# Equality and Efficiency in Advanced Democracies: Revisiting the Leaky Bucket Hypothesis

# Mark Blyth, Jonathan Hopkin, and Seth Werfel

# First Draft: March 2012

## Abstract

This paper revisits the hypothesis that society must trade-off income equality for market efficiency. Previous cross-sectional analysis suggests that equality and efficiency may be positively correlated at higher levels of regulation. We confirm this curvilinear relationship for a panel of OECD countries from 1980-2010 to control for country fixed effects over time. In addition, we construct a probit model to evaluate the causal relationship between market embeddedness and the elasticity between equality and efficiency. We find that countries with Anglo or Germanic legal origins are significantly more likely to experience trade-offs than countries with French legal origin. Furthermore, we show that more wage coordination increases the likelihood that a country will experience a trade-off between income equality and market efficiency.

Mark Blyth Department of Political Science Brown University <u>Mark Blyth@brown.edu</u>

Jonathan Hopkin Department of Government London School of Economics and Political Science J.R.Hopkin@lse.ac.uk

Seth Werfel Department of Political Science Stanford University <u>swerfel@stanford.edu</u>

Paper presented to Centre for European Studies, Harvard University, April 2012. First draft,

please do not cite without permission.

### Introduction

Over the past two decades, inequality has tended to increase in advanced democracies. A recent OECD survey (2011) reports that income inequality, measured by the Gini coefficient, rose in all but 5 of the 22 member states included in the sample between the 1980s and the mid-2000s. In some countries, particularly those that are English-speaking, large shares of income growth went to the top 1% of the income distribution, leading to pressure for redistributive policies to close the gap (Piketty and Saez 2011). However, demands for redistribution are often contested on the grounds that increased spending on the poor will reduce economic efficiency, and thus reduce overall welfare. Arthur Okun formalizes this concern in his 'leaky bucket' hypothesis (1975). For Okun, redistributive policies that transported resources from rich to poor also generated substantial deadweight loss for society (hence the 'leaks' in the bucket) due to a fundamental trade-off between economic efficiency and income equality.

The Okun trade-off remains a popular heuristic for opponents of the welfare state, with its intuitive emphasis on the suboptimal incentives that redistribution generates for both the rich (by raising marginal tax rates, which undermines investment) and the poor (by rewarding low productivity). A classic early literature on growth (e.g., Kuznets 1955 and Kaldor 1958) stressed the positive impact of inequality for capital accumulation and investment (also see Aghion *et al* 1999, Fisher and Erickson 2007). However, there is little empirical evidence for the trade-off at the aggregate or nation-state level: cross-nationally, egalitarian income distributions and high levels of social spending are positively correlated with GDP per capita (Kenworthy 1995). Furthermore, some research on economic growth suggests a negative relationship with inequality (Alesina and Rodrik 1994, Persson and Tabellini 1994, Perotti 1996, Banerjee and Duflo 2003). The evidence for a positive causal effect of inequality on growth is mixed at best (Barro 2000, 2008, Forbes 2000). Some of this

work posits a negative effect of social spending (resulting from inequality) on incentives and growth. Other scholarship argues that egalitarian welfare states can enhance economic efficiency by investing in human capital and providing incentives as well as security (Barr 1993, 2000, Kenworthy 1995, 2004, Lindert 2003, 2004).

In sum, the raw efficiency-equality trade-off works better in theory than in practice. However, previous attempts to test the trade-off hypothesis are limited because they usually measure efficiency as output, or its rate of change. As a result, these tests are dogged by the same intractable problems faced by economists in explaining levels of productivity or economic growth. Here, we take a different tack. Since there is wide agreement amongst economists about the kinds of institutions that *should* promote economic efficiency, we take those institutions as a proxy for efficiency and assess their relationship to levels of equality. In this way we can test the trade-off theory controlling for the myriad exogenous variables which can affect economic output.

