A Rising Tide that Lifts All Boats: An Analysis of Economic Freedom and Inequality using Matching Methods

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Abstract: We explore the relationship between economic freedom and inequality. We employ the Fraser Institute's Economic Freedom of the World (EFW) index and country-level (i) decile income shares, (ii) decile income levels, and (iii) Gini coefficients. We address concerns for endogeneity and nonlinearity using matching methods. We report that economic freedom is a tide that raises boats at all income levels. We also report that increases in economic freedom cause increases in income inequality. While those increases are associated with gains in the top income decile, they are modest. We conclude that increased economic freedom leads to significant gains across the income distribution.

JEL Codes: D63, P00, P16, P48

Keywords: economic freedom, income deciles, inequality, matching methods, causal inference, institutional economics

1. Introduction

There is now little doubt that economic freedom – at least as measured by the Fraser Institute's Economic Freedom of the World (EFW) index – is positively correlated with growth in per capita incomes, across both countries and time.[1] However, whether the returns to greater economic freedom are shared broadly *within countries* is debatable (Bennett and Nikolaev 2017). Extant studies employ various econometric approaches and consider different measures of income inequality, country samples, and time periods. Their results have been mixed.

Most of those studies focus on some form of Gini coefficient (for either income or consumption) as the dependent (or outcome) variable. (Recent examples include Graafland (2018), Apergis and Cooray (2017), Krieger and Meierrieks (2016), Bennett and Cebula (2015), Sturm and De Haan (2015), and Bergh and Nilsson (2010); see Bennett and Nikolaev (2017) for a survey.) Alternatively, Saccone (2021) and Dean and Lawson (2021) focus on income deciles, their population shares and average income levels respectively. Similar to the Gini coefficient studies, their results are mixed: economic freedom, on the one hand, is negatively related to all but the highest two decile shares; but it is positively related to all decile levels. Also, Bergh and Bjørnskov (2021) examine the role of economic freedom on income growth at different quintiles.[2] They report positive effects of economic freedom for all parts of the income distribution.

[1] See Gwartney et al. (2021) for the EFW index. Numerous studies, using cross-country and/or panel data, have documented that EFW scores correlate positively with economic growth and income levels (e.g., Ayal and Karras 1998; Dawson 1998; Gwartney et al. 1999; de Haan and Sturm 2000; Heckelman and Stroup 2000; Gwartney et al. 2006; Young and Sheehan 2014; Grier and Grier 2021; more comprehensive literature surveys can be found in de Haan et al. (2006) and Hall and Lawson (2014)). Hall and Lawson (2014) also survey studies linking economic freedom to other (most often considered to be) desirable outcomes.

[2] Bergh and Bjørnskov (2021) disaggregate the Fraser Institute's EFW index into three areas: size of government, institutional quality, and policy quality. In this paper, we follow Saccone (2021) and Dean and Lawson (2021) in this paper and first focus on the aggregated EFW index; we subsequently consider each of the 5 areas of the aggregate index separately.

We follow Saccone (2021) and Dean and Lawson (2021) in this paper and use the aggregated EFW index.

Does a rising tide of economic freedom lift the boats of a country's poor, middle class, and wealthy? Or – as most commonly is alternatively hypothesized – does greater economic freedom favor the wealthy at the expense of the rest?[3]

Reconciling the often-contradictory results of this fairly large applied literature is a challenge to researchers. Bennett and Nikolaev (2017) replicate Bergh and Nilsson's (2010) study; also an older study by Carter (2006). Based on these replications, they then explore the sensitivity of results (each and comparatively) to variation in the econometric model, the sample, and the inequality measure employed. They find that all three factors may indeed matter. But there are plausible reasons to think that the choice of econometric model is of first-order importance.[4]

There are overarching concerns of endogeneity and nonlinearity that the literature has not satisfactorily addressed. For example, a number of authors have pointed out that inequality can cause economic freedom (rather than – or in addition to – the other way around) (e.g. Apergis et al. 2014; Murphy 2015; Krieger and Meierrieks 2016).[5] There are also likely to be unobserved factors that determine both changes in economic freedom and inequality, leading to selection bias. Furthermore, regression models (which of one form or another are used in all the extant studies) assume that the marginal effect of economic freedom is constant; but changes in economic freedom

[3] We take this alternative hypothesis broadly to mean that the economic freedom gain might be (a) zero-sum in favor of the wealthy or even that (b) it is positive-sum but the wealth gain while the poor and/or middle class see no returns. From a Pareto-esque normative perspective, if one group gains and another does not (but the former's gain is not at the latter's expense), then all is "good." But it does not take a deep dive into public opinion (at least in the US) to know that the relative returns across income groups is perceived as normatively relevant to many.

[4] That is not to say that the inequality measure and sample are not important; we explore the sensitivity of results to both in this paper.

[5] A budding number of studies explore the determinants of economic freedom. Other than inequality, scholars have used potential explanatory variables like immigration (Powell et al. 2017), crises (Young and Bologna 2016), and constitutional entrenchment (Callais and Young 2021b). See Lawson et al. (2020) for a comprehensive literature review on this subject.

may need to be "large enough" to trigger meaningful changes in the income distribution. Those "large enough" cases (in our analysis, the *treatments*) are bound to be small relative to the overall sample of observations. However, matching methods allow us to leverage the information from that larger overall sample: counterfactuals can be constructed based on the experiences of other countries that closely resemble the treated countries (save for the fact, of course, that they did not receive the treatment).

Only a handful of the extant studies attempt to address these concerns. Regarding endogeneity, Bennett and Nikolaev (2017) employ a dynamic system GMM approach (Arellano and Bond 1991; Arellano and Bover 1995; Blundell and Bond, 1998). This approach has been understandably appealing given the difficulty of finding strong and plausibly valid instruments when dealing with cross-country data. However, identification is ultimately based on using lagged levels and differences of endogenous regressors as instruments.[6] Institutions and other substantive policies determine the extent of economic freedom; they are persistent and so is the extent of income inequality. The *lags-as-valid-instruments* assumption is not particularly plausible (and, of course, not testable).[7] Regarding nonlinearity, Apergis and Cooray (2017) include both a linear and squared term on economic freedom in their regressions, but this does not really address the "large enough" concern described above.

[6] Additional instruments can be incorporated – e.g., see Young and Bologna (2015) for an empirical example using country-level panel data – but Bennett and Nikolaev (2017) rely on the default.

[7] Ahmad (2017) pursues a similar approach, arguing that there is an interaction between economic freedom and the type of political regime. Scully (2002) pursue an instrumental variables strategy in estimating the effect of both economic freedom and economic growth on inequality. However, while he assumes that both economic freedom and growth can be instrumented by policy variables (call them "X"), he ultimately defines X *by the economic freedom measure* (in that case, as in this paper, the Fraser Institute's country-level scores). As such, Scully's 2SLS estimations are really estimations of the effect of economic growth on inequality, using economic freedom to instrument economic growth. Relatedly, Nikolaev et al. (2017) examine the relationship between (not economic freedom but) individualistic values in a society and inequality; they use infectious disease prevalence as an instrument. However, their analysis is a cross-sectional for the later 20th and (very) early 21st; also, individualism (in their study) is a survey-based measure of cultural attitudes.

In this paper we employ matching methods to address the above-mentioned concerns. Matching methods have been increasingly employed with country-level panel data.[8] The approach is non-parametric, so we are able to (i) *define a treatment in terms of a specific type of change in a country's economic freedom score*, (ii) *identify countries that received that treatment*.[9] As such, we may choose to only look at score changes of a certain magnitude; and/or we may insist that the change is sustained for a certain number of years. Matching methods were developed to mitigate selection bias concerns (Rosenbaum and Rubin 1983), so they allow us to (iii) *construct, for each treated country, a plausible counterfactual* that is constituted by countries that were similarly likely to have received the treatment, but did not. Furthermore, we estimate the average treatment effect on the treated (ATET), which is the difference between changes in the outcome of interest for treated countries versus their (non-treated) counterfactuals. In doing so we (iv) *difference-out any time-invariant heterogeneity* that might bias the results.

We study changes in economic freedom and their relationship to inequality using 117 countries from 1970 up through 2015 We examine income deciles (both population shares and average levels) as well as Gini coefficients. By employing matching methods, we work to mitigate endogeneity and nonlinearity concerns. Furthermore, we examine whether varying the sample based on development level or threshold of increase in economic freedom makes a difference.

