

The Economic Origins of Democracy Reconsidered*

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*forthcoming. *American Political Science Review* 106(1): in press.

The first version of this paper was presented at the 2008 Meeting of the A.P.S.A. We thank Georgetown audiences at the McDonough School of Business and the Mortara Tuesday Political Economy seminars for comments. We also thank seminar participants at the IPES 2008 conference, ETH, the International Monetary Fund, Yale University, and the Universities of Iowa, Virginia, and Zurich. We thank Art Kraay and James Galbraith for discussion about the inequality data sets, Keith Ord and Michael Tomz for advice on the research design, and Pietra Rivoli for comments on our theoretical argument. Robert Bates, Jeff Frieden, Mark Kayser, Irfan Nooruddin, Ken Scheve, and Vineeta Yadav also offered valuable comments. We thank Ron Rogowski for his exceptionally insightful comments on the paper. For research assistance we thank Rebecca Anderson, Naphat Kissamrej, Andrew Lucius, Dafina Nikolova, and Erica Owen. We thank Annalisa Quinn for editorial work. Of course, we alone are responsible for the contents of the paper. Quinn acknowledges gratefully funding support from the NSF, the Research and Fiscal Affairs departments at the IMF, and the McDonough School of Business at Georgetown. The replication data will be posted upon publication, and will be available from either author.

The Economic Origins of Democracy Reconsidered

Abstract

The effects of inequality and financial globalization on democratization are central issues in political science. The relationships among economic inequality, capital mobility, and democracy differ in the late 20th century for financially integrated autocracies vs. closed autocracies, we argue. Financial integration enables native elites to diversify internationally asset portfolios. Diversification decreases both elite stakes in, and elite collective action capacity for, opposing democracy. Financial integration also changes the character of capital assets—including land—by altering the uses of capital assets and the nationality of owners. It follows that financially integrated autocracies, especially those with high levels of inequality, are more likely to democratize than unequal financially closed autocracies. We test our argument for a panel of countries in the post-WII period. We find a quadratic hump relationship between inequality and democracy for financially closed autocracies but an upward sloping relationship between inequality and democratization for financially integrated autocracies.

Since the nineteenth century, scholars have theorized that income inequality affects a country's prospects for democratization. Recent works stress a government's capacities to tax capital in the context of inequality as an influence on democratization. Empirical tests of these theories have, however, produced inconclusive results on the linkage between inequality and democratization. (See, e.g., Houle 2009.) And, important anomalies have been observed. The democratization of much of South America, a highly unequal region with 'immobile' capital assets such as mines, is puzzling in light of most theories about inequality, democracy, and immobile assets.

We theorize that new forms of global financial integration are central to the inequality and democracy debate. Prior studies have stressed the threat of 'asset exit' as a deterrent to a government adopted confiscatory tax policies against holders of mobile assets. What is new in our account is that modern portfolio theory recommends that asset holders engage in international diversification, even in a context where governments have foresworn confiscatory tax policies or other policies unfavorable to holders of mobile assets. Exit through portfolio diversification is the rational investment strategy, not (only) a response to deleterious government policies. Autocratic elites, therefore, will hold diminished stakes in their home countries, creating an opening for democratization.

Portfolio diversification is facilitated by financial integration, which increases the elite's wealth and a country's inequality. This diversification amounts to an exchange of assets with foreigners who also hold diversified international portfolios. The 'swapping' of assets mitigates the risks of adverse political events such as confiscatory taxation for both native and foreign elite. Native rich have little to gain from resisting democracy since they can (and should) diversify their risks. Incoming international (diversified) investors—the behavior of whom is rarely considered in extant theories—are unlikely and unable to resist democracy to the same degree as their native counterparts in financially closed economies (native elites with internationally undiversified portfolios). The dispersion of asset ownership within financially integrated, open autocracies implies a diminished interest in domestic policy by native elites. It also implies—because of the free rider problem—a lower capacity for repression and other forms of collective political action. For their part, citizens

will opt for democracy rather than revolution because the former allows for the low, but still, feasible rates of taxation allowed by international financial integration. This is the new bargain that underlies the democratization of unequal societies that we are observing today.

The paper is divided into four parts. Part one reviews the major contributions to the literature. It argues that, while these works provide valuable insights into how economic openness affects the origins of democracy, these contributions do not account for how modern financial integration conditions the relationship between inequality and democratization. We present our new explanation for democratization in part two. At the end of this section, we produce several testable implications of our argument. Part three reports the results of several data analyses. These results generally support our argument. The results and some questions for future research are discussed in the Conclusion.

The Economic Origins of Democracy Reconsidered

The academic literature on inequality and democracy is vast. That said, most theories share a similar architecture. Most partition society into distinct groups, especially by factor ownership: for instance, capital owners and wage earners. (See Alquist and Wibbels 2010 for a discussion.) Nearly all theories emphasize the distribution of income earned and (or) assets owned by these groups. Median voters are assumed to be poor citizens who have strong redistributive tax preferences that make democracy expensive for elites in highly unequal societies. And, nearly all stress the movability of assets as giving political voice to the holders of the assets. Two mechanisms of democratization are generally analyzed: revolutions and bargains.

In what follows, we review some of the major works in the literature. We then critically evaluate them, showing that they do not account for how an autocracy's integration into the current world financial system conditions the inequality–democracy relationship.¹

¹ There is another genre that stresses the impact of the *level of economic development* on democratization (e.g., Lipset 1959). But this genre is unclear as to the mechanism of democratization. And empirical work such as Przeworski et al (2000) raised serious questions about its veracity. In rationalizing the Kuznets curve, Acemoglu and Robinson (2002: 194) explain that,

Prior Literature.

Nineteenth century theorists saw changing economic inequality as a determinant of changing political regimes, but the direction of the relationship differed by theorists. De Tocqueville's core thesis was that rising economic equality—especially the equality of land ownership—was a necessary condition for France's first experiment with democracy and for America's democratic experience. Since “the gradual development of the principle of equality” was the “providential fact” of his time, de Tocqueville claimed democratization was inevitable (de Tocqueville 1998, 1876).² In contrast, Marx and his followers argued that rising economic inequality spawned revolution, which eventually would produce democratic socialism.

More recent scholarship stresses bargaining over tax rates on assets as a vehicle for democratization. Bates and Lien (1985) argued that democracy is the result of a bargain between monarchs and holders of tax ‘elastic’ physical assets. Because monarchs need revenue to fight wars and physical assets are mobile, they are forced to bargain with asset holders:

“elasticity of the tax yield made it necessary for [monarchs] to bargain with those who possessed property rights over the moveable tax base and to share with them formal control over the conduct of public affairs” (Ibid. 57).

because there are multiple possibilities for (joint) accumulation and inequality dynamics, the relationship between growth and democracy should be ambiguous.

² Land equality in France was due to the decline of the nobility and other features of the transition out of feudalism (de Tocqueville, Book II: Chapter 1). As regards the U.S., Engerman and Sokoloff (2002) and Sokoloff and Engerman (2000) trace land equality to the long term effects of factor endowments. See also Acemoglu, Johnson and Robinson (AJR; 2001, 2002) who emphasize the related effects of initial settler mortality. Factor endowments and settler mortality produced institutions that reinforced the (in) equality produced by European (colonization) immigration. De Tocqueville argued that the fall of the Old Regime was due to a conjunction of factors that included equality of land ownership, administrative centralization, and the spread of democratic beliefs, collective individualism, and the isolation of nobles and other segments of French society.

Bates and Lien rely on historical case studies to demonstrate the truth of their argument.³

In Acemoglu and Robinson's (AR: 2000, 2001) account of democratization, the threat of revolution looms large in the bargaining between elites and masses. AR (2002, 2000) show how democratization can be part of the process that gives rise to the Kuznets curve – the idea that inequality rises in early phases of industrialization but diminishes at higher levels of income. A rise in inequality under autocracy increases the threat of revolution by the poor. Elites weigh their gains from continuing to set tax rates in an autocracy while continuing to pay the costs of repression relative to their gains from granting democracy and allowing a poor (median) voter to set tax rates. For the poor, democracy represents a credible commitment by the elite to accept limited redistribution.

In the first half of their book, AR (2006) develop a “workhorse,” two group model of distributive politics. AR's model stresses the relative gains to the poor and elite from income redistribution under autocracy and democracy conditional on the poor's relative income after a revolution, cost of repression to elites, and other parameters. Democratization is interpreted as a credible commitment to redistribution. But it is one of several possibilities (Proposition 6.2). Empirically, the implication is that the relationship between equality and democracy is an inverted U or hump.

The second half of AR's book (2006: Chapter 10) contains an open economy extension of their analysis. In it, AR assume that in most countries, labor is abundant and capital is scarce. They also assume that trade and capital mobility both produce global factor price equalization. The result is an increase in the income of the poor and, in turn, a reduction in the poor's (median voter's) preferred tax rate. In this way, trade and financial liberalization produce a lower income loss to the rich relative to what they experience in a closed economy. This makes it more likely that democracy is the preferred choice for the rich (instead of autocracy

³ See also Rogowski (1998), who argued that democratization depends on capital endowments and a population's ability to emigrate. Rogowski supported Bates and Lien's conclusion of a negative (positive) correlation between “trapped” (mobile) physical capital and democracy.

and repression). But AR are quick to add that the assumptions underlying their open economy models are controversial, especially the assumption that globalization reduces inequality (Ibid, 346).