Economists broadly agree that efficiency requires a set of formal institutions that protect property rights whilst allowing market forces to determine prices. Where institutions fail to guarantee property rights and enforce contracts, impose unnecessary transactions costs, or favour the emergence of rents, we expect that efficiency will be lower. This thinking underpins the deregulatory drive backed by international organizations such as the IMF, World Bank and OECD over the past quarter-century, and these same organizations have generated cross-national and sometimes longitudinal data sets which provide measures of the degree to which institutions promote economic efficiency.

In previous work Hopkin and Blyth (2012) drew on this data to show that 'institutional' efficiency and income equality exhibited a curvilinear relationship in OECD countries at the turn of the century. Using a composite variable of several measures of market regulation as a measure for efficiency, and controlling for social spending, they found that inequality was highest in both the most and the least efficient cases, whilst inequality was lowest in countries with intermediate levels of efficiency. In other words, the trade-off exists only at the highest levels of efficiency. For the rest of the sample, efficiency was positively correlated with equality. On the basis of this analysis, Hopkin and Blyth identified three clusters of countries: a 'market liberal' group with high inequality and high efficiency, an 'embedded liberal' group with low inequality and intermediate efficiency, and an 'embedded illiberal' group with high inequality and low efficiency.

Our paper builds on this finding by introducing a longitudinal dimension to the analysis. Hopkin and Blyth (2012) presented only cross-sectional data, which does not capture substantial variation over time as well as across countries. In this paper, we use time series data from the Fraser Institute's Economic Freedom project for our efficiency variable, which allows us to create a panel to estimate the equality-efficiency relationship over time as well as across nations. Our analysis confirms the curvilinear relationship between equality and efficiency after controlling for country fixed effects over time.

However, we are also interested in understanding why some countries face an efficiency-equality trade-off, whilst others appear able to harmoniously combine the two ideals. Under what conditions can we overcome the hypothesized tendency for greater equality to be achieved at the expense of economic efficiency? In this paper, we question Okun's account of the dynamics of markets and the effects of redistribution. We challenge both his assumption that gains in equality usually carry a cost in lower efficiency, as well as his assertion that redistribution necessarily generates suboptimal incentives. This critique suggests an alternative theory that equality depends largely on redistributive spending that is consistent with varying levels of efficiency, and that efficiency itself has a non-linear relationship with equality. This implies that, controlling for redistributive spending, increases

in efficiency will reduce inequality in very inefficient countries, but will increase inequality in more efficient countries.

To test this hypothesis, we construct a probit model to evaluate the causal relationship between economic institutions and the elasticity between equality and efficiency. We use legal origin as an explanatory variable, on the grounds that the legal origin families roughly correspond to the three combinations of equality and efficiency identified in Hopkin and Blyth 2012. We find that countries with English common law or Germanic legal origins are significantly more likely to experience trade-offs than countries with French legal origin, and that more wage coordination increases the likelihood that a country will experience a tradeoff between income equality and market efficiency. These findings refine our understanding of the relationship between economic institutions and income distribution, and have important implications for current policy debates on structural reform and redistribution.

The next section outlines our critique of the trade-off hypothesis and clarifies the theoretical mechanisms underpinning our empirical analysis. The third section presents our model specification and analyzes the results, the fourth section discusses the theoretical interpretation of the results, and the final section concludes.

### No Gain Without Pain? Efficiency, Incentives and Redistribution

Okun's original formulation of the efficiency-equality trade-off focused on the disincentive effects resulting from redistribution. The basic idea is introduced in the very first page of his book. Okun describes capitalism as "a system of rewards and penalties that is intended to encourage effort and channel it into productive activity," noting that this system "generates an efficient economy," but that "the pursuit of efficiency necessarily creates inequalities" (1975: 1). The incentives of a market system do not reward everyone equally, but to do anything about inequality requires us to alter or suppress those very rewards and

penalties that produce efficient outcomes. Hence, the trade-off between equality and efficiency. More specifically, egalitarian and redistributive interventions can affect efficiency in the following ways: by diminishing investment (through high taxes on profits and by reducing the capital stocks of the wealthy), by diminishing work effort (through high marginal taxes for the high-skilled, and income replacement for the unemployed), and by imposing deadweight administrative costs.