We proceed as follows. In section 2 we discuss channels through which increases in economic freedom may be expected to affect inequality. While the channels can be identified, the net effects of them are ambiguous. The question of the economic freedom-inequality relationship is, therefore, an empirical one. In section 3 we discuss the matching methods that we employ in the

[8] Examples include Grier and Grier (2021), Grier et al. (2021), Bologna Pavlik et al. (2021), Bologna Pavlik et al. (2022), Bologna Pavlik and Young (2022), Callais and Young (2021a, 2021b).
[9] While not using matching methods, this is a similar approach to that of Berggren and Bjørnskov (2017), who label countries for having "market-enhancing reform" or "market-constraining" reform.

empirical analysis of that relationship. With those methods, we employ country-level data, including measures of inequality and economic freedom, that are described in section 4. Benchmark results of our analysis are reported in section 5. Robustness checks are reported in sections 6 and 7. Concluding discussion is then found in section 8.

2. Economic Freedom and Inequality

Consistent with our use of the Fraser Institute's Economic Freedom of the World (EFW) scores, we conceive of *economic freedom* as an institutional and policy environment that is conducive to "personal choice, voluntary exchange, freedom to enter markets and compete, and the security of the person and privately owned property" (Gwartney et al. 2021, p. v.).

Okun (2015 [1975], p. 1) famously contends that economic freedom tends to "encourage effort and channel it into productive activity" which "generates an efficient economy"; however, "that pursuit of efficiency necessarily creates inequalities."[10] (In the case of the US, Okun (p. 5) refers to "gaping disparities in economic well-being.") Okun does not elaborate much on his contention; he is content to note that economic freedom "prod[s] us to get ahead of our neighbors economically" (p. 1). Combined with some casual empiricism regarding the US economy, this motivates Okun's (more detailed) discussion of policies to address the "big tradeoff" between efficiency and equality.

While not denying the *incentives* to "get ahead," other authors emphasize the *opportunities* to do so. Apergis et al. (2014, p. 67) argue that economic freedom can decrease inequality by "creat[ing] opportunities for the poor [via] equal access to property rights necessary for the generation of

[10] Rather than "economic freedom," Okun tends to refer to "capitalist" systems. However, he characterizes the latter in terms of "institutions that "rest on voluntary exchange and on private ownership of productive assets […]" (p. 31). It is clear, then, that Okun is at core concerned with economic freedom as conceived of here.

capital[.]" Alternatively, economic freedom can lead to more income inequality by limiting redistributive efforts from the wealthy to the poor (pp. 67-68).

Berggren (1999) formalizes some of the above-authors' insights in a simple model which highlights that "economic freedom necessarily influences the equality situation: both through the redistributional system and through its effect on the income-growth rates of rich and poor people" (p. 206). Regarding the former, the sign of the effect depends on how economic freedom effects the (net) tax rates on rich versus poor. In the case of the latter: it hinges on economic freedom's effect on the income growth of rich versus poor.

While the model serves to isolate these channels, it cannot predict the sign of the economic freedom-inequality effect. Berggren (1999, p. 208) acknowledges this:

> [W]e can say that economic freedom and changes thereof affect the equality level, and we can specify through what channels it does so, but we cannot say in what direction the equality level goes on net. So, even if increased economic freedom entails less redistribution (which is not certain), it is perfectly conceivable that it induces higher equality, if the poor are able to take advantage of the freer economic setting, perhaps brought about through trade liberalization or the introduction of more secure property rights, to a larger degree than the rich.

This firmly frames the economic freedom-inequality effect as an empirical question.

And it is an empirical question that requires a compelling identification strategy. To illustrate this point, consider some simple scatter plots of EFW scores against inequality measures. (The data will be elaborated on in section 4 below.) **Figures 1a** and **1b** plot income decile shares (1st and 10th, respectively) against EFW Scores.[11] Best-fit trend lines are inserted. Notwithstanding the upward

[11] A decile share is share of a country's total income associated with a particular tenth of a country's population. For example, the 10th decile share is the total income of the highest 10% of income earners, divided by the total income of the country.

slope for the lowest earners, and the downward-sloping trend for the highest, casual inspection suggests that even the unconditional relationship is unclear. **Figures 2a** and **2b** plot the same, except that average incomes within each decile are used. Here we have tighter fits, and they both indicate positive EFW-income level relationships. But, again, there could be confounding variables driving the unconditional correlations.

Whether one considers decile income shares (Saccone 2021) or decile income levels (Dean and Lawson 2021) to be a more appropriate way to assess the economic freedom-inequality relationship, the contradictory and (often) statistically insignificant unconditional correlations leave us stymied. Things do not become clearer when considering Gini coefficients (**figures 3a** and **3b**). They plot two different Gini's ("disposable income" and "market income") against EFW scores. The best-fit trends are, respectively, negative and positive; again, casual inspection suggests that both unconditional relationships are ambiguous.

We need to take all of these variables into account; and we need to provide a compelling identification strategy to establish causality. We employ matching methods. We now proceed to discuss those.

3. Matching Methods

We aim to identify the causal effect of greater economic freedom in a country on average income in different decile shares, or in an overall indicator of income inequality in that country (i.e., a Gini coefficient). There are a number of difficulties involved in achieving this. First, we are concerned about selection bias. Countries may experience large, sustained increases in economic freedom due to factors that are also correlated with the income distribution. Furthermore, there are more general endogeneity concerns. Income distributions may determine economic freedom levels (rather than the other way round); and/or there may be unobserved factors that causally affect both.

The above concerns suggest that the results of standard regression analyses will be suspect. As an alternative, we employ matching methods. We begin by identifying the episodes of countries having large and sustained increases in economic freedom (as measured by the Fraser Institute's index; see section 4 below). Those episodes are the "treatments" for our analyses. For each country that received the treatment, we use one or more untreated countries to create a counterfactual. Which untreated country or countries are used will be based on a pre-determined set of characteristics. Those characteristics are chosen based on their relevance to both the likelihood of treatment and the outcome of interest (in this case, a change in the income distribution).

The intuition is as follows. Episodes of large and sustained increases in economic freedom will be a relatively (to observations in the full panel data) small number. But for each of those episodes we have a meaningful treatment for which we can draw from the full panel (of countries at various time periods) to create plausible counterfactuals. Those counterfactuals will be, in each case of a treated country, as similar as possible to the treated country *save for the fact that they were not treated.*

Consistent with the above, matching methods are particularly suitable for mitigating selection bias (Rosembaum and Rubin 1983). We will be comparing post-treatment changes in the income distribution between countries that were, in the sense described above, similarly selected. This allows us to estimate the average treatment effect on the treated (ATET): i.e., the difference between the average change in economic freedom for the treated countries and the average change in an income distribution measure for the matched controls.

Regarding remaining endogeneity concerns, our ATET estimates are for *changes* in an income distribution measure. By focusing on changes in the outcome, we difference out time-invariant heterogeneity. This differencing-out of time-invariant heterogeneity is similar to what is achieved by a regression that includes country fixed effects. Furthermore, amongst the characteristics we match on is a treated country's pre-treatment income distribution. This mitigates simultaneity concerns

because the counterfactuals are similarly likely to have has a meaningful increase in economic freedom *conditional on their pre-treatment income distribution*.[12]

Note that matching methods are not regression analysis. This is particularly important to note in this context. In a regression analysis, differencing an outcome of interest will remove between-country variation and, therefore, utilize only within-country variation. However, we are actually interested in using the (relatively infrequent) large and sustained increases in economic freedom to identify the effects on the income distribution *within* a country. Furthermore, matching methods create a counterfactual that is based on a comparing a treated country to non-treated ones in terms of pre-treatment characteristics. This means that between-country variation is implicitly taken into account by comparing post-treatment changes in the income distribution to other countries that are as similar as possible (again, save for the fact that they did not receive the treatment).

3.1 Propensity Score Matching

We employ two types of matching methods: *propensity score matching* and *matching based on Mahalanobis distance*. The first of these is discussed here; then the second in covered in subsection 3.2.

With propensity score matching (PSM), we begin by estimating a logit model of the probability that treatment occurs conditional on a set of covariates. Based on that estimation, each country in our sample can be assigned a *propensity score*: the estimated probability of having received the treatment. We then match each treated country to a set of non-treated countries with similar

[12] The chief regression-based alternative is the two-way fixed effects (TWFE) model with a dummy variable (1 in the case of treatment; 0 otherwise). It has been claimed that the estimated coefficient on that dummy is equivalent to the difference-in-differences (DID) estimator (e.g., Borusyak and Jaravel 2017; Athey and Imbens 2021; Abraham and Sun 2021). However, if there is heterogeneity in the treatment effect over time, the TWFE estimate of it will be biased (Goodman-Bacon 2021; de Chasemartin and D'Haultfoeuille 2020). Alternatively, matching methods provide an estimate of the *average* treatment effect, which will be unbiased in the presence of such heterogeneity.

propensity scores. We will usefully refer to a treated country's "neighbors" in terms of the difference between its propensity score and that of a non-treated country. For example, a treated country's "first nearest neighbor" is the non-treated country in the sample that has the closest propensity score. (A treated country's "second nearest neighbor" is the non-treated country with the second closest propensity score; etc.)