Boix argues that the origins of democracy depend on the interaction of inequality and asset specificity, which he defines as the “cost of moving capital away from its country of origin” (2003, 3).⁴ An innovation in Boix’s analysis is that he considers the possibility that the wealthy can earn income abroad. As in the Bates and Lien investigation, the native elite have the ability to move some types of assets out of the political jurisdiction, depending on their ‘specificity.’ This possibility of an exit constrains the ability of the poor to tax elites.

Inequality’s effects on democratization are then contingent on the degree of asset specificity in an economy. By definition, in closed economies, the degree of specificity is high and the threat of exit is therefore not credible. Boix gives land assets as an example. If, in this case, income is relatively equally distributed, Boix contends that the wealthy will agree to democratize, which is in contrast to AR but similar to de Tocqueville. If, on the other hand, in this closed economy, income is unequally distributed, Boix’s prediction is for autocracy. If the economy is open—asset specificity is low—the wealthy have an “exit option” which is what constrains the ability of the poor (median) voter to tax them. In this case, as in the Bates and Lien argument, democratization is the likely outcome: “the decline in the extent to which capital can be either taxed or expropriated as a result of its [specificity] fosters the emergence of a democratic regime” (2003: 12). Boix also uses a combination of case studies and data analysis to support his arguments.

Recently, still another work in this genre has appeared: Ansell and Samuels’ (2010) “contractarian explanation” for democratization. Their argument is similar to that of Bates and Lien, but Ansell and Samuels distinguish land from industrial assets. They derive different expectations for how land (positive) and income (negative) equality affects democratization. Both case studies and data analysis are used by Ansell and Samuels to defend their thesis.

⁴ Williamson (1981, 555) uses the phrase, ‘asset specificity’ to refer to whether a firm’s costs or investments are specialized to a given transaction. Of the three sources of asset specificity Williamson 1981 describes, ‘site specificity’ comes closest to Boix’s meaning regarding the costs of moving capital abroad. “Asset exportability” is perhaps another way to think of Boix’s use of asset specificity. We follow Boix’s use of asset specificity in this paper.

Critique.

Most existing analyses assume either a financially closed economy or an economy in which only some types of assets can ‘exit.’ Most works do not include modern financial integration in the opportunities and constraints facing actors. For instance, it is only at the end of their article that Bates and Lien call for inclusion of capital inflows and outflows as an extension to what is otherwise a closed economy formal model.⁵ Ansell and Samuels also assume a closed economy. They make no provision in their contractarian approach for the increased sales of land to foreigners and for the new forms of inequality that financial integration produces. Finally, the models in all the AR articles cited here as well as in the first half of AR’s book assume the economy is closed. In these models and in their workhorse model, AR assume assets are owned only by native poor and native elites; there is no capital inflow and exit occurs only into “informal markets.”

Boix’s model and the model extension in the second part of AR’s book usefully recognize the possibility of capital or labor outflows. But these models do not explain how the rise of international financial integration facilitates these flows, and what the political implications of these flows are.⁶

In view of the omission of global financial integration as an analytic consideration, it is not surprising that recent empirical investigations have produced mixed support for leading theories.⁷ Boix’s 2003 study covered regime transitions 1950 to 1990. He found support for his arguments. Using data up through 2002, Houle (2009) recently tested the claims of Boix and AR. He used a dynamic probit model to predict transitions in Przeworski et al.’s measure of regime. Rodriguez and Ortega’s (2006) data were used by Houle to measure inequality. Houle’s main finding was that inequality only affects democratic consolidation, not democratization: if there is any relationship between inequality and democracy, it is U-shaped, not hump-shaped (Houle 2009: 610, 615). Neither empirical investigation found support for the AR argument.

⁵ Bates and Lien (1985, fn. 23) say that in medieval times, foreign asset holders had “no leverage” on the monarch.

⁶ Boix (2003) emphasizes the importance of international relations such as the lack of Empire and regional peace. See especially chapter 6 and his reference to geographic insularity in Chapter 3.

⁷ Bates and Lien and AR rely on case studies to support their arguments. They never produce any statistical tests.

Houle (2009), however, makes no provision for financial openness in the empirical analysis, even though a test of Boix's theory would require some controls for capital mobility and the interaction between capital mobility and inequality. Several of the same design problems plague other recent tests like those reported by Ansell and Samuels (2010).⁸

For these reasons, we need a new account of the economic origins of democracy, an account that incorporates the effects of modern financial integration. We offer one in the next section.

A New Bargain for Democratization: The Effects of Financial Integration

Overview. A key insight in the Bates and Lien and Boix studies is that the ability of elites to move assets within and out of political jurisdictions strengthens their bargaining position over tax rates. Our argument builds on this insight but applies it to financially integrated autocracies.

We contend that financial integration alters the calculus of autocratic elites in a way that makes democratization likely. It is through three mechanisms that financial integration ameliorates the adverse effect of inequality on the willingness of autocrats to democratize. First, financial integration gives domestic elites an incentive not only to exit the political jurisdiction, but also to construct an internationally diversified portfolio. The diversified portfolio has higher returns than a domestic-only portfolio, which increases economic inequality. Second, the makeup of a country's capital stock — the identities of its owners and its value to those owners in an internationally diversified portfolio— changes with financial integration. Third, financial integration constrains, but does not eliminate, the ability of the median voter to tax capital income. We describe in greater detail below the workings of the mechanisms. Given these considerations, autocratic elites have less at stake regarding the median voter's tax policy preferences under financial integration and less

⁸ Houle includes land and trade openness in his multiple imputation model but not in his explanatory model. The only variable in his explanatory model related to openness is oil exportation. With regard to the degree of economic globalization over time, Houle checks for robustness with his dynamic probit model with decade and regional dummies. But he draws no implications from the respective analyses about the impact of (changes in) financial openness. Ansell and Samuels make no explicit provision for financial openness in their data analysis.

capacity to resist those policy preferences. In turn, median voters are able to capture some of the revenue they need to finance the production of public goods, but redistribution is constrained by financial integration. Hence the poor and the elite opt for democratization rather than for revolution or repression. This, we argue, is the new bargain that underlies democratization in the modern, financially integrated world economy. Empirically, the new bargain means that as unequal autocracies move from financially closed to financially integrated economies, these autocracies will tend to democratize. Extant democracies will be unaffected by the new phase of world financial integration because they are based on the older, consolidated bargains that are already described in the literature.

International Portfolio Diversification and Democratization. Modern portfolio theory sheds light on how international financial integration helps investors create better diversified portfolios and therefore higher levels of wealth with lower risk. Native investors lower their risks relative to returns by diversifying into foreign equities through two mechanisms. First, international equity market price correlations are lower than intra-country, inter-industry equity price correlations. Second, international markets, by definition, have a bigger “investment opportunity set.” (See Grubel 1968; Bekaert and Harvey 2000; Quinn and Voth 2008 for discussions.) The risk reduction achievable by a representative investor in the U.S. through investing in broadly-based international portfolios compared to investing in, for example, the “core markets” of the U.S., the U.K, Germany and France was estimated to be 65 percent in 2000 (Goetzmann et al. 2005, 31). For an average U.S. investor between 1970 and 1994, the risk-adjusted return of an internationally diversified portfolio vs. a U.S.-only equity portfolio was 28% higher (DeSantis and Gerard 1997, 1907).

For native investors in a closed emerging economy, the potential returns from international portfolio diversification are much higher. As explained above, the asset price correlations internationally will be lower than the ‘within’ country asset correlations and the ‘investment opportunity set’ will be higher, offering domestic investors the opportunity to decrease risk and increase return. With liberalization of capital account outflows and the international diversification it allows, the domestic investor is able to insure that his or her assets are not too “specific” (or, more correctly, are not too idiosyncratic in risk). (See Bechtel 2009 for a

discussion of several types of investment risks.)

Prior studies emphasized the threat of asset exit or ‘asset elasticity’ if rulers either adopt unfavorable policies or fail to commit credibly to favorable policies through democratic reforms. What is new in our argument is that modern portfolio theory recommends international diversification, even in a context where governments have adopted policies favorable to holders of mobile assets. Exit is the rational investment strategy, not only a response to confiscatory taxation or deleterious policies.

The incentives for international diversification of elite assets have two political implications. First, international diversification lessens the threat to the autocratic elite from democratization, and more specifically from the redistribution of capital income. Second, by design, portfolio diversification decreases the concentration of assets held by the native elite in their home economy. Moreover, with decreased elite asset ownership concentration comes a likely decrease in the elite’s ability to solve “collective action” problems. Among these collective action problems are repression of democracy or control of tax rates or both. That is, with greater dispersion of asset ownership, ‘free riding’ in bearing the costs of maintaining autocratic rule is likely to increase.⁹

These two political implications will influence only autocratic democratizations, and will not be associated with democratic reversals. The costs to an elite of organizing to reverse democratization are higher than the costs to the same elite of maintaining an existing autocratic regime. Given that the forces we identify lessen elite stakes in, and organizing capabilities around, political action, the more costly task of reversing democratization will occur infrequently.

