>	Susan Linz, Linda Good & Patricia Huddleston	January 2006
<i>No. 815: Capital Account Liberalization and Exchange Rate Regime Choice, What Scope for Flexibility in Tunisia?</i>	BEN ALI Mohamed Sami	March 2006
<i>No. 814: Evaluation of Mass Privatization in Bulgaria</i>	Jeffrey Miller	March 2006
<i>No. 813: Current Account Adjustments in Selected Transition Countries</i>	Aleksander Aristovnik	Feb. 2006
<i>No. 812: Reassessing the Standard of Living in the Soviet Union: An Analysis Using Archival and Anthropometric Data</i>	Elizabeth Brainerd	Jan. 2006
<i>No. 811: Foreign Exchange Risk Premium Determinants: Case of Armenia</i>	Tigran Poghoysan and Evzen Kocenda	March 2006
<i>No. 810: Convergence and shocks in the road to EU: Empirical investigations for Bulgaria and Romania</i>	Jean-Marc Figueet and Nikolay Nenovsky	March 2006
<i>No. 809: The Cost Structure of Microfinance Institutions in Eastern Europe and Central Asia</i>	Valentina Hartarska, Steven B. Caudill and Daniel M. Gropper	Jan. 2006
<i>No. 808: Ethnic Conflict & Economic Disparity: Serbians & Albanians in Kosovo</i>	Sumon Bhaumik, Ira Gang and Myeong-Su Yun	Sept. 2005