Okun is quick to point out that the difficulties of combining efficiency and equality do not preclude achieving their opposites: institutions that undermine efficiency can also reduce equality. So "prohibitions on exchange protect a variety of rights and institutions from contamination by the market. But they can also be manipulated to insulate unequal, oppressive and hierarchical institutions from ventilation by the market" (p.21). One specific example of this is discrimination: excluding people from economic opportunities on the grounds of gender, ethnic or other characteristics distorts the reward system in the labour market, at the end time as entrenching disadvantage and inequality (p.77). For this reason, Okun argued that "much of the inequality of income and wealth reflects inequalities of opportunity that can be efficiently corrected within the present institutional structure" (p.83).

This opens up the intriguing possibility that equality and efficiency "trade in" under certain conditions, rather than trade off. Okun seemed to regard this as a special case, focusing mainly on the problem of how to trade gains in equality for losses of efficiency, and concluding that "the conflict between equality and economic efficiency is inescapable" (p.120). But there are strong theoretical grounds for hypothesizing a curvilinear relationship between efficiency and equality. Efficiency is not only a function of levels of taxation and transfers, but also of the ways in which markets are regulated. Independently of the potential distortions introduced by the state's fiscal interventions, it is possible to regulate economic activity in ways which protect and promote market incentives, just as regulation can suppress

market signals and distort competition. Regulation has both efficiency and distributional implications.

Regulation which suppresses market signals to generate rents for entrenched interests can reduce both efficiency and equality. One example of this is the labour market discrimination cited by Okun, while others would include the restriction of rights to entry in product markets or other rules tending to reduce competition and protect existing market participants. In the worst case scenario, regulations can serve to provide administrative personnel with hold-up power, which they can use to elicit bribes or favours. Some kinds of rent-seeking create more inequality than others; for example labour market protections for low-skilled workers will have more egalitarian effects than rules granting oligopolistic market positions to highly paid professionals such as notaries in Roman Law countries. Since regulations are the product of a political process, there are grounds for assuming that more powerful interests will be more successful rent-seekers than weaker or more fragmented groups. The ability of the legal system to restrain corruption will also affect the incentives for rent-seeking. In short, regulatory arrangements that constrain markets heavily are likely to produce low efficiency and low equality.

The economy can also be regulated in such a way as to maximize efficiency, by ensuring that the administrative costs of regulating market access and the restrictions imposed on market entry ensure fair trading and consumer protection without unduly compromising competition and the workings of the price mechanism. Market liberals are enthusiastic proponents of the notion that regulation is inversely related to efficiency, and that less regulated markets are always more efficient. Market-conforming regulation can enhance efficiency, although an abundant literature in political science reminds us that unfettered markets tend to generate regulatory responses (Vogel 1996), and that the volume of regulation is an unreliable indicator of the efficiency of market outcomes. For example,

some markets may become more subject to monopolistic competition in the absence of regulatory intervention.

The effects of market-conforming regulation on equality will depend on the degree of initial inequality of endowments, including human capital. If endowments are very unequally allocated, markets will tend to exacerbate this initial inequality. Efficient markets generate inequalities by rewarding the most productive activities, but they may also reduce inequalities by offering opportunities to less politically powerful groups that could be excluded from markets in more heavily regulated economies. We also need to consider whether pro-market measures are adopted evenly across sectors; if liberalization is restricted to the market for low-skilled labour, whilst higher skilled groups are protected from competition, than the effects will be inegalitarian (Baker 2011). In sum, more market-conforming regulation can, at least up to a point, increase efficiency and equality together. Under some conditions, however, further liberalization may increase inequality.

The rest of this paper will examine the effects of efficiency, understood as the degree to which regulation is market-conforming, on equality. Although the most powerful predictor of equality is the volume of redistributive social spending, market efficiency also has independent explanatory power (Hopkin and Blyth 2012). Moreover, efficiency does not have a linear negative relationship with equality, contrary to the trade-off hypothesis. For countries with 'inefficient regulation', liberalization can have a positive relationship with equality. This effect is not present for countries with more market-conforming regulatory arrangements. For any given level of regulation, redistributive taxation and spending on social transfers will have a strong positive effect on equality. Regulation is orthogonal to the size of the public sector, so societies can choose to locate themselves at different points on both the regulatory and the redistributive scales.