Financial Integration and the Changed Nature of Capital Assets in Autocratic Countries. Paradoxically, when a country with ‘immobile’ or ‘illiquid’ assets liberalizes inward capital account transactions, specific assets (or those that have idiosyncratic risks that are uncorrelated with returns in global capital markets) become valuable to foreign investors as components of their global, diversified portfolio. This is because, as explained

⁹ Put another way, the elite capacity for solving collective action problems should not be assumed, as each investor can construct his or her own international portfolio. On the problems of collective action in general see Keefer 2009.

above, the aims of international investors are to diversify risk both by investing in assets whose prices do not co-move with international prices and by expanding their investment opportunity set. (See Dellas and Hess 2005 for a discussion stock market synchronization increasing with increasing liquidity and depth equity markets.) As Goetzmann et al. (2005, 1) note, “the benefits from diversification rely increasingly on investment in emerging markets,” which contain assets with more idiosyncratic risk. They show (2005, 31) that “the risk reduction from diversifying across all markets is more than double the risk reduction that can be achieved by diversifying across the core [U.S., U.K, Germany, and France] markets only.”

Capital account openness changes the meaning and economic value of “asset specificity.” Assets that previously were nonredeployable or immobile are now globally traded in world financial markets. In this way, capital assets – *including land* – are no longer “specific” in the same way as in the past. Owners of land are able to sell property rights to foreigners seeking diversified portfolios. These foreigners can trade property rights in secondary markets. And, with the proceeds from these sales, former (native) land-owners are able to purchase new, often highly liquid assets in foreign markets. For these reasons, contrary to the arguments in Ansell and Samuels, the distinction between land and other assets dissolves in a context of international financial integration.¹⁰

For example, through American Depositary Receipts, Global Depositary Receipts, and other instruments, Argentine landowners now can sell their assets to overseas investors in international equity markets, retain the proceeds from those sales, and buy equities. As evidence, note that, of the public offerings in the American Depositary Receipt (ADR) markets by industry through 2008, nearly 35% of the \$175 billion in offerings sold outside home countries have been in so-called ‘fixed’ or ‘immobile’ industries such as mining

¹⁰Historically, land is taken as the best example of a purely specific asset. For instance, see the discussions in Ziblatt (2008) and Busch and Reinhardt (2005, esp. p. 715). See also Rogowski’s (1998: 53-55) discussion of the implications of assets being nonredeployable. Land remains “nonredeployable” in the physical sense in that it cannot be moved. But ownership rights to this land can be transferred to and *among* foreign elites. As we explain, this changes the calculus of the poor and asset holders and, in turn, produces a new bargain for democratization.

and agriculture.¹¹ Of the \$6.5 trillion in market capitalization value for the top 15 emerging markets, nearly 25% of the value of those markets traded in New York and not in the home market.¹² In addition to these markets, international investors are buying and leasing ‘immobile’ assets such as large tracts of land in Africa, Central Europe, and other parts of the world.¹³ Prior to these developments in international financial markets (roughly before 1980), elites in underdeveloped countries had limited ability to convert domestic assets into fungible overseas assets. Financial openness—the ability to exit a country’s economy, without the corresponding capability to diversify portfolios and engage in asset swaps—was of limited benefit to autocratic elites.

Through domestic asset sales to foreigners, native capital owners accrue large earnings, which increase inequality between native poor and native elites. Empirical studies show this positive correlation between inequality and financial openness. Financial globalization was found to be a robust correlate of rising income inequality in a cross-section of countries examined in Quinn (1997). Claessens and Perotti (2007) show that financial liberalization’s benefits were highly skewed in favor of small groups of elites, especially in developing countries. Jaumotte, Lall, and Papageorgiou (2008) find that, while trade has the effect of reducing income inequality, inward FDI flows have increased income inequality (cf. AR, Chapter 10, Section 5.1). A study in 2008 by the International Labor Organization (ILO) also documents the correlation between rising income inequality and stock of FDI (ILO 2008). With an increase in wealth from capital asset sales comes an increased incentive for further international diversification by the native elite.¹⁴

¹¹ Calculations based on data from Bank of New York Mellon 2009, Compustat 2009, and Standard & Poor’s 2009.

¹² Ibid.

¹³ *The Economist* (May 21 2009) calls this “Outsourcing’s Third Wave.” See also Barrionuevo 2011 on Chinese land purchases and leasing in Brazil.

¹⁴ See also Figini and Görg (2006), who show initial rises in wage inequality from inward foreign direct investment in emerging markets. They argue that FDI owners pay a premium for high skilled workers relative to unskilled workers. As the number of unskilled workers diminishes, wage inequality from FDI should diminish. They report some evidence that,

Exchange of Assets and Exchange of Political Risks. In a sense, native elites in a financially closed economy are holders of a highly undiversified investment portfolio with undiversified political risk. After financial integration, native elites are able to form internationally diversified portfolios, which diversify their political risk. Apart from a few core countries (e.g., the U.S.), the economic risks inherent in any one investment market are therefore small, and the stakes of the foreign elite in the politics of any given country are correspondingly diminished.

In these ways, modern financial integration potentially has much more complex effects on democratization than the ‘exit’ option described in the literature on the economic origins of democracy. For one, modern portfolio theory recommends international diversification (or exit) even in cases where governments adopt ‘virtuous’ domestic policies and institutions. For another, the ‘identity’ of holders of domestic assets changes: both foreign and native elites hold these assets. And foreign investors holding diversified portfolios are less likely to respond in politically repressive ways to unfavorable domestic tax policies than the undiversified native holders of immobile assets in closed economies. International investors simply will not invest, which constrains the tax rate that can be imposed.

Financial Globalization, Capital Taxation, and Democracy. Many political scientists and economists argue that capital taxation in smaller economies with open capital accounts is difficult to sustain; such taxation is prone to a “race to the bottom.” (See Devereux, Lockwood, and Redoano 2007 and Tanzi 1995 for models. See Haufler 2001 for a review.) For example, the prediction of open capital accounts models is that a government’s revenue from capital taxation disappears, even if governments persist in maintaining tax rates. Note also that AR’s open economy extension (2006: 339) assumes that capital inflows and outflows either are not taxed or taxed at a relatively low rate. Paradoxically, in this model, the unsustainability of high levels of taxation on mobile capital with open capital accounts is good for democratization. In the AR extension, capital

following FDI in Irish manufacturing, wage inequality initially rises with a decrease in wage inequality many years later as unskilled labor disappears or is transformed.

inflows increase wages making the income of the median voter higher and therefore, *ceteris paribus*, reducing the redistributive pressures on elites: democracy becomes less costly.

It is difficult to think of an argument in international political economy research that is more at odds with the observed behavior of governments. Consider Figure 1.¹⁵ It reports OECD corporate tax collections and rates for 1970 and 2005 both years of world business cycle expansion.¹⁶ For the average OECD country, corporate tax revenues as a percentage of GDP *have risen* in the past 35 years from 2.5% of GDP to 3.6%.¹⁷ The 35 years between 1970 and 2005 are a period of financial globalization among OECD countries with no significant capital controls remaining by 2005. Top corporate tax rates have fallen on average during the same period. But the tax base has been broadened through reductions in incentives and other deductions, and base-broadening has contributed to the steep rise in corporate tax collections.¹⁸ Emerging market corporate tax collections in recent years have grown modestly, in contrast to tax collections for OECD member countries. But the respective governments' capital tax collections have remained relatively stable.

Addressing the discrepancy between theory and evidence, Plümper, Troeger, and Winner (2009) argue that fiscal rules and equity norms (measured by Gini coefficients) put upward pressure on capital tax rates and

¹⁵ We use corporate capital taxation (revenue and rates) as our proxy for capital taxation. Data on corporate taxation is reliable, in contrast to data for the more general category, "capital" taxation. What constitutes "capital" income varies extensively cross-nationally in contrast to corporate income.

¹⁶ Because taxation is frequently counter-cyclical, controlling for stages of the business cycle is important in analysis over time. Both 1970 and 2005 were part of peak world business cycles with world growth averaging 5% both years. See IMF, World Economic Outlook, April 2007, p. 1.

¹⁷ The U.S., Canada, and Japan had the highest percentage corporate tax collections in 1970. In these three cases, the 2005 percentage collections are somewhat lower than in 1970. In the U.S., corporate efforts at tax shielding have played a role in decreasing collections. See Desai and Dharmapala 2010. In Japan, a decade of economic stagnation has eroded corporate profitability. Canadian corporate tax rates have decreased from early levels. See OECD 2010.

¹⁸ See Devereux, Griffith, and Klemm 2002 for a review of the policy debate around cutting top tax rates while "tax-base broadening." See also Swank and Steinmo 2002.

revenue. Plumper et al.'s results confirm that countries with open capital accounts do not converge on capital tax policies. The Plumper et al. findings are consistent with the "system of constraints" results in Swank and Steinmo (2002) and the "tournament" model in Basinger and Hallerberg (2004). Governments, while not free in these analyses to tax capital at confiscatory rates, are able to capture income from capital taxation under conditions of capital account openness. Financial integration thus does not eliminate the tax burden on capital. The foreign capital that flows into and out of countries is taxable, though usually not at rates higher than rates in the U.S. and other major OECD countries.¹⁹ The poor (median) voter therefore has some possibility to choose a tax rate that allows for some redistribution and production of some public goods.