Using PSM, we report results where matching is based on each of the following: (i) the average of the three nearest neighbors, and (ii) matching using a normal kernel function (which uses all of the non-treated units but gives larger weight to those with more similar propensity scores).

3.2 Matching by Mahalanobis Distance

An alternative to PSM is matching that is based directly on the covariates. The Mahalanobis metric is the Euclidian distance between the covariate vectors for two countries. Rather than starting with a logit estimation, then, we simply use the Mahalanobis metric to determine the extent to which countries are "close" to one another.[13]

Mahalanobis-based matching and PSM are designed to do the same thing: to identify, for each treated country, a counterfactual that is similar in terms of the values of certain covariates. More precisely, in both cases matching ideally aims towards a *balanced sample*, i.e., one where the distribution of covariates is equal across the treated countries and the counterfactuals.

A key difference between the two approaches is that PSM reduces the distribution of covariates for a country to a single dimension (i.e., the propensity score) while Mahalanobis-based matching is based on the Euclidian distance between (multidimensional) covariate vectors. This key

[13] This is an *inexact* matching approach. *Exact* matching, alternatively, would involve treated and non-treated countries having equal covariate values. However, we are dealing with country-level data, and the relevant covariates (e.g., GDP per capita) are mostly continuous; so exact matching is not feasible.

difference is the basis for King and Nielsen's (2019) critique of using propensity scores in matching. They show that PSM can in some cases actually lead to *increased* imbalance in the relevant sample.[14]

By relying on the Euclidian distance between multi-dimensional covariate vectors, Mahalanobis-based matching avoids this "propensity score paradox." Furthermore, using the Euclidian distance between covariate vectors is an intuitive approach to achieve balance between treated countries and their counterfactuals.[15] In our Mahalanobis-based estimations, treated countries are matched according to the average of the three nearest neighbors.[16]

4. Data

The data used in this paper can be divided into three categories: treatments, outcomes, and covariates. Following Grier and Grier (2021), a treatment is a sustained and meaningful increase in economic freedom. We look at three different outcomes: (i) decile income shares, (ii) decile income levels, and (iii) Gini coefficients. (In section 5 below we report estimates of treatment effects on 5-year changes in each of the outcomes.) Then we employ a range of covariates to match treated countries to the non-treated ones that will serve as counterfactuals.

The data for treatments, outcomes, and covariates are discussed in turn below. Anticipating that discussion, summary statistics are reported for the economic freedom (treatment) measure and outcome variables in **table 1a**; and for the 5-year changes in the outcome variables in **table 1b**. The list of specific treatments (country along with time period) are reported in **table 2**. Lastly, summary statistics for the covariates can be found in **table 3**.

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[14] While we report PSM estimates here, we also report covariance balance tests in each case. While this does not put to rest the King and Nielsen (2019) critique, it does allow us to reject results when covariant balance is statistically rejected with high confidence levels.
[15] There are other alternative matching methods, e.g., Coarsened Exact Matching (Iacus et al. 2009).
[16] In Appendix C we report, for PSM estimations, t-tests in regard to each individual covariate; for Mahalanobis estimates, we report standardized differences in means for "raw" versus "matched" samples. In all cases, the results provide no significant evidence against covariate balance.

4.1 Treatment: Economic Freedom

To measure sustained and meaningful increases in economic freedom, we employ the Fraser Institute's Economic Freedom of the World (EFW) index (Gwartney et al. 2021). The index is constructed based on 43 variables that are segmented into 5 areas: (1) *Size of Government*, (2) *Legal Structure and Property Rights*, (3) *Access to Sound Money*, (4) *Freedom to Trade Internationally*, and (5) *Regulation of Credit, Labor, and Business*. All five areas are given equal weight in the overall EFW index. Each area is scored on a scale of 0 to 10, where 10 indicates most free.

The EFW index is designed to capture the extent to which a society is organized according to individual choice – including voluntary exchange amongst individuals – within a framework of well-defined and enforced property rights. Whether one believes that a higher EFW score indicates "better" or "worse" institutional/policy quality, the index has the virtue of being a formulaic combination of the 43 underlying variables, which are all sourced from third parties.[17] It is, in that sense, an objective measure of certain institutional/policy dimensions. (It is those dimensions that will, in this paper, be linked to changes in income equality.)

The EFW data are available every five years from 1970 to 2000 and annually thereafter. To utilize the full time range of EFW scores, we focus on values for years that end in a "0" or a "5." This allows use to consider treatments starting between 1970 and 2015.[18] Similarly, we consider potential controls using the same time period.

[17] See Gwartney et al. (2021, pp. 251-262: "Appendix Explanatory Notes and Data Sources") for all underlying data sources and descriptions.

[18] For our benchmark treatment definition, the earliest treatments actually begin in 1975. However, when we consider a smaller treatment threshold, there is one that begins in 1970.While we cannot use jumps that occurred in 2015, we do utilize the 2015 economic freedom measures to ensure that any treatments in 2010 were sustained for five years.

The index operationalizes how well a country's policies relate to economic freedom. The index measures how free individuals are free to engage in commerce without interference from the state. Countries that receive high scores typically have lower taxes and less government spending, protection of property rights and a well-functioning legal system, stable monetary policies, policies supporting free trade across countries (low tariffs, for example), and lax regulatory policies.

We follow Grier and Grier (2021) and define sustained and meaningful jumps in economic freedom as 1 point or greater in the EFW index over a 5-year horizon. This increase must be sustained for at least the subsequent five years. A one-point increase is slightly less than a standard deviation of our sample (1.3529).[19] We find forty-nine such cases of increases in economic freedom (**table 2**).[20] Interestingly, two countries (Dominican Republic and Rwanda) had two such increases in economic freedom during the sample. These increases occurred at least fifteen years apart, so we count these as two separate treatments. In cases where the jumps occurred in consecutive five-year periods, we only count the first increase.

4.2 Outcome: Decile Share, Decile Growth, Gini

For our decile income share measure, we rely on data from the Global Income Dataset (henceforth referred to as "GID"; Lahoti et al. 2016). Their dataset provides annual data for over 160 countries from 1960-2015 on income shares received by each of the ten deciles, as well as the top 5 percent and top 1 percent of income earners. The 10th decile, for instance, is the percentage of income that does to the top 10 percent of all income earners within a country in a given year. Similarly, the 1st decile is the percentage of total income that is received by the bottom 10 percent of all income earners. In 2010, Slovenia had the lowest share going to the top 10 percent (0.207), while

[19] In robustness checks (see Section 6), we redefine jumps in economic freedom as larger (1.25 points or greater) and smaller (0.75 points or greater).
[20] We find only one case of an "unsustained" jump in economic freedom: Venezuela in 2000.

South Africa had the highest share (0.661). Slovenia also had the *largest* share received by the bottom 10 percent (0.040), while Jamaica's bottom ten percent received the lowest share (0.003).

While GDP per capita is often seen as a proxy for the standard of living within a country, Lahoti et al. (2016) argue that taking into account the distribution of income can perhaps get a better overall idea about the health of the economy. In their view, this dataset "goes beyond the Penn World Tables in presenting estimates of the distribution within countries and it goes beyond recent analyses of the world distribution both in greatly extending the period covered and in presenting estimates for every year as well as for both income and consumption" (p. 63). For example, Edward and Sumner (2013) also use the distribution of income data; however, the GID includes data before 1990 (where the Edward and Sumner data begins) and provides data on both consumption and income.

We use this decile share data on its own, as well as to calculate the average income per capita for each decile. Decile income is then calculated as:

$$Decile\ Income\ Per\ Capita_{i,t} = \frac{GDP_{i,t} * DecileShare_{i,t}}{0.1 * Population_{i,t}},$$

where this is performed for each of the ten deciles, as well for the top 1 and 5 percent of the income distribution.[21] We use both GDP[22] and population data from the Penn World Tables (henceforth referred to as "PWT"; Feenstra et al. (2015, version 10.0)). In 2010, Hong Kong's top 10 percent received the highest average income for the top ten percent ($230,389); Burundi's top 10 percent received the lowest average incomes ($3,455). With respect to the bottom ten percent in 2010, Luxembourg's received the highest average income ($29,934) and Central Africa Republic the lowest ($47.15).

[21] In the denominator for the top 1 and 5 percent income per capita, however, we multiple population by 0.01 and 0.05, respectively.

[22] Specifically, we the real PPP adjusted GDP data from PWT as suggested by the authors of this database, since it compares the relative standard of living across countries and time.