#### Estimating the Relationship Between Equality and Efficiency Over Time

Blyth and Hopkin (2012) cast a shadow on Okun's 'big trade-off' by showing that market efficiency actually has a positive yet curvilinear effect on income equality. However, this conclusion was drawn from a cross-sectional analysis that does not account for potential country fixed effects. For example, some countries might have stationary levels of income equality that are not determined by changes in market regulation. In addition, the relationship between equality and efficiency is unlikely to be stable over time for any given country. Our hypothesis suggests that this relationship might evolve based on a variety of political and economic factors, such as legal origin and social expenditure.

The first aim of the empirical section of this paper is to test the basic results from Blyth and Hopkin (2012) using panel data for nearly thirty countries over thirty years. We collect Gini coefficients from the OECD database and subtract this from one to obtain a reasonable measure of income equality. The OECD database lists two data points per decade from the mid-1980s to 2010, so we recode these observations to be equidistant and reflect the mid-point and beginning of each decade. For our measure of market regulation, we use the publicly available index from the Economic Freedom of the World Annual Report (2010) published by the Fraser Institute. More specifically, we use an aggregate index that measures the degree of regulation of credit, labor, and business by country. To match our equality and efficiency data, we create a balanced panel dataset that includes one observation per country for every five years from 1985-2005. Finally, we trim the sample to include only advanced democracies, following the classification scheme from Cheibub et al (2010). A bivariate plot of the efficiency and equality variables, with regression lines for the different legal origin families (Figure 1), confirms the curvilinear relationship identified in Hopkin and Blyth 2012.

# (Figure One About Here)

We construct the following nonlinear fixed effects model to estimate the effect of market efficiency on income equality over time:

$$Y_{ii} = \alpha + \beta_1 X_{ii} + \beta_2 X_{ii}^2 + \sum_{n=1}^3 \theta_n Z_{nii} + \sum_{k=1}^2 \rho_k \ln(W_{kii}) + \sum_{t=1}^T \eta_t + \sum_{i=1}^N \mu_i + \varepsilon_{ii}$$
[1]

where *Y* represents a simple transformation of the Gini coefficient for country *i* in year *t* to measure equality and *X* represents our efficiency score from the Fraser Institute. *Z* represents a vector of control variables including social expenditure as a percent of GDP from the OECD database, wage coordination, and an indicator variable for whether country *i* has a majoritarian electoral system (Visser 2011, Golder 2005). *W* represents a second vector of control variables including the natural logarithm of GDP per capita and the sum of exports and imports as a share of GDP, which is a proxy for trade openness.  $\eta_i$  and  $\mu_i$  represent year and country fixed effects, respectively.

Table 1 displays the results of our empirical model. We report the modified Durbin-Watson statistic for panel data to confirm our intuition that income equality is serially correlated and fit our model with AR(1) disturbance to generate unbiased estimates. Column 1 shows the positive yet curvilinear effect of efficiency on equality. Column 2 includes our social expenditure variable, which yields a positive and significant sign. Controlling for wage coordination and electoral system in Column 4 removes some of the significance of social expenditure. Finally, Column 5 includes controls for levels of economic development and trade openness, which are each insignificant and leave our estimates of efficiency and social expenditure relatively unchanged. Taken together, Table 1 confirms the basic story from Blyth and Hopkin (2012) that market efficiency has a positive yet curvilinear effect on income equality while controlling for country fixed effects over time. In other words, the conventional wisdom about a strict trade-off between the two political ideals rests on tenuous empirical ground.

#### (Table One About Here)

However, the primary limitation of Table 1 is that it only estimates the equalityefficiency trade-off in terms of bivariate correlation. As a result, the model above cannot explain variation in the relationship between equality and efficiency across countries and over time. For example, can countries evolve towards a "trade-in" as they attain higher levels of economic development? Are there institutional prerequisites for achieving a positive relationship between market efficiency and income equality? In order to answer these questions, we need to explicitly model the dependent variable as the elasticity between equality and efficiency that is a function of a variety of political and economic variables.