Implications. As AR in their extension, Boix, and others argue, the open economy linkage between inequality and autocracy is likely to differ from the relationship in a closed economy. Where our argument differs is that we contend that modern financial integration allows for portfolio diversification by holders of domestic assets, which includes exchanging of assets with foreigners, who also hold diversified international portfolios. This 'swapping' of assets mitigates the risks of adverse political events, such as confiscatory tax policies, for both native and foreign elite. In this way, financial integration limits the risk of democratization to autocratic elites in highly unequal societies.

We predict the greatest increase in democratization for financially open, unequal autocracies. In this case, the native rich have little to gain from resisting democratization since they can diversify their assets. Incoming international (diversified) investors are unlikely and unable to resist democracy to the same degree as their counterparts in financially closed economies (native elites with internationally undiversified portfolios). The dispersion of asset ownership implies a diminished interest by domestic elites in domestic politics and a lower capacity for collective action regarding its policies and institutions. For their part, the

¹⁹ The U.S. taxes the income of U.S. residents regardless of the geographic origin of the income stream. The U.S. generally credits U.S. residents for taxes paid in other countries (if the U.S. and the country in question have a tax treaty). The U.S. then collects the residual taxes not paid to the foreign government. This creates an incentive for countries to maintain tax rates of capital and personal income somewhat below the U.S. rates.

poor (median voter), because capital asset taxation of foreign and native asset holders still is partly feasible, will opt for democratization rather than revolution. Therefore, overall, the prospects for democratization are brighter in financially open economies with high inequality than they are in financially closed economies with high inequality. Hence, the new phase of financial integration makes high levels of inequality in open autocracies associated with democratization.

In sum, our causal chain is as follows. Domestic financial openness with high levels of international financial integration produces portfolio diversification by native elites with resulting increased domestic inequality. This diversification causes a reduction in the autocratic elites' stake in domestic tax policies and in their capacity for collective action. Financial openness with financial integration, in turn, reduces the median voter's preferred tax rate to somewhere between "safe haven" and global average tax rate but still sufficient to make democratization more attractive than revolution. Democracy, therefore, results in less net redistribution than in the financially closed economy and elite repression is less attractive in the financially open than in the closed case. Hence, there is a greater probability of transition to democracy in financially integrated autocratic economies with high degrees of income inequality in comparison to unequal financially closed autocracies.

<i>Implication 1</i>	In unequal autocracies, increasing financial openness conditions the effects of income distribution; under conditions of financial openness, income inequality will be positively associated with democratization.
<i>Implication 2</i>	For autocracies in general, greater integration into global financial markets will be positively associated with democratization.
<i>Implication 3</i>	Neither of the relationships in Implications 1 and 2 will hold in existing democracies as the financial forces at work will not lead to a reversal of previous democratic bargains.

Empirical Tests of Our Propositions

Data and Measures

Democracy. Our core dependent variable in this investigation is change in democracy, which we measure by using both Polity IV and Regime from 1955-2004. (The latter measure now is also known as DD.²⁰) We

²⁰ Polity IV is from Marshall, Jaggers and Gurr 2009 (updated at www.bsos.umd.edu/cidcm/polity). Regime is from Przeworski et al. 2000, updated in Cheibub, Gandhi, and Vreeland 2009.

estimate models using both measures to demonstrate robustness of our results. In using the 21 point Polity measure, we allow for minor as well as major changes in democratic institutions. In using the dichotomous Regime variable, we focus on large changes in political institutions. For reasons explained below and in the Data appendix, we use five year panels. For these panels, change in Regime is transformed into an interval variable whose value ranges between -1 and 1; change in Regime represents the difference in 5 year average values of DD for each country. A positive value of change in Regime thus indicates greater levels of democratization. We show below that the choice of the democracy indicator does not change our results.

An important question is whether the effects we propose are found for autocracies that are democratizing (or retreating deeper into autocracy) or democracies that are consolidating (or reversing into autocracies). Boix 2003 also distinguished between the two types of cases in his empirical estimations. We follow the Polity coders and treat countries with combined average Polity scores of 6 and up in the five year period prior to the period studied as democracies, and treat countries with Polity scores below 6 as autocracies. *Inequality.* Cross-national inequality indicators are plagued by measurement difficulties. We use a single indicator of inequality for each country, a Gini coefficient,²¹ based on three standard data sets: Deininger and Squires 1996 (D&S); Milanovic 2005, and United Nations University-WIDER's World Income Inequality Database (WIID) 2008. The D&S and WIID data contain information from various sources using diverse methods on diverse populations. These data must be adjusted before using them in cross-national, time-series analyses.²² The Milanovic data are comparable across time and space but are limited in time to at most three observations per country.

Dollar and Kraay 2002 (DK) develop a method for turning these different GINI measures into a single

²¹ Gini coefficients are a way of measuring a nation's income inequality. They are scaled between 0-100. Gini coefficients measure the dispersion of income, with high values indicating higher inequality.

²² The main differences are whether surveys measure income or expenditure, households or individuals, and are net of taxes and transfers or are gross income. We use GINI indicators that are a) national in origin, b) rated as having a WIID quality of at least "3," and c) where possible, consistent by methodology within country.

indicator that can be used in comparative research. We use DK's transformation algorithm for this purpose. In our Data Appendix we explain in more detail how this is done and why, in the end, our measure of income inequality is sounder than that used by Houle (2009) and others.

Financial Integration. Our measures of financial integration are based on work by Quinn (1997), and Quinn and Toyoda (2007). *CAPITAL* is the main element of capital account openness created from the text published in the International Monetary Fund's *Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER)*. The indicator is an index for a government's policy stance toward capital account liberalization; it is scaled 0-100. Global and regional averages of capital account openness are also calculated based on *CAPITAL*. (See the data appendix for further details.)

We emphasized in our critique of the literature the difference between the effects of a threat of "exit" of a native elite's mobile assets and the effects of native and foreign elites' portfolio management. The threat of exit is credible now, we argue, because a) global financial markets are much more fully developed than in the past and b) foreign elites seek to exchange assets (risks) with native elites. To capture this part of our argument, we create an interaction term between the indicator of liberalization of capital account openness and the indicator of global liberalization of capital. This indicator is a proxy for the native elite's capacity for portfolio diversification. We expect the interaction term to have a positive and statistically significant coefficient, which implies that higher domestic financial openness in the context of increased global financial openness allows for increased portfolio diversification, with its attendant effects on democratic prospects in autocracies. See the Data Appendix for more details.

One additional, influential binary indicator of financial integration is Bekaert, Harvey, and Lundblad's (2005) *EQUITY* measure. It dates equity liberalization episodes for 95 countries from 1980 to 1999. The measure takes the value of "0" prior to the date of financial liberalization and "1" afterwards. The data are based on Bekaert and Harvey's (2002) *A Chronology of Important Financial, Economic and Political Events in Emerging Markets*. *EQUITY* indicates the first date from which nonresidents are able to transact in a country's equity market frequently through initial ADR listings. In a sense, *EQUITY* can be considered an

early indicator of a country's financial integration into world markets. We use it as an alternative to *CAPITAL* in order to test the robustness of our results.²³

Panels. Finally, we use five year average panels instead of annual observations because our argument is that changes in inequality have effects on democratic institutions in periods longer than a year. We also use five year averages because of the uncertainty in measurement due to economic fluctuations. Economic cycles are usually accounted for in the economics and finance literature using five year averages (since business cycles are normally three to five years in duration; see Beck and Levine 2004). In addition, we use economic variables as controls (see below).

Measurement error and measurement frequency also affect the inequality, democracy, and financial integration variables. Our use of five year averages addresses these problems. The inequality data are rarely measured on an annual basis in most countries in our sample, thus creating significant structural breaks in the annual data series.²⁴ The annual Polity data during revolutionary or coup episodes lasting more than a year are scored with 'interruption' codes, leaving investigators the choice of interpolating the Polity scores, omitting the data in question, or averaging over a longer period of time. (See the discussion in the Data Appendix.) The financial integration variables are point in time variables (as of 31 December of a given year for *CAPITAL* and a single date in time for *EQUITY*). Averaging over five years reduces measurement error while allowing for an estimation of long run effects. Our specifications use five-year non-overlapping measures, with the units denoted by $i=1, 2, \dots, x$ and the index s representing five-year intervals, starting at 1955-59 and continuing onward. This means, for instance, that $Democracy_{i,s}$ for the $s=1985-1989$ period is analyzed using data for the independent variables from the $s-1=1980-84$ period.

²³ *EQUITY* contains no information about Soviet Bloc or former Soviet Bloc countries.

²⁴ Also, in order to address serial correlation problems, scholars like Acemoglu, Johnson, Robinson, and Yared (2008) use five year panels with a variable's value in the initial year representing the value for the panel: X in 2000 representing the values for X for 2000-04, for example. Unfortunately, we cannot implement this strategy because of the paucity of inequality data. As we explain below, we are able to address the serial correlation problems through additional lags of the dependent variable or through instrumental variable regressions (or both).