Finally, we rely on the Standardized World Income Inequality Database (henceforth referred to as "SWIID"; Solt (2019, version 9.2)) to get two values of the Gini coefficient. The first is the Gini coefficient with respect to disposal income, defined as income that is "post-tax, post-transfer". This is income *net* of taxes. The other is with respect to market income, which refers to income as the amount of money coming into the household, excluding any government cash (or near-cash benefits) as well as private transfers. These Gini coefficients are scored from 0 through 100, with 0 indicating perfectly equal distribution of income throughout society, and 100 corresponding to perfect *inequality*, where one person owns all of the income, and the remainder of society has none. One advantage of using the SWIID Gini values is the data was created to maximize the comparability of income inequality data while maintaining wide coverage. The estimates are based on thousands of reported Gini indices from a large variety of published sources and is available for 198 countries for as many years as possible from 1960 to 2020.

For all three outcomes variables, we examine five-year changes. For decile shares and the Gini coefficients, we take the difference over a five-year period. However, for changes in decile income, we take the difference in logs over each five-year period (which approximates the growth rate).

4.3 Covariates

For the purposes of our empirical method (matching), we wish to choose covariates that either, (i) determine the likelihood of receiving the treatment (jumps in economic freedom), (ii) determine the outcome variable of interest (changes in decile share, decile income, and the Gini coefficient), or (iii) both. Since we are attempting to match treated units to those that were similarly likely to have received the treatment, we want to account for variables that both could impact the treatment or the outcome. If achieved, we can (with greater confidence) rely on the difference

between the units being due to one country receiving the treatment and the other not. In choosing covariates, we rely largely on previous literatures on the determinants of economic freedom (Lawson et al. 2020) and the relationship between economic freedom and inequality.

More formally, consider an outcome (Y), a set of covariates (X), and a treatment (W). (We are analyzing data on both treated ($W = 1$) and untreated ($W = 0$) countries.) Using matching methods, the average treatment effect on the treated (ATET) is an average of differences in treated Ys and those of their matches. Assume that W does not affect the distribution of X:

(4.1) $$F(X \mid W, (Y_0, Y_1),$$

given that Y_0 and Y_1 are potential outcomes given, respectively, $W = 0$ and $W = 1$. (The ATET is therefore $E[(Y_1 - Y_0) \mid W = 1]$.) Since our covariate values are all pre-treatment, the above assumption holds. Then identification relies on the following conditions to hold (Rosenbaum and Rubin 1983):

(4.2) $$(Y_0, Y_1) \perp W \mid X;$$

(4.3) $$\Pr(W = 1 \mid X, Y_0, Y_1) = \Pr(W = 1 \mid X);$$

(4.4) $$0 < \Pr(W = 1 \mid X) < 1.$$

For the above to hold, we are assuming that countries cannot simply choose treatment based on an anticipated change in the outcome. Intuitively, identification is conditional on the distribution of X across treated countries must be similar to that across the matched counterfactuals. In other words, identification is conditional on a high degree of covariate balance. For PSM specifically, there are statistical covariance balance tests that we report in support of identification. The null hypothesis is that Xs across treated countries and their counterfactuals are identical. These are reported for the benchmark results (**tables 4**, **5**, and **6** below). In no case is that null rejected at a conventional significance level.

We employ eight covariates from three data sources. From PWT, we include three variables that take into account the economic conditions of the country: GDP per capita (logged), GDP per capita growth (5-year), and GDP per capita squared (logged). Overall GDP per capita is important in determining all three of our outcome variables. There is also some literature showing that higher income countries are more likely to be reform oriented (Heinemann 2004).[23] The growth rate is found to have some influence on economic freedom (Aixala and Fabro 2009). (Most studies in this literature, though, explore how economic freedom influences both the level of GDP per capita and growth). Including GDP per capita squared (logged) controls for the possibility of Kuznet-effects. Also from the PWT, we use a measurement of human capital to control for education. Lawson et al. (2020) report that four papers find human capital to be positively associated with economic freedom.

We also control for the political environment by using the Polity2 score from the Polity5 database (Marshall and Gurr 2020). The Polity2 score ranges from 10 (strongly democratic) to -10 (strongly autocratic). Lawson et al. (2020) also find that a large portion of papers that examine democracy as a determinant of economic freedom show significant and positive results. There also is a large literature examining the role of democracy as a determinant of economic growth (Acemoglu et al. 2019; Tavares and Wacziarg 2001) and inequality (Savoia et al. 2010).

We include three measurements from the World Bank's World Development Indicators dataset: fertility rate, share of population living in urban areas, and old-age dependency. All three variables were included as controls in Saccone (2021) and Dean and Lawson (2021). With respect to the old-age dependency, there is some evidence aging populations could lead to an increase in the

[23] However, this relationship is not agreed upon by the entire literature. For example, see Vega-Gordilla and Alvarez-Arce (2003) who show no influence that incomes (or growth) have on changes in economic freedom.

size of government, one of the major components of economic freedom (Murphy and Tuszynski 2017).

We include the lagged value of economic freedom. This assumes, all things equal, that freer countries are less likely to have reforms of 1 point or greater. This makes sense given that economic freedom, as conceived of by the EFW index, have lower (0) and upper (10) limits.[24] Starting from the lower end, providing marginal innovations in freedom is "cheap"; versus, getting closer to full economic freedom, sacrificing certain remaining government services/roles (e.g., regulation of interstate/cross-national highways) becomes mores "expensive."[25]

We also include the lagged value of the respective outcome variable. (For instance, when we examine changes in decile income share, we include the lagged value of the specific decile income share we are examining.)

All "lagged" variables described above are lagged five years.

5. Benchmark Results

In this section we report results based on the full sample of countries and the benchmark set of covariates. We do this for (1) income decile shares, (2) income decile levels, and (3) Gini coefficients. The outcome in all cases is the 5-year change in (1), (2), or (3). In all cases we are reporting ATET estimates for large and sustained increases in economic freedom on the outcome.

[24] Those limits could, respectively, be thought of as an autocrat who exercises discretionary and onerous power over everything; versus a government that provides only defense, a monetary standard, and property rights under rule of law.

[25] There is some relationship between this logic and that of the "conditional convergence" literature on income and growth (e.g., Barro and Sala-i-Martin 1992; Young et al. 2008). However, that literature is based on the Solow (1956) model and its assumptions that (i) there is a well-defined equilibrium (balanced growth path) value for income and (ii) there are diminishing returns to capital accumulation. When considering economic freedom for any country, it is unclear that (i) is theoretically well-grounded; also, there is no input to economic freedom that clearly creates an analogy to (ii).

Importantly, when discussing income deciles, *the 10th decile is the richest; the 1st decile is the poorest*. (Consistent with this, *the 1% and 5% designations are each top portions of the 10th decile*.) Results in the tables are arranged and labeled accordingly.

5.1 Income Shares

We begin by reporting estimates for income decile shares, as well as the 1st and 5th percentiles shares (**table 4**). There are three columns of estimates: two based on PSM and one based on Mahalanobis matching. There are very few statistically significant estimates. There are no statistically significant estimates involving either the top (10th, 9th, or 8th) or bottom (1st, 2nd, or 3rd) deciles; there are also no statistically significant estimates for the 1st or 5th percentile.

The only statistically significant estimates in **table 4** are for the 7th and 6th decile shares, based on Mahalanobis matching. The point estimates are all negative. However, the analogous PSM results are all insignificant. Furthermore, the point estimates are all an order of magnitude smaller (in absolute value) than the standard deviations for those two decile shares (levels or changes; see **tables 1a** and **1b**).

If anything – and this would be discounting PSM in favor of Mahalanobis – large, sustained increases in economic freedom are associated with slight decreases in two upper-middle-income decile shares. Taken at face value, this raises a question: shares at which end of the income distribution gain at their expense? Based only on the Mahalanobis point estimates (none of which, again, are statistically significant) it is difficult to say. Two of the 10th decile estimates are positive, all three 9th decile estimates are negative; also, one estimates are positive for both the 1st and 2nd deciles. The answer to the question raised, then, is unclear.

5.2 Income Levels

Now we turn to income levels at each decile (or percentile). We use logs of the income levels so that the outcome (again, a 5-year change) can be interpreted as a growth rate. The results are reported in **table 5**. Each of our 36 estimates are positive and statistically significant.[26]

The **table 5** results are dramatically different than those regarding income shares. The picture it paints is one of economic freedom as a rising tide that lifts all boats.[27] Consider the 1st decile result. Every point estimate is 0.1734 or greater. That implies 17% or greater income growth during the 5-year post-treatment period. The sample mean 5-year growth of the 1st decile income level is 0.1016 and the standard deviation is 0.3376. The smallest point estimate is therefore almost twice the mean and about half a standard deviation. Now consider the 10th decile: all estimates are statistically significant, positive, and 0.1724 or greater. The sample mean 5-year growth of the 10th decile income level is 0.1159 and the standard deviation is 0.2233. The smallest point estimate is about 1.5 times the mean and over 77% of a standard deviation.