We estimate the following probit model to move closer to a generalized theory of which countries face Okun's famous trade-off and why:

$$\Pr(Y=1)_{it} = \Phi(Z_{it} + \sum_{n=1}^{2} \lambda_{it} + \sum_{k=1}^{2} \ln(W)_{it} + \varepsilon_{it})$$
[2]

where *Y* is a binary variable indicating a trade-off between equality and efficiency in country *i* over the previous 5 years, such that:

$$Y = \begin{cases} 1 \to \frac{\ln(1 - Gini)_{t} - \ln(1 - Gini)_{t-5}}{\ln(X)_{t} - \ln(X)_{t-5}} < 0\\ 0 \to \frac{\ln(1 - Gini)_{t} - \ln(1 - Gini)_{t-5}}{\ln(X)_{t} - \ln(X)_{t-5}} \ge 0 \end{cases}$$
[3]

This crude method wastes some information about the magnitude of the ratio between log changes of equality and efficiency over time. However, we believe that the magnitude of this ratio is subject to a higher degree of measurement error than its sign. *Z* is a vector of dummy variables indicating Anglo or Germanic/Scandinavian legal origin, with French legal origin being the default case. *W* represents a second vector of control variables including the natural logarithm of GDP per capita and our proxy for trade openness. We do not include country fixed effects because they would be collinear with our legal origin indicator variables.

Table 2 presents the estimates derived from our basic probit model with clustered standard errors. Column 1 shows that social expenditure and wage coordination do not appear to explain the relationship between equality and efficiency. Column 2 adds our control variables from Table 1, which leaves our basic estimates unchanged. However, the p-values for both models suggest that neither is statistically significant, so we cannot draw any firm conclusions from these specifications alone. Column 3 includes our legal origin variables, which are both positive and statistically significant, and the p-value suggests that the model is significant as a whole. In addition, our wage coordination variable yields a positive and significant sign. Finally, Column 4 shows the results of our "full" model with all relevant explanatory variables. Wage coordination increases the probability that a given country will experience a trade-off between equality and efficiency, while levels of GDP per capita and trade openness appear to have no effect. In addition, countries with Anglo, Scandinavian or Germanic legal origin are each significantly more likely to experience a trade-off than countries with French legal origin. The next section examines how legal origin might influence the ways in which efficiency and equality relate to each other.

(Table Two About Here)

## Trading Off, Trading In: Legal Origin and Equality

The relationship between the historical origin of countries' legal arrangements and their economic development is by now a staple of the new institutional economics literature (for a review, La Porta et al 2008). Legal origin is associated with regulation of entry, financial market development, protection of investor and property rights, and judicial independence, amongst other things. Up to now there is has been little attention to its impact on income distribution, so there is no obvious theoretical interpretation to draw on. However, the empirical association of legal origin with our variables of interest is strong enough to be worth exploring, and the literature provides a number of suggested causal channels to examine.

The legal origin literature in economics, although it distinguishes between five broad legal origin types, focuses mostly on the distinction between the common law characteristic of English-speaking countries and former British colonies, and the French civil law model adopted by countries in Catholic Europe, Latin America, Eastern Europe and former French colonies around the world. The judge-made law of common law countries tends to be more sympathetic to private property, the judiciary is more independent from the executive, and the law more adaptable than in French civil law systems. These trends account for the stricter regulation of entry and of labour contracts, and the weaker protection of investors and creditors, in French origin countries. The consequences of these institutional differences for financial market development and growth have been extensively researched, but their implications for income distribution remain unexamined.