Models and methods

In this investigation, we are interested in analyzing the separate and joint effects of financial integration and income inequality on democratization. Pooled, cross-section, time-series (PCSTS) models are useful for this purpose because the variation in the dependent variables comes from both the dynamic and cross-sectional factors.

Political economists such as Acemoglu, Johnson, Robinson, and Yared (2008, hereafter AJRY) estimate a simple model with country and time fixed effects with Polity levels as the dependent variable. They add the key variable of interest in their investigation (in that case, log of income, lagged once). We adapt their model, adding inequality and inequality squared as the key independent variables conditioning, in accordance with our argument, on levels of financial integration. To be more specific, on the basis of our argument and its implications, we add to our statistical specification financial integration measures and interaction terms between income inequality and financial integration. We find, as AJRY (2008) do, persistent serial correlation in some models. We overcome the serial correlation by estimating the dependent variable in changes and by amending the AJRY model with an additional lags of the level of the dependent variable where appropriate. (See also Barro 1999). Because we include lagged levels of the dependent variable on the right side of our equation, we no longer include fixed effects (as the inclusion of unit effects induces serial correlation due to of the correlation between the unit effects and the lagged dependent variables). Despite the dynamic nature of our functional form, we focus on marginal effects in the next five year period.

We used this simple AJRY model to explore the potentially nonlinear relationship derived in AR between inequality and democratization. A hump-shaped relationship, as derived by AR in their Corollary 6.1, implies that intermediate levels of inequality facilitate democratization and higher or lower levels impede democracy. This relationship will appear as a statistically significant positive coefficient on the level of Gini and a statistically significant negative coefficient on Gini squared. A “U”-shaped relationship between the two variables, as possibly found in Houle 2009, would have the opposite and statistically significant signs on the respective coefficients. This U shape implies, contrary to AR’s Corollary 6.1, that low and high levels of

income inequality facilitate democratization. A linear relationship is indicated when the coefficient on the squared inequality measure is not statistically significant and the coefficient on the base (level) inequality measure is statistically significant when the quadratic term is omitted.

Our argument is that once we include financial integration's effects, high levels of inequality will be associated with autocratic political reform. The 'right-side' of the AR hump will shift up.

Our base model is:

$$\Delta Democracy_{i,s} = \beta_0 + \beta_1(Democracy_{i,s-1}) + \beta_2(Democracy_{i,s-2}) + \beta_3(GINI_{i,s-1}) + \beta_4(GINI^2_{i,s-1}) + \beta_5(Capital_{i,s-1}) + \beta_6(GINI_{i,s-1} * Capital_{i,s-1}) + \beta_7(GINI^2_{i,s-1} * Capital_{i,s-1}) + \varepsilon_{i,s}$$

$i=1,2,\dots,91.$ **(eq. 1)**

The conditioning effects of financial integration are embodied in the coefficients β_6 and β_7 ; these coefficients test our first and second Implications. In some models, we substitute the EQUITY measure for CAPITAL. [The procedures for establishing the main effects and the confidence intervals are discussed in the methods section of the appendix.]

To produce a test of Implication 2, we create an interaction for the financial integration of a domestic economy in world markets: $CAPITAL_{i,s} * Global_CAPITAL_{\Sigma j-i,s}$. (See the data appendix for a description of the construction of the variables.) We predict that the easing of restrictions on an autocratic elite's ability to construct diversified portfolios increases the likelihood of democratization, which implies a positive and statistically significant coefficient on this interaction term. As regards our third Implication, our argument suggests that only autocracies will be affected by financial integration. We therefore separately analyze autocracies and democracies.

AR (2006: 338-342) argue that "Capital_In" and "Capital_Out" (their terms) potentially have different effects on inequality, and therefore on the transition to democracy. CAPITAL distinguishes between restrictions on residents and non-residents, which correspond to restrictions on capital outflows

(*CAPITAL_Out*) and inflows (*CAPITAL_In*), respectively. (See IMF (1993), pp. 80-1.)²⁵ Indicators for a country's restrictions on inflows and outflow are created, as are global averages of the indicators. See the Data Appendix for details. The interaction term between the indicator of liberalization of resident exports of capital and the indicator of global liberalization of capital imports is a proxy for the native elite's capacity for diversification. We expect a positive and statistically significant coefficient on the interaction term, which implies that an elite's ability to export capital into world markets is associated with democratic reforms.

Recent scholarship stresses the importance of investigating and controlling for unobserved cross-sectional or spatial correlation in time-series panel studies. (See, for instance, Franzese and Hays 2007.) Gleditsch and Ward (2006) find that a country's prospects for democracy are influenced by regional forces, as measured by regional averages for democracy. To assess the influence of the behavior of regional neighbors, we compute the average level of democracy for a given country's region (removing the value for that country).²⁶ We also add an indicator for a region's integration into world financial markets by computing the country's regional average for capital account openness (net of that country), and another indicator of global trends in financial openness. Still another source of spatial correlation is a country's inclusion into the Soviet Bloc: we include a 0, 1 indicator of Soviet Bloc membership. We add this additional information to the base model.

We begin with OLS estimations. OLS estimations are potentially plagued by methodological problems including the explanatory variables being correlated with the error term. One reason for this might be that democracy and economic inequality are endogenous, which potentially biases the estimates. To

²⁵ To measure a country's integration into global financial markets, scholars often turn to non-index, de facto or "blended" measurements. Reuveny and Li 2003, for example, used FDI inflows and Portfolio inflows as indicators of financial globalization in their study. In this investigation, however, we cannot use FDI and portfolio indicators as measures of financial globalization. Our analysis spans 1955 to 2004, a time period in which four different "investment regimes" prevailed, rendering the FDI and Portfolio measures not comparable across investment regime. Because of the inconsistencies in FDI and portfolio definitions across time, we use the de jure measures. See IMF (1993, 87).

²⁶ We use the World Bank's regional definitions.

address the biases introduced by the possible correlation between the right hand side variables and the error term we also use the GMM estimation method due to Blundell and Bond 1998; it is the same estimator used by Eichengreen and Leblang 2003, Mukherjee and Milner 2009, and Quinn and Toyoda 2007, among others. The validity of the instruments is assessed through the Sargan test.²⁷ [Details of the GMM model and estimation procedures are in our Methods Appendix B.]

To control for the possible influence of economic variables on democracy, we add to the GMM model some standard variables. These include growth in PPP adjusted per capita income and log of levels of investment (as a share of GDP) as was used in Boix 2003. To distinguish between trade effects and financial globalization effects, we add the log of levels of trade openness (imports + exports as a percentage of gross domestic product).²⁸ To control for the separate effects of domestic investment, we add an indicator of investment as a percentage of a country's GDP.

Results

As explained above, we test the implications of our argument with multiple measures of democracy and of financial integration. We also use multiple estimators. To streamline the discussion, we focus first on the results for the change in POLITY measure, two measures of financial integration, and OLS estimation. Then, in order to establish the robustness of our findings, we report the results for an alternative measure of democratization, change in Regime, and GMM estimations.

Inequality, Democracy, and Financial Integration. We begin with the results that are most similar to what has appeared in the literature: the simple full sample results from the base model without interaction variables but with the financial openness measures: see Models 1.1 and 1.2 in Table 1 (*CAPITAL* and *EQUITY*,

²⁷The instruments are internal lags of the right hand side variables. (See the appendix for further discussion.) The Sargan statistic for overidentifying restrictions tests whether the instruments are uncorrelated with the residuals, and are therefore 'good' instruments. The null hypothesis is of instrument validity; a statistically significant Sargan test indicates that the instruments are correlated with the residuals, and are invalid.

²⁸ See Gassebner, Lamla, and Vreeland forthcoming for a review of some of the standard regressors in the literature.

respectively). The signs on the estimated coefficients on the GINI terms are consistent with the AR hump, but, as has been reported previously in the literature, the coefficient estimates are far from statistical significance.

The first Implication of our argument is that financial integration conditions the relationship between inequality and political change in autocracies. These results are reported in Model 1.3 and Model 1.5. The key results are embodied in the coefficients in rows 4-7 of Table 1.²⁹ To begin, the coefficient in row 6 for model 1.3 (*GINI*CAPITAL*) is positive and statistically significant. This indicates that, for autocracies, the combination of a large GINI (more inequality) and larger value of Capital (more financial openness), produces *a greater propensity* for democratization in the next five year period.

To assess the magnitude as well as the statistical significance of the effects of inequality conditioned by financial openness on democracy through the full range on GINI scores, we use a customized simulation program based on CLARIFY. (This simulation program was kindly supplied to us by Michael Tomz. See the methods section of the Appendix for details.) Figure 2 shows the results of the simulations. In a closed economy, denoted by the grey line, autocracies with intermediate levels of inequality (GINI scores of 30 to 50) experience a statistically significant, mean increase in their Polity scores in the +5 range (as the confidence intervals for this case are centered on + 5 and which, between GINI values of 30 and 50, do not contain zero). In contrast, the more unequal a financially open autocracy is (GINI values of 30 to 45), the larger the increase in Polity scores it experiences: in this case, the mean increases from +8 to +13 points on the Polity scale in the subsequent five year period. The mean democratic gains flatten out, but remain statistically significantly different from zero (the confidence intervals in the open case do not include zero from a GINI value of 25 onward).