Given confidence intervals, it is hard to say whether the effect on the 10th decile is different than the effect on the 1st. (And this is similarly true across other deciles reported in **table 5**. Just judging based on point estimates, it would appear that the middle classes have the slowest growth. But, again, the differences are not statistically significant.) Not only do all boats seem to be rising, but it is hard to say that that the tide is lifting some boats more than others. Recalling Berggren's (1999) model, the results here are consistent with an increase in economic freedom causing positive income growth, and growth that is not discernably different across income deciles.

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[26] Since many of the treated countries are developing ones, we check whether using per capita Gross National Income (GNI) rather than GDP makes a difference. This is reported in Appendix A, **table A10**: again, every point estimate is positive; while there are fewer statistically significant estimates, there are still many (17 out of 36) and they occur at high, middle, and low income levels.

[27] The play on the *rising tide* idiom is apt: Economic freedom (as measured by the Fraser institute) has been increasing on average for decades. (See the discussion in Gwartney et al. (2021) and, in particular, Exhibit 1.4 on p. 17.

5.3 Gini Coefficients

Now we turn to the results based on Gini coefficients (**table 6**). We see quite a few statistically significant estimates, all of which are positive. (This is particularly true when the change in market income Gini is the outcome: every estimate is positive and significant at the 5% level or better.) Qualitatively, these results suggest that increases in economic freedom increase inequality.

However, recall that the average Gini is around 40 and the sample standard deviation is around 8 (**table 1a**). (For example, in 2010 the market income Gini coefficients for Angola, Brazil, Israel, Mexico, and the US were, respectively, about 52.2, 57.3, 50.9, 48.2, and 52.0) Compare that to the statistically significant point estimates in **table 6**, which are all between 0.6598 and 0.9414. A large and sustained increase in economic freedom may indeed increase income inequality (measured by the Gini), but by an exceedingly small amount.

Alternatively, we can also consider the average change and standard deviation of the changes (around 0.2 and 1.4 respectively (**table 1b**)). An economic freedom treatment is associated, then, with an increase in inequality of around two-thirds of a standard deviation increase. However, comparing the **table 1a** and **table 1b** summary statistics, it is clear that cross-country (rather than cross-time) variation in Gini income inequality is more meaningful. Relative to the cross-country variation, the results reported here do not suggest that increases in economic freedom have meaningful effects on inequality.

We can also simply note that the within-country and cross-country Gini (disposable income) standard deviations are around, respectively, 1.439 and 9.323. This confirms the point made above: cross-country variation in inequality is considerably larger than within-country during the 1970-2015 period. Still, it is also true that an economic freedom treatment is associated around 63.3 to 65.4% of a within-country standard deviation increase in inequality. From this perspective, the estimated effects can be sizeable relative to a treated country's own perspective. Within a given country, an

increase in economic freedom likely yields gains to all, but also meaningful distributional consequences.

Lastly, we note that the point estimates for disposable income Ginis tend to be larger than those for market income Ginis. This is consistent with concerns that increases in economic freedom are associated with decreases in government efforts at redistribution. However, a glance at the standard errors on the estimates indicates that the disposable income and market income estimates are not statistically significantly different from one another.

5.4 Summary

Now, to summarize the benchmark results. When we examine decile income shares, there is weak evidence that middle shares decrease slightly. Do top and/or bottom shares account for that slight decrease? The evidence cannot provide a compelling answer. However, when we turn to decile income levels, the results clearly point to economic freedom having positive effects across deciles. But it is unclear that those positive effects are relatively greater at the bottom, middle, or top.

The above points are concisely illustrated in **table 7**. For income decile shares (panel a), statistically significant estimates are reported only for the 6th and 7th shares. In both those cases, it is a minority of estimates that are significant; and they on average represent less than one-third (32%) of a standard deviation in the outcome. For income decile growth (panel b), statistically significant (and always positive) estimates are reported in almost all cases. Across deciles, the estimated effects range, on average, from 61% of a standard deviation (6th decile) to 84.3% of a standard deviation (10th decile). (Within the 10th decile, the average top 1% effect is 73.2% of a standard deviation; the average top 5% effect is 84.3% of a standard deviation.)

(A caveat: **table 7** and the discussion of it above is based entirely on a comparison of statistically significant point estimates. In most cases, those point estimates are not actually statistically significantly different from one another.)

What we see in **table 7** is consistent with the results that are reported for Gini coefficients, which implicitly take into account changes in both shares and levels. That evidence suggests that an increase in economic freedom increases income inequality. The estimated effects are quantitatively meaningful relative to within-country sample inequality variation. However, the total variation is dominated by cross-country variation. Relative to the latter, increases in economic freedom have exceedingly small effects on inequality.

Overall, the evidence suggests that increases in economic freedom increase incomes *generally* but that it does modestly favor increases towards the top of the income distribution.

6. Robustness Checks A: Smaller and Larger Jumps; Excluding OECD Countries; Expanded Covariate Set

We now consider some robustness checks on our (sometimes null) results. Specifically, we consider (1) changing the treatment definition to a 0.75-point increase in EFW (smaller jump); or (2) changing it to a 1.25-point increase (larger jump); then we also consider (3) an analysis that excludes OECD countries. Checks on (1) and (2) aim to ensure that how we define a "meaningful" increase in economic freedom is not critical to our conclusions. Then check (3) is important because the effects of economic freedom might be different depending on whether we are looking outside of the higher-income/more developed world.

All robustness checks discussed in this section are reported in Appendix A.

6.1 Smaller Jumps

We first consider a treatment definition based on a smaller treatment threshold (0.75 point or more increase in the EFW score). The results for decile shares, deciles levels, and Gini coefficients are reported in, respectively, **tables A1**, **A2**, and **A3**. The results are in many ways consistent with those associated with benchmark jumps. No PSM estimates are statistically significant and, based on Mahalanobis matching, estimates for the 7th and 6th decile shares are negative and significant. However, there are now also generally negative results for the 8th and 5th. But in all of these cases, the point estimates are all (again) an order of magnitude smaller (in absolute value) than their respective sample standard deviations. Again, even discounting the PSM results, our results do not suggest that an increase in economic freedom leads to meaningful changes in income decile shares.

And when we turn to results for decile levels (**table A2**), they clearly reinforce the idea that an increase in economic freedom generally raises incomes.

The results based on Gini coefficients (**table A3**) do little to temper the above conclusion. Relative to the benchmark results (**table 6**), there are far fewer statistically significant results, and in those cases the point estimates are smaller. (Indeed, the point estimates in **table A3** are simply, generally, smaller than those in **table 6**.)

6.2 Larger Jumps

Here we consider larger (i.e., 1.25 points or greater) jumps in an EFW score as a treatment. Analogously to the above, the results are reported in **tables A4**, **A5**, and **A6**. Regarding income decile shares, there are no few statistically significant results. Regarding income decile levels, the results suggest, again if anything, that increases in economic freedom lead to higher incomes generally. Then, regarding Gini coefficients, there is not a single statistically significant estimate.

That estimate is positive but, again, it is not meaningful relative to cross-country variation in income inequality.

6.3 Excluding OECD Countries

The results reported in **tables A7**, **A8**, **A9** are based on excluding OECD countries from the sample. To draw a division in the sample based on development and/or income levels, non-OECD versus OECD is admittedly an imperfect criterion. However, it a "rough and ready" criterion that is likely to provide an effective check on our results in this case.

Regarding income decile shares, there are no statistically significant results. Regarding decile levels, most of the estimates are statistically significant and always positive. Lastly, there are no statistically significant point estimates when considering Gini coefficients.

Overall, focusing on non-OECD countries does not lead us to essentially different results than those based on the full sample.

6.4 Expanded Covariate Set

If relevant factors for assignment of the treatment (i.e., covariates) are omitted, this can be a problem in applying matching methods (as it is in regression analysis). The resulting bias is more problematic in regression analysis, because the presence of omitted variable bias is not something that can be observed. Alternatively, in matching covariates are chosen to (hopefully) achieve covariate balance (i.e., similar distributions of covariates in the treatment and control groups). In the case of matching, then, there are tests that speak to acceptance or rejection of the balance null (which we report here).