A plausible channel for legal origin to influence equality is through the opportunities that legal institutions present for rent-seeking, corruption, and unequal access to political and administrative decisions. These phenomena are correlated with legal origin – corruption and rents are apparently more prevalent in French legal origin countries - , and plausibly produce inegalitarian effects. Rent-seeking behaviour and corruption redistribute to groups or individuals that enjoy privileged access to political decision-making, and are therefore likely to be economically advantaged in the first place. Access to rents can compound, providing rent-seeking groups with ever greater resources with which to secure redistributive policies in their favour. Corruption, which generally involves the buying of political and administrative advantage with hard cash or resources in kind, again is more available to already advantaged groups. French legal origin, which implies a more centralized bureaucracy and judiciary and

more extensive and invasive regulation, can favour inequality through the inefficiency of market-suppressing institutions (see Tanzi 2001).

The institutions which provide opportunities for corruption and rents – microregulation of economic activity and a high volume of legal and administrative requirements for opening businesses – are precisely the institutions targeted by processes of 'structural reform' that have been promoted by international institutions such as the World Bank, IMF, OECD and EU over the past quarter century. Increases in institutional efficiency in French legal origin countries could be expected, all else equal, to have a positive effect on income equality if they focus on reducing bureaucratic burdens and establishing regulatory arrangements that are more market-conforming than market-suppressing. Measures such as the dismantling of unjustified monopolies, the opening up of markets to new entrants, and the removal of excessive bureaucratic burdens should reduce opportunities for corruption and reduce the rents available to protected groups.

The results we observe for the other legal origin families – Anglo and Germanic/Scandinavian – are perhaps more difficult to interpret, since increases in efficiency here have the effect of increasing inequality. One possible explanation is that these countries lack the kinds of inequality-inducing rents typical of French law countries, and that the 'low hanging fruit' of deregulation is unavailable. The remaining constraints on market efficiency may not have inegalitarian effects – indeed in some cases (for example labour regulation and in particular the institutions of wage bargaining) these constraints may be vital to maintaining low levels of wage dispersion and therefore inequality. Pressures (perceived or real) to liberalize can result in valuable social protection being removed in the name of economic efficiency, undermining equality. Ironically, the trade-off resulting from liberalization may have the most powerful effects in countries – usually of Germanic/Scandinavian legal origin – that have successful combined high levels of equality with medium-high levels of efficiency in the post-war period. The increased inequality observed in countries such as Sweden and Germany over the recent period can be interpreted in this way.

# **Concluding Remarks**

To conclude, this paper has shown that the relationship between efficiency and equality cannot be reduced to the simple trade-off identified by Okun and others. Instead, the relationship is curvilinear, with efficiency, conceptualized as institutional arrangements favouring freer markets, being associated with high inequality at low and high levels, and low inequality at intermediate levels. Moreover, we have shown that, with appropriate controls, increases in efficiency are more likely to be associated with increased inequality in Germanic/Scandinavian and Anglo legal origin countries than in French legal origin countries. Moreover, coordinated wage bargaining is also a predictor of an efficiency/equality trade-off.

If increased efficiency is traded off for higher inequality in medium to high efficiency (Germanic/Scandinavian and Anglo) countries, whilst it may 'trade in' with lower inequality in low efficiency (French law) countries, this begs the question whether this difference can be explained by the institutional implications of legal origin, or whether legal origin is a predictor of the level of institutional efficiency which itself determines whether equality will rise or fall with increases in efficiency. As yet we have not addressed this question. Moreover, legal origin types are also predictors of other institutional features which could plausibly account for the patterns we observe, such as the design of welfare state institutions (Esping-Andersen 1990), or the institutions of coordination that are the focus of the Varieties of Capitalism literature (Hall and Soskice 2001, Hancke, Rhodes and Thatcher 2007, Hall and Gingerich 2009, Iversen and Soskice 2009, Schmidt 2009, Thelen 2010). These issues will be addressed in future iterations of the paper; for the moment we tentatively conclude that underlying institutional features related to legal origin are consequential for the impact of market liberalization on income distribution, and that this has implications for the programmes of economic reform currently being advocated in the advanced democracies, and particularly in Eurozone countries with French legal origin.

## References

Aghion, Philippe, Eve Caroli, and Cecilia García-Peñalosa (1999). 'Inequality and Economic Growth: The Perspective of the New Growth Theories', *Journal of Economic Literature* 37:1615–1660.