The results for the model with the EQUITY measure for financial integration, model 1.5, are even

²⁹ For the *CAPITAL* equations in model 1.3, 1.4, and 1.7, the $GINI^2*CAPITAL$ (β_7) coefficients in the base model never approached statistical significance. The standard practice is that quadratic terms with statistically insignificant coefficients are dropped. These three models are therefore estimated without that term.

more striking. Note the signs on the coefficients for the variables Gini, $Gini^2$, $Gini*Equity$, and $Gini^2*Equity$. The first pair of coefficients has the signs associated with a hump relationship between inequality and democratization while the latter have the signs associated with an inverted U. This means that if the autocratic economy is financially closed ($EQUITY = 0$), then, as predicted by AR, there indeed is a hump in the relationship between inequality and democracy. But, if the autocratic economy is financially open ($EQUITY = 1$), the relationship between inequality and democratization is a combination of four terms including $Gini*Equity$, $Gini^2*Equity$. These last two terms embody the conditioning effect of financial integration on the relationship between inequality and democracy.

The simulation results for model 1.5 are shown in Figure 3. The overall relationships for the closed and open cases are consistent with our first Implication. Figure 3 shows that financial openness transforms the shape of the relationship between inequality and democracy from a hump in a closed autocracy to an upward sloping line at higher levels of inequality in an open autocracy. In the financially closed autocratic economy ($Equity = 0$), intermediate levels of inequality (GINI scores 35 to 40) are associated with +7 to +8.5 mean increases in Polity scores in the next period. The effects of GINI flatten out until GINI scores of 50 and higher, where after the marginal increase in Polity scores decreases. The confidence intervals in the financially closed case do not contain zero from GINI scores of 35 to 55. The financially open autocratic economy case ($Equity = 1$) shows marginal gains in changes in Polity from increasing inequality from a GINI score of 45 upward. At the upper end of the observed GINI scores in our sample (62), a financially open autocratic economy is associated with a +17 point mean increase in Polity. At lower ranges of inequality in financially open autocratic economies, the confidence interval for GINI's effects also does not contain zero.

The other models in Table 1 show, as Implication 3 suggests, there are no such relationships for the democracy-only samples (Model 1.4 and Model 1.6) alone or for the full set of countries (Model 1.7 and Model 1.8); the coefficients in rows 4-7 for these other models are all statistically insignificant. More important, for the model for the sample of democracies-only, the Wald statistic for the joint statistical

significance of all regressors (except the constant) is not close to statistical significance. The democracy-only models therefore have no explanatory power.

Exchange of Assets and Exchange of Risks. The second major implication of our argument is that the combination of a) country's openness to capital in and outflows and b) the development of global financial markets makes it possible for native and foreign elites to diversify their portfolios and, in turn, for native elites in autocracies to more readily accept the consequences of democracy. The key results for this implication are in rows 5, 7, and 8 in Table 2. Model 2.1 shows that changes in the interaction term between the financial openness of autocratic economies (*CAPITAL*) and Global Markets (*Global_CAPITAL*) affect the prospects for autocracies becoming more democratic. The overall next period effect is a combination of three terms including the interaction of these variables. Figure 4 (black lines) displays this marginal overall effect; it depicts the change in POLITY for a one unit change in domestic capital openness at each observed level of Global Capital. The Figure shows that once *Global_CAPITAL* reaches its mid-point, these effects are all positive and statistically significant. And these effects are substantively large. Consider a move by an autocracy from being completely closed (*CAPITAL* = 0) to being fully open (*CAPITAL* = 100) under conditions of high Global Capital openness. Such a move would be associated with a subsequent mean +6.3 increase in Polity. A move from complete closure (*CAPITAL* = 0) to partial openness (*CAPITAL* = 50) under conditions of high Global Capital openness would be associated with a subsequent +3.2 increase in Polity. Under conditions of low financial integration (Global Capital openness equals 45), moves from a closed to partially open to a fully open autocracy are associated with subsequent mean changes of -1.5 and -3 in Polity (respectively).³⁰ Financial exit without financial integration therefore does not appear to be associated with subsequent democratization.

Model 2.3 refines these results by adding into the specification the *GINI*CAPITAL* (or β_6) interaction

³⁰ The conditional coefficient estimate for (*Capital_{i,t-1}*) is given by the expression ($\beta_5 + \beta_8 * \text{Global_Capital}$); it is .063 when Global Capital equals 70. The estimated next period effect of a move to complete openness from closure therefore is $100 * .063$. When Global Capital equals 45, the estimated effect of ($\beta_5 + \beta_8 * \text{Global_Capital}$) is -.03, so a similar change in financial openness yields an estimate of -3. (The full coefficient estimates out to seven decimal places are used to compute the values.)

term from Model 2.1.³¹ The coefficients for both the *GINI*CAPITAL* term and the *CAPITAL*Global_CAPITAL* terms in model 2.3 are positive and statistically significant. Adding the *GINI*CAPITAL* term increases the explanatory power of model 2.3 in comparison to model 2.1. Both effects on democratization – of financial integration and of increasing inequality in the context of financial integration – are found in autocracies. With the addition of the *GINI*CAPITAL* interaction term to the model, the GINI and GINI² coefficient estimates for model 2.3 are again statistically significant; they indicate a ‘hump’ in the context of a financially closed autocratic economy (Capital =0). Finally, as suggested by Implication 3, these effects are weaker to non-existent for democracies-only sample (models 2.2 and 2.4). The Wald statistic for the joint statistical significance of all regressors (except the constant) is not close to significance in the democracy-only samples. The results for the full sample are reported for reader comparison (models 2.5 and 2.6). The full sample results resemble those of the autocracy-only sample, though the models are characterized by weaker substantive effects.

Robustness. The results in Table 1 and 2 are based on the POLITY measure of democracy and they make no correction for possible correlation between the right hand side variables and the error term. To address these issues, we performed additional analyses with REGIME as the dependent variable and with the Blundell and Bond 1998 GMM estimator. Table 3, models 3.1, 3.2, and 3.5 reports GMM estimation results that correspond to OLS Models 1.3, 1.4, and 1.7 (respectively) from Table 1. The GMM estimation yields a statistically insignificant Sargan test statistic, which indicates that the instruments are not correlated with the error term, and can be considered valid instruments. There is no indication of serial correlation in any of the relevant models. Table 3, models 3.3, 3.4, and 3.6 report the GMM estimation results using Regime as the dependent variable.³² The relevant coefficient estimates for the autocracy-only sample for both the Polity (model 3.1) and Regime (model 3.3) for the GINI and *CAPITAL* variables are larger and more precisely estimated. If measurement error plagues the OLS models, and if the GMM instruments are sound, the accuracy of the estimates will increase.

³¹ The coefficient on *GINI²*CAPITAL*, β_7 , was far from statistical significance. So this term again is omitted.

³² EQUITY has too few observations per panel to estimate a differenced GMM model.

Substantively, the results of the robustness checks in Table 3 are reassuring. For example, for the autocracy-only sample, the coefficient on the interaction term for $GINI*CAPITAL$ (s-1) is still positive and statistically significant indicating that financial integration conditions the effect of inequality on democratization. Equally important, the results hold up for a different measure of democratization. The results for Regime are similar to those for Polity. For instance, for the autocracy-only sample, a highly unequal autocracy (at 62) that has a fully financially liberalized economy is associated with a mean .9 increase in Regime in the subsequent period (model 3.3).³³ The evidence is that unequal financially open autocracies liberalize. Once again, the democracy-only sample shows a Wald statistic for the joint significance of the regressors far from statistical significance.

The companion GMM estimations for Table 2 are reported in Appendix Table A1. The Sargan test statistics for the estimations in Table A1 are statistically insignificant indicating the instruments are not correlated with the errors. These GMM results are substantively similar to those for the OLS models in Table 3, although the coefficient estimates for the key variables are larger and have generally higher levels of statistical significance. The inclusion of both the interaction term for financial integration and the interaction term for inequality and financial openness improves the explanatory power of the respective models. Both effects are found in autocracies. As before, the models estimated on the democracy-only sample have Wald-statistics for the joint significance of the regressors that are far from statistical significance. The democracy-only models have little to no explanatory power.

As a final robustness check, we explored the possible differential effects of resident exports of capital compared to non-resident imports of capital. We created disaggregated measures of outflow and inflow restrictions (respectively). The variables are substituted into the models from Table 2, models 2.1, 2.2, and 2.5, as well as from Table A1, models A1.1, A1.2, and A1.5. The outflow and inflow restriction measures replace the aggregate $CAPITAL$ measure. The results for the disaggregated measures of domestic inward and outward

³³ The value is calculated from the expression $[\beta_3 *(GINI) + \beta_4 *(GINI^2) + \beta_6 (GINI*CAPITAL) + constant]$ using the coefficient estimates in Model 3.3 when $GINI = 62$ and $CAPITAL = 100$.

capital flow restrictions in autocracies are reported in Appendix Table A2, (rows 5-10). Both OLS and GMM estimators are used. Again, the overall effect of financial integration is a complex combination of the indicated variables, including the interaction terms. Figure 4 (grey lines) depicts the effects for one of them, *CAPITAL_Out* for model A2.1, autocracies-only sample using OLS. (Here *CAPITAL_Out* is rescaled from 0-50 to 0-100 so its effects can be compared to *CAPITAL*.) The statistically significant effects for this variable are evident after *Global_Capital_In* reaches a level of approximately 62.5, which is half a standard deviation above the series mean. The substantive effect of full financial openness for resident capital exports joined to high levels of global openness for capital imports are large. Given a *Global_Capital_In* score of 70, a move by an autocracy from closure to openness for resident capital exports produces an estimated mean +8.9 change in its Polity score.³⁴ The effects are robust across the OLS (A2.1) and GMM (A2.3) autocracy-only samples. In the democracy-only samples, the p-value of the Wald statistic for the joint significance is far from statistical significance. From this evidence, most of the effects from autocratic integration into global markets come from elite capital exports rather than from non-resident capital imports.