Again, though, omitting relevant covariates remains a concern. In **tables A11**, **A12**, **A13**, we also consider results based on an expanded sample of covariates that includes (i) measures of

individualism and social trust as cultural traits; (ii) corruption, and (iii) unemployment. Cultural traits may be significantly related to economic freedom and reforms that favor it (e.g., Berggren and Jordahl 2006; Moellman and Tarabar 2022). Similar relationships regarding corruption have been suggested (e.g., Graeff and Mehlkop 2003; Pieroni and d'Agostino 2013; Bologna 2017). And whether an economy is thriving or suffering (proxied for, in part, by unemployment) is likely to be predictive of meaningful reforms.

We use unemployment data from the World Bank. We use the International Country Risk Guide (ICRG, 2017) corruption measure. Regarding cultural traits, we use the Hofstede's (2011) individualism measure and the social trust measure from the World Value Survey (WVS).[28]

The results are essentially consistent with the summary of section 5 above. The results are only positive and statistically significant for income decile growth under Mahalanobis matching, however (**table A12**). These results are based on a much smaller set of treatments (12), so we caution against interpreting these as more than suggestive.

7. Robustness Checks B: Jumps in Areas of Economics Freedom

The EFW index has 5 equally-weighted areas: (1) *Size of Government*, (2) *Legal Structure and Property Rights*, (3) *Access to Sound Money*, (4) *Freedom to Trade Internationally*, and (5) *Regulation of Credit, Labor, and Business*. While some scholars insist that economic freedom is a holistic concept (e.g., Gwartney et al. 2021, ch. 1), the individual areas are, in relation to inequality, clearly of interest. We consider individual area-based treatments defined by a ≥ 1 point (over a five-year period) change in an area index score. These results are reported in Appendix B.

[28] In the case of the WVS social trust data, we need to use the average across (different time period) surveys. If we did not do that, we would have been left with only 12 treatments, none of which was within the region of common support. That being said, culture traits evolve slowly over time; in the case of the United States, for example, its trust scores from Wave 3 through 7 are all within 4 percentage points of one another.

Regarding Area 1, it immediately suggests potential relevance to distributional issues. If size of government reflects welfare concerns, then lower taxes and a smaller public sector may disfavor lower income deciles. However, there are generally no statistically significant results in terms of decile income shares or growth (**tables B1-B2**). There are some significant (positive) estimates for Gini coefficients (**table B3**) but they are of modest size. (The largest point estimate – for the market income Gini – suggests that a 1-point increase in Area 1 is associated with less than 60% of a standard deviation increase in the Gini: a quantitatively not-insignificant though still somewhat modest effect.)

Turning to Area 2, the strength of a society's legal system and property rights is often considered to be fundamental to economic freedom and, through it, income levels and growth (e.g., Young and Sheehan 2014). Jumps in Area 2 are somewhat surprisingly associated with income share losses at the top decile and, in particular, for the top 1% and 5% (**table B4**). The middle classes (i.e., 3rd through 8th deciles) seem to gain from Area 2 jumps. Alternatively, when we consider income decile growth rates (**table B5**) there are generally no statistically significant results. (The exception is a single, positive, estimate for the 4th decile.) And when we turn to Gini coefficients, there are again no statistically significant results (**table B6**). Overall, these results are consistent with Davis and Hopkins (2011) who report that stronger protection of property rights are associated with less inequality.

Jumps in Area 3 do not appear to have a significant impact on income shares (**table B7**) but there is evidence that they are associated with increases in income growth across deciles (**table B8**). (There are no statistically significant effects for Gini coefficients (**table B9**). This is perhaps not surprising. "Good" monetary policy guards against inflation, which disproportionately hurts the poor. (E.g., wealthier individuals typically have access to Among the individual EFW areas, sound monetary policy appears to have the largest and broadest impact on incomes across deciles.

The results for Area 4 (*Freedom to Trade Internationally*) are interesting. Jumps in Area 4 appear to have no impacts on income decile shares (**table B10**) but there are some (Mahalanobis, specifically) estimates that suggest increased 10th decile income growth and, within that, growth of the 1% and 5% segments (**table B11**). Perhaps consistent with this, there are positive and significant effects for Gini coefficients (**table B12**). Quantitatively, these estimated effects are again not insignificant, though somewhat modest (e.g., the largest point estimate – for the market income Gini – suggests that a 1-point increase in Area 4 is associated with just about a half standard deviation increase in that Gini). But there does seem to be some evidence that freedom to trade internationally increases incomes, but in a way that favors upper-income groups. This may be consistent with Stolper and Samuelson (1941) claims regarding relative effects on wages and returns to capital; and the creation of winners and losers when trade is liberalized.

Reforms in regulatory policies (Area 5) have little impact on income decile shares (**table B13**) but are associated with statistically significant increases in incomes for the middle classes (i.e., decile 5 through 10; **table B14**). There is no evidence of significant effects of Area 5 jumps on the Gini coefficients (**table B15**). Davis (2007) has provided a theory that implies a regulatory environment facilitating barriers to entry promotes inequality. However, our results do not provide support for that theory.

Overall, the results suggest that comprehensive based economic freedom reforms seem to matter more than reforms in just one specific area. However, there is evidence that freedom to trade internationally, while promoting higher incomes for all, does favor the top of the income distribution.

8. Conclusions

Proponents of economic freedom point to its association with economic growth and the wealth of nations. Skeptics suspect that average gains mask widening income distributions. If the skeptics are correct, associated increases in income inequality may be undesirable *per se*; worse, economic freedom may foster economic growth on average while the poor lose ground.

The empirical literature on income levels and growth decidedly supports a positive relationship with economic freedom (Hall and Lawson 2014). Alternatively, the literature on income inequality is mixed. Regarding the latter, concerns about endogeneity and nonlinearity in the relationships have not been satisfactorily addressed. In this paper, we have attempted to compellingly address these concerns. We employ matching methods. These methods are nonparametric and allow us, for a treated country (i.e., one that experiences a large, sustained increase in economic freedom), to construct a plausible counterfactual from non-treated countries that are otherwise similar. *Otherwise similar* is determined based on observed factors that are relevant to the likelihood of treatment and the determination of income inequality.

Furthermore, while most (but not all) extant studies focus on Gini coefficients, we also consider changes in decile income shares and levels. Doing so not only addresses a greater part of extant studies; it also gives us a clearer picture as to if and why changes in income inequality might be occurring.

We find that the rising tide of economic freedom lifts all boats: large and sustained increase in economic freedom lifts income levels at all deciles. When looking at decile income *shares*, there is evidence of slight decreases in upper-middle-income decile shares. As to where those decreases are made up for, in the robustness checks there is some evidence of a modest increase in the 10th (highest) income decile. Consistent with this, we report modest increases in Gini coefficients in response to economic freedom treatments.

Summarizing, we find that increased economic freedom is a rising tide that lifts all income decile boats. There is some evidence that it favors the richest boats, but modestly. In our view, then, it is difficult to argue that the modest increases in income inequality negate the broad-based gains to individuals generally. Of course, that is our own subjective assessment. And our work will hopefully both encourage subsequent empirical studies and inform others' subjective assessments of the income level/inequality tradeoff.

References

Abraham, S., Sun, L. 2021. Estimating dynamic treatment effects in event studies with heterogeneous treatment effects. Journal of Econometrics 225(2), 175-199.

Acemoglu, D., Naidu, S., Restrepo, P., Robinson, J.A. 2019. Democracy does cause growth. Journal of Political Economy, 127(1), 47-100.

Ahmad, M. 2017. Economic freedom and income inequality: does political regime matter? Economies 5(2), 1-28.

Apergis, N., Dincer, O., Payne, J. E. 2014. Economic freedom and inequality revisited: evidence from a panel error correction model. Contemporary Economic Policy 32(1), 67-75.

Apergis, N., Cooray, A. 2017. Economic freedom and income inequality: evidence from a panel of global economies – a linear and a non-linear long-run analysis. Manchester School 85(1), 88-105.

Arellano, M., Bond, S. 1991. Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. Review of Economic Studies 58(2), 277-297.

Arellano, M. Bover, O. 1995. Another look at the instrumental variable estimation of error-component models. Journal of Econometrics 68(1), 29-51.

Athey, S., Imbens, G. 2021. Design-based analysis in difference-in-differences settings with staggered adoption. Journal of Econometrics 226(1), 62-79.

Aixalá, J.C.A., Fabro, G. 2009. Economic freedom, civil liberties, political rights and growth: a causality analysis. Spanish Economic Review, 11(3), 165–78.

Ayal, E. B., Karras, G., 1998. Components of economic freedom and growth: an empirical study. Journal of Developing Areas 32(3), 327-338.

Barro, R. J., Sala-i-Martin, X. 1992. Convergence. Journal of Political Economy 100(2), 223-251.