Alesina, Alberto and Dani Rodrik (1994). 'Distributive Politics and Economic Growth', *Quarterly Journal of Economics* 109(2): 465-490.

Baker, Dean (2011). *The End of Loser Liberalism*. Washington DC; Centre for Economic Policy Research.

Banerjee, Abhijit and Esther Duflo (2003). 'Inequality and Growth: What Can the Data Say?', *Journal of Economic Growth* 8(3): 267-299(33).

Barr, Nicholas (1993). *The Economics of the Welfare State*. Oxford: Oxford University Press. Barro, Robert (2000). 'Inequality and Growth in a Panel of Countries', *Journal of Economic Growth* 5 (1): 5-32.

Barro, Robert (2000). 'Inequality and Growth Revisited'. Asian Development Bank Working Paper Series. (11, January).

Blyth, Mark and Jonathan Hopkin. 2012. "What Can Okun Teach Polanyi? Efficiency,Regulation and Equality in the OECD." *Review of International Political Economy* 19:1: 1-33.

Cheibub, José Antonio, Jennifer Gandhi and James Raymond Vreeland (2010). 'Democracy and Dictatorship Revisited', *Public Choice* 143(1-2): 67-101.

Esping-Andersen, Goesta (1990). *Three World of Welfare Capitalism*. Cambridge: Polity. Fisher, Brendan and Jon Erickson (2007). 'Growth and Equity: dismantling the Kaldor-Kuznets-Solow consensus', in Jon Erickson and John Gowdy (eds.), *Frontiers in Ecological Economics*. Northampton MA: Edward Elgar, pp.53-71.

Forbes, Kristin (2000). 'A Reassessment of the Relationship Between Inequality and Growth', *American Economic Review* 90(4): 869-87.

Golder, Matt (2005). 'Democratic Electoral Systems around the World, 1946-

2000', Electoral Studies 24: 103-121.

Gwartney, James D., Joshua C. Hall, and Robert Lawson (2010). *Economic Freedom of the World: 2010 Annual Report*. Vancouver, BC: The Fraser Institute. Data retrieved from <u>www.freetheworld.com</u>.

Hall, Peter and Daniel Gingerich (2009). 'Varieties of Capitalism and Institutional Complementarities in the Macroeconomy: An Empirical Assessment', *British Journal of Political Science* 39: 449-482.

Hall, Peter and David Soskice (eds.) (2001). *Varieties of Capitalism*. Oxford: Oxford University Press.

Hancké, Bob, Martin Rhodes and Mark Thatcher (eds.) (2007). *Beyond Varieties of Capitalism*. Oxford: Oxford University Press.

Iversen, Torben and David Soskice (2009). 'Distribution and Redistribution: The Shadow of the Nineteenth Century', *World Politics*, 61(3): 438-86.

Kaldor, Nicholas (1958). 'Monetary policy, economic stability and growth' in Nicholas Kaldor, *Essays on the Economic Policy I*. London: Duckworth, pp.128-53.

Kenworthy, Lane (1995). 'Equality and Efficiency: The Illusory Tradeoff', *European Journal of Political Research* 27: 225-254.

Kenworthy, Lane (2004). *Egalitarian Capitalism*. New York: Russell Sage Foundation. Kuznets, Simon (1955). 'Economic Growth and Income Inequality', *American Economic Review*, 45(1): 1-28.

La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer (2008). 'The Economic Consequences of Legal Origins', Journal of Economic Literature 46(2): 285–332.

Lindert, Peter (2003). 'Why the Welfare State Looks Like a Free Lunch', NBER Working Paper N.9869 (July).

Lindert, Peter (2004). *Growing Public. Social Spending and Economic Growth Since the Eighteenth Century, Volume One.* Cambridge: Cambridge University Press.

OECD (2011). Divided We Stand? Why Inequality Keeps Rising. Paris: OECD.

Okun, Arthur (1975). *Equality and Efficiency: The Big Tradeoff*. Washington D.C.: Brookings Institution Press.