The control variables are not central to our analysis. Only a few of the variables have consistent next period effects within the autocracy-only specifications. As expected, we find that regional forces affect autocratic prospects for democratization. In most autocracy-only models, the coefficient estimate on the variable for Regional Democracy is positive and statistically significant, as is consistent with the findings in Gleditsch and Ward (2006). Change in income in the GMM estimations has a positive and statistically significant coefficient in most specifications, suggesting that increasing income is, in these models, associated with subsequent democratization.

In results available from the authors, GLS estimates for Table 1, in place of OLS estimates, are reported. The results are very similar to the OLS results. The estimated coefficient estimates of the relevant variables in GLS tend to be a little larger and the estimates of the standard errors a little smaller compared to

³⁴ The conditional coefficient estimate of ($Capital_Out_{i,s-1}$) is given by the expression $(\beta_5 + \beta_7 * Global_Capital_In)$. Given the rescaling to 100 for the two variables, when *Global_Capital_In* is 70, the a coefficient estimate of *Capital_Out* is .089. An autocracy's move from fully closed to fully open produces an estimated change in Polity scores of 8.9 (100*.089). (The full coefficient estimates out seven decimals places are used to compute the values.)

the OLS estimates. In results available from the authors, we reanalyze the results from Table 1 using OLS and change in Regime in place of Polity. The results are very similar; unequal financially open autocracies tend to democratize. Finally, we reanalyze the results of Table 3 using change in Regime as the dependent variable and OLS. The results are again very similar: financially integrated autocracies tend to democratize. The explanatory power of the democracy-only models ranges from null to negligible.

Conclusion

How inequality within a country affects its democratic prospects has been a central question in political and social sciences since at least the nineteenth century and the work of de Tocqueville. Modern scholarship (Bates and Lien (1985) and Boix (2003) especially) generally sees inequality's influence on democracy as being linked to how 'mobile,' 'elastic' or 'specific' an unequal society's assets are: high inequality with limited asset mobility is infertile ground for democracy. Another strand of modern scholarship predicts that, in closed autocracies, inequality will have a 'hump' relationship to democratic prospects (especially, AR 2006).

Scholars also have studied the ways in which democratization is affected by the spread of property rights and of market forces. The implications of the rise of global financial markets and of international financial liberalization for democracy are not as well understood, however. (See Eichengreen and Leblang 2008 and Milner and Mukherjee 2009 for reviews and empirical studies.)

We join these two literatures. We argued that the development of global financial markets coupled with the financial opening of unequal autocratic economies facilitates portfolio diversification by the holders of domestic assets. Portfolio diversification increases investor returns relative to risk, and thereby increases the wealth of the investor relative to average citizens. We also argue that the characteristics of land and other 'site specific' assets make them potentially attractive investments for foreigners. In contrast to colonial times, however, foreigner investors eschew the use of state sponsored force to acquire these assets as foreign investors also tend to hold diversified portfolios. (See Frieden 1994 for a discussion of international

investment and coercion in colonial periods.) Rather, today, foreigners acquire many of these assets through international financial markets.

Portfolio diversification, then, amounts to an exchange of assets with foreigners. The ‘swapping’ of assets mitigates the risks of adverse political events such as confiscatory taxation for both native and foreign elite. In turn, the native rich have little to gain from resisting democracy since they can diversify their risks. The dispersion of asset ownership within financially integrated, open autocracies implies a diminished interest in domestic policy by native elites. It also implies a lower capacity for repression and other forms of collective political action on the part of native elites. For their part, citizens usually opt for democratization rather than revolution because capital taxation of native and foreign asset is still feasible, although constrained by financial openness.

We demonstrate empirical support for the main implications of our argument. We show that for multiple measures and estimators, the relationship between inequality and democratization in autocracies is conditioned on financial integration. Greater inequality is associated with increases in POLITY scores in financially open compared to financially closed autocracies. We argue that, as global financial markets become open, financial openness in autocracies allows elites to construct internationally diversified portfolios. Hence, we find that the interaction between domestic financial openness and increased global openness has a positive relationship with subsequent democratization in autocracies. In these respects, our findings are consistent with the prior work on asset mobility in Bates and Lien 1985 and Boix 2003.

We also find support for the propositions in AR (2006). In financially closed economies, the relationship between inequality and democracy has a hump shape with countries at intermediate levels of inequality democratizing more readily than countries with higher or lower levels of inequality. To our knowledge, this is first empirical demonstration of support for this part of AR’s theory.

The development of global financial markets and the financial integration of autocratic economies thus allows for democratization of the unequal autocracies. Important questions remain to be answered, of course. First, why do some autocracies choose financial repression while others chose financial openness? And, how,

in closed autocracies, is the restriction of these financial transactions related to the fundamental problems of mass control and autocratic survival? The most recent advances in the study of authoritarianism recognize income inequality as a source of potential societal unrest. (See, for instance, Svobik 2008, 2011.) To our knowledge, these studies do not explain how financial integration of the kind we analyze exacerbates or solves the problem of authoritarian mass control or of autocratic power sharing. Second, how much room to maneuver do these new democracies have in terms of policy outcomes given financial integration? How much latitude does elite international portfolio management allow elected governments to achieve employment and other macroeconomic outcomes? Third, and perhaps most importantly, do newly enfranchised citizens perceive a link between these outcomes and the workings of their financially open economies? (See Alcaniz and Hellwig 2011, e.g.) Kaufman (2009) reports that, in the recent era of financial openness in Latin America, surveys suggest that citizens do not favor redistributive taxation and citizens also do not look to left parties or incumbents to redistribute wealth. But, at the same time citizens who perceive income to be highly unequally distributed are likely to be dissatisfied with their democracy. Future research should probe citizen reasoning to determine whether, in their minds, international financial integration and elite portfolio diversification diminish popular sovereignty over their economies.³⁵

³⁵ A study of this general kind for the U.S. is Hellwig, Ringsmuth, and Freeman, 2008.

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Appendix

Data.

Inequality Measures. In establishing the values for a country's inequality indicators, we use Dollar and Kraay's (DK) adjustment methods (2002 Table 2). DK use a regression on GINI with dummy variables for gross income and expenditure (consumption), plus regional dummies. DK subtract the relevant coefficient estimates of the gross income and expenditure dummies from the GINI coefficient. Identical results are given by extracting the residuals of the regression and adding them to the intercept. Dollar and Kraay did not use a dummy for household vs. person as they do not find a statistically significant effect of these units of measure (Email correspondence, A. Kraay and D. Quinn, 21 July 2008; phone conversation, 17 July 2008.) We replicate nearly exactly DK's results on their sample. In the WIID 2008 updated sample, however, we find that the coefficient estimate for household is now statistically significant and that the regional dummy effects differ from prior findings. A simple model regressing GINI with dummies for all three types of surveys is what we use.

An alternative to the DK household income data we use are wage data from the United Nations Industrial Organization (UNIDO) survey of manufactures in many countries. The Galbraith and Kum 2005 inequality indicator, EHII, uses UNIDO wage data (INDSTAT2) with a Theil T's statistic to generate over 3,000 country year observations of pay inequality. An advantage of the Galbraith-Kum approach is that a fuller data set using wage data is estimated. A disadvantage is their data end in 1999, whereas the WIID data end in 2006.

Houle (2009) uses the UNIDO data, but without the Galbraith-Kum Theil T's statistic adjustments. He describes these data as "capital share" data, following Rodriguez and Ortega (2006). Rodriguez and Ortega do not, however, treat the "capital share" as indicators of inequality. Rodriguez and Ortega demonstrate that per capita income and national 'capital share' from UNIDO exhibit a strongly negative, highly statistically significant, relationship in a variety of specifications. (See Rodriguez and Ortega's Figure 1 2006) plus their results section.) In contrast, controlling for country effects, the WIID indicators with a DK adjustment have no statistically significant relationship with per capita income. Several explanations have been offered for this

result.³⁶ One explanation, germane to our investigation, is that more democratic societies, which tend to be richer and more equitable, do a better job of collecting survey data from respondent firms. In Brazil, for example, 98,280 establishments responded to the UNIDO survey in 1984; 204,184 responded in 1985; only 29,368 responded in 1986. Large increases (+500%>) and decreases (-80%<) in sample size of respondent firms are frequent in the emerging market data. (UNIDO INDSTAT2). Even among advanced industrial nations, the UNIDO sample of firms surveyed varies widely year by year within a country. In Germany in 1998, for instance, 37,596 establishments responded. In 1999, 236,284 did. Most advanced industrial nations experience a five to ten-fold increase in the number of firms surveyed. Decreases in sample size among advanced industrial nations are less common; these decreases are in the 10 to 15% range.