Barro, R J. Lee J.W. 2013. A new data set of educational attainment in the world, 1950-2010. Journal

of Development Economics 104, 184–198

Bennett, D. L., Cebula, R. J. 2015. Misperceptions about capitalism, government and inequality. In (CEbula, R. J., Hall, J. C., Mixon, F. G., Payne, J. E., eds.) Economic Behavior, Economic Freedom, and Entrepreneurship. Northhampton, MA: Edward Elgar.

Bennett, D. L., Nikolaev, B. 2017. On the ambiguous economic freedom-inequality relationship. Empirical Economics 53(2), 717-754.

Berggren, N. 1999. Economic freedom and equality: friends or foes? Public Choice 100(3/4), 203-223.

Berggren, N., Bjørnskov, C. 2017. The Market-Promoting and Market-Preserving Role of Social Trust in Reforms of Policies and Institutions. Southern Economic Journal, 84(1), 3-25.

Berggren, N., Jordahl, H. 2006. Free to trust: economic freedom and social capital. Kyklos 59(2), 141-169.

Bergh, A., Bjørnskov, C. 2021. Does economic freedom boost growth for everyone? Kyklos 74. 170-186.

Bergh, A. Nilsson, T. 2010. Do liberalization and globalization increase income inequality. European Journal of Political Economy 26(4), 488-505.

Blotevogel, R., Imamoglu, E., Moriyama, K., Sarr, B. 2020. Measuring income inequality and implications of economic transmission channels.

Blundell, R., Bond, S. 1998. Initial conditions and moment restrictions in dynamic panel data models. Journal of Econometrics 87(1), 115-143.

Bologna, J. 2017. Corruption, product market competition, and institutional quality: empirical evidence from the U.S. states. Economic Inquiry 55(1), 137-159.

Bologna Pavlik, J., Grier, R. M.., Grier, K. B. 2021.Corruption & the wealth of nations. SSRN Working Paper.

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3942921

Bologna Pavlik, J., Powell, B., Young, A. T. 2022. Does aid cause changes in economic freedom? Southern Economic Journal 89(1), 90-111.

Bologna Pavlik, J. Young, A. T. 2022. Sorting out the aid corruption nexus. Journal of Institutional Economics 18(4), 621-636.

Borusyak, K., Jaravel, X. 2017. Revisiting event study designs. Working Paper. https://scholar.harvard.edu/files/borusyak/files/event_studies_may8_website.pdf

Callais, J., Young, A. T. 2021a. Does rigidity matter? constitutional entrenchment and growth. European Journal of Law and Economics (forthcoming).

Callais, J., Young, A. T. 2021b. Does constitutional entrenchment matter for economic freedom? Contemporary Economic Policy 39(4), 808-830.

Carter, J. A. 2006. An empirical note on economic freedom an income inequality. Public Choice 130(1/2), 163-177.

Cohen, D., Soto, M. 2007. Growth and human capital: good data, good results. Journal of Economic Growth 12(1), 51–76.

Cohen, D., Leker, L. 2014, Health and Education: Another Look with the Proper Data, *mimeo* Paris School of Economics.

Davis, L. 2007. Explaining the evidence on inequality and growth: informality and redistribution. B. E. Journal of Macroeconomics: Contributions 7(1), Article 7.

Davis, L., Hopkins, M. 2011. The institutional foundations of inequality and growth. Journal of Development Studies 47(7), 977-997.

Dawson, J. W. 1998. Institutions, investment, and growth: new cross-country and panel data evidence. Economic Inquiry 36(4), 603-619.

de Chaisemartin, C., D'Haultfuille, X. 2020. Two-way fixed effects estimators

with heterogeneous treatment effects. American Economic Review 110(9), 2964-2996.

de Haan, J., Sturm, J-E. 2000. On the relationship between economic freedom and economic growth. European Journal of Political Economy 16(2), 215-241.

de Haan, J., Lundström, S., Sturm, J-E. 2006. Market-oriented institutions and policies and economic growth. Journal of Economic Surveys 20(2), 157-191.

Dean, J., Lawson, R. 2021. Who gains from economic freedom? a panel analysis on decile income levels. Economics and Business Letters 10(2), 102-106.

Feenstra, R. C., Inklaar, R., Timmer, M.P. 2015. The next generation of the Penn World Table. American Economic Review 105(10), 3150-3182.

Goodman-Bacon, A. 2021. Difference in differences with variation in treatment timing. Journal of Econometrics 225(2), 254-277.

Graafland, J., Lous, B. 2018. Economic freedom, income inequality and life satisfaction in OECD Countries. Journal of Happiness Studies 19(7), 2071-2093.

Graeff, P., Mehlkop, G. 2003. The impact of economic freedom on corruption: different patterns for rich and poor countries. 19(3), 605-620.

Grier, K., Grier, R. 2021. The Washington consensus works: causal effects of reform, 1970-2015. Journal of Comparative Economics 49(1), 59-72.

Grier, R., Young, A. T., Grier, K. B. 2021. The causal effects of rule of law & property rights on fiscal capacity. European Journal of Political Economy (forthcoming).

Gwartney, J., Lawson, R., Hall, J., Murphy, R. 2021. Economic Freedom of the World: 2021 Annual Report. Vancouver, Canada: Fraser Institute.

Gwartney, J., Lawson, R. A., Holcombe, R. 1999. Economic freedom and the environment for economic growth. Journal of Institutional and Theoretical Economics 155(4), 643-663.

Gwartney, J., Holcombe, R., Lawson, R., 2006. Institutions and the impact of investment on

growth. Kyklos 29(2), 255-272.

Hall, J. C., Lawson, R. A. 2014. Economic freedom of the world: an accounting of the literature. Contemporary Economic Policy 32(1), 1-19.

Heckelman, J. C., Stroup, M. D. 2000. Which economic freedoms contribute to growth? Kyklos 53(4), 527-544.

Heinemann, F. 2004. Explaining reform deadlocks. Discussion Paper. Series, no. 04-39. Centre for European Economic Research.

Hofstede, G. 2011. Dimensionalizing cultures: The Hofstede model in context. Online Readings in Psychology and Culture 2(1), https://doi.org/10.9707/2307-0919.1014.

Iacus, S. M., King, G., Porro, G. 2011. Multivariate matching methods that are monotonic imbalance bounding. Journal of the American Statistical Association 106(4), 345-361.

International Country Risk Guide (ICRG) Researchers. 2017. International Country Risk Guide Dataset, Political Risk Services Group.

King, G., Nielsen, R. 2019. Why propensity scores should not be used for matching. Political Analysis 27(4), 435-454.

Krieger, T., Meierrieks, D. 2016. Political capitalism: the interaction between income inequality, economic freedom, and democracy.

Lahoti, R., Jayadev, A., Reddy, S. G. 2016. The global consumption and income project (GCIP): an overview. Journal of Globalization and Development 7(1), 61-108.

Lawson, R., Murphy, R., Powell, B. 2020 The determinants of economic freedom: A survey. Contemporary Economic Policy 38(4), 622-642.

Marshall, M. G., Gurr, T. 2020. Polity5: Political Regime Characteristics and Transitions, 1800-2018. Center for Systemic Peace. http://www. Systemicpeace. Org/inscr/p5manualv2018. pdf.

Moellman, N., Tarabar, D. 2022. Economic freedom reform: does culture matter? Journal of Institutional Economics 18(1), 139-157.

Murphy, R. H. 2015. The impact of economic inequality on economic freedom. Cato Journal 35(1), 117-131.

Murphy, R. H., Tuszynski, M. 2017. Aging Populations and the Size of Government. SSRN Working Paper. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3060834.

Nikolaev, B., Boudreaux, C., Salahodjaev, R. 2017. Are individualist societies less equal? Evidence from the parasite stress theory of values. Journal of Economic Behavior and Organization, 138, 30-49.

Okun, A. M. 2015 [1975]. Equality and Efficiency: The Big Tradeoff. Washington, D.C.: Brookings Institution Press.

Pieroni, L., d'Agostino, G. 2013. Corruption and the effects on economic freedom. European Journal of Political Economy 29(C), 54-72.

Powell, B., Clark, J.R., Nowrasteh, A. 2017. Does mass immigration destroy institutions? 1990s Israel as a natural experiment. Journal of Economic Behavior and Organization 141, 83-95.

Rosenbaum, P., Rubin, D. 1983. The central role of the propensity score in observational studies of causal effects. Biometrika 70(1), 41–55.

Saccone, D. 2021. Who gains from economic freedom? a panel analysis on decile income shares. Applied Economics Letters. 28(8), 646-649.

Savoia, A., Easaw, J., McKay, A. 2010. Inequality, democracy, and institutions: A critical review of recent research. World Development. 38(2), 142-154.

Scully, G. W. 2002. Economic freedom, government policy, and the trade-off between equity and economic growth. Public Choice 113(1/2), 77-96.