Perotti, Roberto (1996). 'Growth, Income Distribution and Democracy: What the Data Say', Journal of Economic Growth 1(2): 149-187.

Persson, Torsten and Guido Tabellini (1994). 'Is Inequality Harmful for Growth?', *American Economic Review* 84(3): 600-21.

Piketty, Thomas, Emanuel Saez and Stefanie Stantcheva (2011). 'Optimal Taxation of Top Labor Incomes: A Tale of Three Elasticities', NBER Working Paper No. 17616, November. Schmidt, Vivien A. (2009). 'Putting the Political Back into Political Economy by Bringing the State Back Yet Again', *World Politics* 61(3): 516-548. Tanzi, Vito (2001). *Politics, Institutions and the Dark Side of Economics*. Cheltenham: Edward Elgar.

Thelen, Kathleen (2010). 'Economic Regulation and Social Solidarity: Conceptual and Analytic Innovations in the Study of Advanced Capitalism', *Socio-Economic Review* 8(3): 187-207.

Visser, Jelle (2011). 'Data Base on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts, 1960-2010 (ICTWSS). Amsterdam: Amsterdam Institute for Advanced Labour Studies, University of Amsterdam

Vogel, Stephen (1996). Freer Markets, More Rules. Ithaca: Cornell University Press.

Figure 1. Scatterplot of equality and efficiency in OECD countries 1985-2005, by legal origin



	(1)	(2)	(3)	(4)	(5)
	Equality	Equality	Equality	Equality	Equality
Efficiency	0.205***	0.185***	0.195***	0.194***	0.135*
	(0.013)	(0.016)	(0.016)	(0.016)	(0.069)
	***	***	***	***	**
Efficiency^2	-0.015	-0.013	-0.014	-0.014	-0.010**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.005)
Social Expenditure		0.003**	0.002*	0.002*	0.004*
Social Experiature		(0.003)	(0.002)	(0.002)	(0.004)
		(0.001)	(0.001)	(0.001)	(0.002)
Wage Coordination			-0.001	-0.002	-0.005
0			(0.004)	(0.004)	(0.006)
			()	()	()
Electoral System				0.013	0.018
5				(0.015)	(0.030)
ln(GDP per capita)					0.019
					(0.031)
Trade Openness					-0.013
					(0.023)
Constant	-0.016	-0.012	-0.023	-0.018	-0.048
	(0.028)	(0.028)	(0.029)	(0.030)	(0.098)
Observations	84	82	79	79	56
Groups	27	27	25	25	24
р	0.000	0.000	0.000	0.000	0.000
Adj. R-squared	0.720	0.742	0.782	0.782	0.608
Autocorrelation	0.455	0.451	0.399	0.395	0.191
coefficient					
Bhargava et al.	1.195	1.253	1.278	1.288	1.683
Durbin-Watson					
a. 1 1 .	.1				

Table 1. Nonlinear Fixed Effects Models with AR(1) Disturbance

Standard errors in parentheses \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

	(1)	(2)	(3)	(4)
	Trade-off	Trade-off	Trade-off	Trade-off
Social Expenditure	-0.047	-0.054	-0.031	-0.032
-	(0.040)	(0.039)	(0.036)	(0.038)
Wage Coordination	0.119	0.174	0.389**	0.568***
	(0.145)	(0.151)	(0.179)	(0.209)
ln(GDP per capita)		0.043		-0.469
		(0.372)		(0.389)
Trade Openness		-0.079		-0.085
		(0.219)		(0.255)
Anglo			1.546***	1.942***
8			(0.559)	(0.687)
Germanic			0.898**	1.035***
			(0.360)	(0.381)
Constant	0.436	-0.019	-1.459	2.687
	(0.808)	(3.979)	(1.106)	(4.268)
Observations	72	64	72	64
р	0.479	0.636	0.013	0.019
Pseudo R-squared	0.017	0.029	0.106	0.121

Table 2. Probit Model of Equality-Efficiency Trade-off

Clustered standard errors in parentheses \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01