Whatever the advantages of the inequality or capital share measures based on UNIDO data, the data appear to be highly influenced by collection and reporting methods, which are, in turn, correlated with several of our key independent and dependent variables. The WIID data with a DK adjustment, in contrast, do not exhibit a correlation with indicators of development. We consider the DK adjusted data to be more reliable for the study of the economic origins of democracy.

Measurement and timing of the dependent variable. Using 5 year averages has advantages in the handling of the interruption codes in Polity. For example, the Ethiopia Polity scores from 1990 to 1995 were -8, -77, -88, -

³⁶ One possible explanation Rodriguez and Ortega (2006) propose is measurement error and national differences in reporting. Since capital share (CS) is taken as $CS = [1 - \text{Wages and Salaries}]$, and since it is computed from surveys of larger incorporated firms, countries with large informal sectors or many smaller business will, through omission of wage data, have larger capital shares (since the wages paid in the informal sector and in small businesses will be credited to the capital share). Many advanced economies also report fringe benefits and other forms of compensation as wages. This reporting further decreases their capital share. A second possibility that Rodriguez and Ortega consider is that poorer countries have stronger agrarian sectors, which are not considered in the industrial surveys. A third possibility is that emerging market countries, while having fewer incorporated firms and larger agrarian sectors, also have firms that exhibit lower labor productivity; this fact translates into lower wages (and higher capital shares).

88, -88, and 1 (respectively), where -77 indicates “interregnum” and -88 indicates “transition.” The authors of Polity propose a procedure for attributing values to dates for -88 codes and -77 codes (the latter equals 0):

Cases of “transition” are prorated across the span of the transition. For example, country X has a POLITY score of -7 in 1957, followed by three years of -88 and, finally, a score of +5 in 1961. The change (+12) would be prorated over the intervening three years at a rate of per year, so that the converted scores would be as follows: 1957 -7; 1958 -4; 1959 -1; 1960 +2; and 1961 +5. (Marshall, Gurr, and Jagers 2009, 16.)

If an annual data (panel) were to be used, attributing a change in Polity to a particular year would have potentially harmful consequences. In the case of Ethiopia, following the Polity 2009 coding rules, the Ethiopian scores for 1990 through 1995 are -8, 0, -5.75, -3.5, -1.25, and 1, respectively, though data actually exist only for 1990 and 1995. In an annual panel, the change in Polity score for Ethiopia attributed to 1991 would be 8, and the change in Polity scores for 1992 would be -5.75, even though both values are imputed.

In using five year panels, we lessen the possibilities of attributing democratization to what is an imputed or prorated value of Polity in a given year. To form our dependent variable, we take the average Polity or Regime score for a five year panel and subtract from it the average democracy score from the prior panel. The use of five year panels thus lessens the possibility of treating these changes as major shifts in autocracy or democracy when, in fact, they are the result of data proration.

Financial Openness. *CAPITAL* measures not only the existence (absence) of restrictions, but also the severity or magnitude of those restrictions. Data for up to 122 countries from 1950 (or independence) through 2007 are available. Global averages of *CAPITAL* are calculated as $Global_CAPITAL_{\sum j-i,s}$ where $\sum j-i,s$ is the average score for *CAPITAL* for of all countries worldwide (j), minus the home country’s score (i), at time period s. The observed range of $Global_CAPITAL_{\sum j-i,s}$ in our sample is 40 through 70. The interaction of $CAPITAL_{i,s} * Global_CAPITAL_{\sum j-i,s}$ measures the financial integration of a domestic economy in world markets.

Restrictions on resident exports of capital are measured as $CAPITAL_Out_{i,s}$ and restrictions on non-resident imports of capital into an economy are measured as $CAPITAL_In_{i,s}$. Restrictions in the international

markets on receiving capital imports are measured as: $Global_CAPITAL_In_{\Sigma j-i,S}$. Restrictions in the international markets on the sending out capital exports are measured as $Global_CAPITAL_Out_{\Sigma j-i,S}$. The interaction of $CAPITAL_Out_{i,S} * Global_CAPITAL_In_{\Sigma j-i,S}$ measures the financial integration of a domestic economy in world markets and is a proxy for the elite's capacity for portfolio diversification. The interaction of $CAPITAL_In_{i,S} * Global_CAPITAL_Out_{\Sigma j-i,S}$ measures the degree to which foreign elites are able to invest in a domestic economy. The range of $CAPITAL_In$ and $CAPITAL_Out$ are 0-50. The observed ranges of $Global_CAPITAL_Out$ and $Global_CAPITAL_In$ series are 22 to 36.

Methods

To establish the parameter estimates and confidence intervals for Figures 2 and 3, we use a custom program written by Michael Tomz and adapted by D. Quinn. This program is a panel-specific algorithm from CLARIFY (King, Tomz, and Wittenberg 2000). One hundred thousand simulations of the model are run, and the confidence intervals are determined by the rank-ordered values of the 2,500th and 97,500th values of the parameters. The code is available upon request.

The interpretation of the marginal effects when simple interaction terms are in one's specification is well understood. See Friedrich 1982 and Brambor, Clark and Goldner 2006. In this investigation, we use some higher order interactions involving Gini, its squared term, and a measure of financial openness. The marginal effects of a change in inequality given model (1) are given by $\beta_3 + 2*\beta_4*GINI + \beta_6*Capital + 2*\beta_7*GINI*Capital$. The formula for the standard errors is in the footnote below.³⁷ The formulas are available in Brambor, Clark, and Goldner 2006 and on the STATA web site.

Our GMM design includes an additional transformation of the right-hand side variables. The GINI estimates, the democracy variables, and other right-hand side variables exhibit persistence over time, a persistence that is exaggerated by five year averaging. The same is true of the lags of the levels of the

³⁷ The standard errors for the marginal effects are given by the square root of the term: $(var \beta_3 + (4*GINI^2*var\beta_4) + (CAPITAL^2*var\beta_6) + (4GINI^2*CAPITAL^2*var\beta_7) + (4*GINI*covar\beta_3\beta_4) + (2*CAPITAL*covar\beta_3\beta_6) + (4*GINI*CAPITAL*covar \beta_4\beta_6) + (4*GINI*CAPITAL*covar\beta_3\beta_7) + (8*GINI^2*CAPITAL*covar\beta_4\beta_7) + (4*GINI*CAPITAL^2*covar\beta_6\beta_7))$.

endogenous variables. The persistence in these variables could make them correlated with the error term, which would produce biased estimates. We therefore difference these variables. Without the difference transformation, the GMM residuals always exhibit serial correlation. Note that in GMM estimation, the absence of serial correlation in the main model is indicated by a negative, statistically significant statistic for the AB m1 test combined with a statistical insignificant statistic for the AB m2 test. (See Doornik and Hendry 2001, 69.)

With the differencing transformation, additional conditioning information (controls) and allowance for persistence, the GMM-system model (2) is:

$$\begin{aligned} \Delta Democracy_{i,s} = & \beta_0 + \beta_1(Democracy_{i,s-1}) + \beta_2(Democracy_{i,s-2}) + \beta_3(\Delta GINI_{i,s-1}) + \\ & \beta_4(\Delta GINI^2_{i,s-1}) + \beta_5(\Delta Capital_{i,s-1}) + \beta_6(\Delta GINI_{i,s-1} * \Delta Capital_{i,s-1}) + \beta_7(\Delta Regional \\ & Democracy)_{j-i,s-1} + \beta_8(\Delta Soviet Bloc Membership)_{i,s-1} + \beta_9(\Delta Regional Capital)_{j-i,s-1} + \\ & \beta_{10}(\Delta Global_CAPITAL_{\Sigma j-i,s-1}) + \beta_{11}(\Delta Income_{i,s-1}) + \beta_{12}(\Delta Economic Growth_{i,s-1}) \\ & + \beta_{13}(\Delta Investment_{i,s-1}) + \beta_{14}(\Delta Trade Openness_{i,s-1}) + \varepsilon_{i,s} \quad i=1,2,\dots,88. \quad (eq.2) \end{aligned}$$

The (internal) instruments for the right-hand side variables in (eq. 2) are the third lags of the explanatory variables for the transformed equation, and the second lag of the differences of the lagged explanatory variables for the levels equation.³⁸ See Dornick and Hendry 2001 for a discussion. Note that this model includes the variables we need to test the main propositions in the AR's argument: GINI indicators (described above), and the squared GINI indicator terms. In some models, the addition of another *Global_Capital* term at (s) was necessary to achieve serially uncorrelated residuals.

³⁸ All GMM estimations are done in PCGive 12. The model settings in PCGive 12 for the GMM estimation include 1-step estimates with robust standard errors, the transformation set to 'differences,' and specification tests for two lags of serial correlation. In case of the right-hand side Democracy variables, the fourth and third lags of the Y variables are used to compose the instruments. For further discussions of the Gmm system estimator, see Dornick, Hendry, Arellano, and Bond (2006, especially pp. 65-71).