Solow, R. M. 1956. A contribution to the theory of economic growth. Quarterly Journal of

Economics 70(1), 65-94.

Solt, F. 2019. The Standardized World Income Inequality Database, Versions 8-9. Harvard Dataverse.

Stolper, W. F., Samuelson, P. A. 1941. Protection and real wages. Review of Economic Studies 9(1), 58-73.

Sturm, J-E., De Haan, J. 205. Income inequality, capitalism, and ethno-linguistic fractionalization. American Economic Review 105(5), 593-597.

Tavares, J., Wacziarg, R. 2001. How democracy affects growth. European Economic Review, 45(8): 1341-1378.

Young, A. T., Bologna, J. 2015. Crises and government: some empirical evidence. Contemporary Economic Policy 34(2), 234-249.

Young, A. T., Higgins, M. J., Levy, D. 2008. Sigma Convergence versus Beta Convergence: Evidence from U.S. Country-Level Data. 40(5), 1083-1093.

Young, A. T., Sheehan, K. M. 2014. Foreign aid, institutional quality, and growth. European Journal of Political Economy. 36(C), 195-208.

TABLES

Table 1a: Summary Statistics (Economic Freedom and Outcome Variables)

Variable	Obs	Mean	Std. Dev.	Min	Max
Economic Freedom	814	5.9566	1.3529	2.3493	8.8319
Income Share (Top 1%)	723	0.1266	0.0803	0.0229	0.4050
Income Share (Top 5%)	723	0.2692	0.1051	0.1021	0.5699
Income Share (10th Decile)	814	0.3763	0.1111	0.1851	0.6614
Income Share (9th Decile)	814	0.1523	0.0111	0.1053	0.1970
Income Share (8th Decile)	814	0.1118	0.0121	0.0691	0.1563
Income Share (7th Decile)	814	0.0889	0.0144	0.0475	0.1231
Income Share (6th Decile)	814	0.0729	0.0157	0.0324	0.1026
Income Share (5th Decile)	814	0.0603	0.0162	0.0218	0.0895
Income Share (4th Decile)	814	0.0494	0.0161	0.0143	0.0811
Income Share (3rd Decile)	814	0.0395	0.0153	0.0087	0.0755
Income Share (2nd Decile)	814	0.0300	0.0137	0.0045	0.0709
Income Share (1st Decile)	814	0.0187	0.0112	0.0013	0.0662
Income Level (Top 1%)	723	91952.32	73754.23	3584.55	520054.20
Income Level (Top 5%)	723	49196.15	42415.47	2374.43	264239.80
Income Level (10th Decile)	814	36057.18	33245.29	1907.44	221962.40
Income Level (9th Decile)	814	18573.98	20579.29	666.64	141220.50
Income Level (8th Decile)	814	14510.39	16812.14	430.39	115223.10
Income Level (7th Decile)	814	12082.75	14457.64	307.91	98980.45
Income Level (6th Decile)	814	10292.01	12651.94	228.70	86519.13
Income Level (5th Decile)	814	8805.42	11095.45	171.21	75753.09
Income Level (4th Decile)	814	7462.46	9633.21	126.17	65601.11
Income Level (3rd Decile)	814	6154.53	8147.50	88.63	55260.01
Income Level (2nd Decile)	814	4772.21	6504.64	55.30	43845.36
Income Level (1st Decile)	814	3118.562	4486.06	17.92	29934.93
Gini (Disposable Income)	606	38.1436	9.2316	20.6	66.4
Gini (Market Income)	606	45.7693	6.4108	24.4	72.1

Table 1b: Summary Statistics (5-Year Changes in Outcome Variables)

Variable	Obs	Mean	Std. Dev.	Min	Max
Change in Income Share (Top 1%)	814	0.00005	0.0254	-0.2077	0.1712
Change in Income Share (Top 5%)	814	0.00011	0.0277	-0.1586	0.1676
Change in Income Share (10th Decile)	814	0.00051	0.0264	-0.1157	0.1590
Change in Income Share (9th Decile)	814	0.00004	0.0061	-0.0395	0.0396
Change in Income Share (8th Decile)	814	0.00007	0.0044	-0.0287	0.0253
Change in Income Share (7th Decile)	814	0.00006	0.0038	-0.0204	0.0178
Change in Income Share (6th Decile)	814	0.00003	0.0037	-0.0217	0.0174
Change in Income Share (5th Decile)	814	-0.00001	0.0037	-0.0219	0.0180
Change in Income Share (4th Decile)	814	-0.00006	0.0038	-0.0213	0.0175
Change in Income Share (3rd Decile)	814	-0.00012	0.0038	-0.0202	0.0256
Change in Income Share (2nd Decile)	814	-0.00019	0.0039	-0.0185	0.0315
Change in Income Share (1st Decile)	814	-0.00032	0.0041	-0.0184	0.0332
Income Level Growth (Top 1%)	647	0.1237	0.3022	-1.3711	1.5096
Income Level Growth (Top 5%)	647	0.1171	0.2364	-1.3477	1.5228
Income Level Growth (10th Decile)	814	0.1159	0.2233	-1.3397	1.5275
Income Level Growth (9th Decile)	814	0.1138	0.2182	-1.3128	1.5616
Income Level Growth (8th Decile)	814	0.1142	0.2186	-1.3240	1.5575
Income Level Growth (7th Decile)	814	0.1144	0.2201	-1.3394	1.5568
Income Level Growth (6th Decile)	814	0.1144	0.2225	-1.3583	1.5591
Income Level Growth (5th Decile)	814	0.1142	0.2264	-1.3813	1.5641
Income Level Growth (4th Decile)	814	0.1136	0.2325	-1.4101	1.5719
Income Level Growth (3rd Decile)	814	0.1124	0.2429	-1.4481	1.5824
Income Level Growth (2nd Decile)	814	0.1097	0.2642	-1.5046	1.5943
Income Level Growth (1st Decile)	814	0.1016	0.3376	-1.6520	1.7723
Change in Gini (Disposable Income)	595	0.1301	1.3735	-7.8000	9.1000
Change in Gini (Market Income)	595	0.3074	1.4286	-5.1000	8.4000

Table 2: List of Treatments

Country	Treatment Period	Country	Treatment Period
Albania	1995-2000	Mauritius	1980-1985
Angola	2005-2010	Mexico	1985-1990
Argentina	1985-1990	Myanmar	1975-1980
Bolivia	1985-1990	New Zealand	1985-1990
Brazil	1985-1990	Nicaragua	1990-1995
Bulgaria	2000-2005	Nigeria	1995-2000
Chile	1975-1980	Paraguay	1990-1995
Congo, DR	2000-2005	Peru	1985-1990
Costa Rica	1985-1990	Philippines	1990-1995
Croatia	1995-2000	Poland	1990-1995
Cyprus	2000-2005	Portugal	1990-1995
Dominican Rep.	1975-1980	Romania	1995-2000
Dominican Rep.	1990-1995	Rwanda	1975-1980
Egypt	1990-1995	Rwanda	1995-2000
El Salvador	1990-1995	Slovenia	1995-2000
France	1985-1990	South Africa	1990-1995
Ghana	1985-1990	Syria	1995-2000
Guatemala	1985-1990	Tanzania	1990-1995
Hungary	1990-1995	Trinidad and Tobago	1990-1995
Iran	1995-2000	Turkey	1980-1985
Israel	1990-1995	Uganda	1990-1995
Jordan	1995-2000	Ukraine	1995-2000
Latvia	1995-2000	United Kingdom	1980-1985
Lithuania	1995-2000	Zambia	1990-1995
Madagascar	1995-2000		

Table 3: Summary Statistics (Covariates)

Variable	Obs	Mean	Std. Dev.	Min	Max
Human Capital	814	2.145	0.733	1.015	3.703
GDP per cap (logged)	814	8.778	1.188	6.059	11.445
GDP per cap growth (5-year)	813	0.106	0.211	-1.347	0.736
GDP per cap (logged) sq.	814	80.774	21.207	36.715	134.009
Fertility Rate	814	3.785	2.020	1.085	8.461
Old Age Dependency	814	11.366	6.723	3.537	35.073
Polity	812	2.839	7.149	-10	10
Urban Population Share	814	52.259	23.373	2.845	100
Corruption	242	3.576	1.498	0	6
Individualism	242	43.719	24.610	6	91
Generalized Trust	242	30.407	17.007	3.510	69.262
Unemployment (5-year average)	242	7.351	4.890	0.518	24.794

Notes: Variables in italics are only used in Appendix A (**Tables A11-A13**).

Table 4: Effect of Economic Reform on Income Decile Share (5-year change)

	Matching Method				
Income Group	PSM NN3	Cov. Balance	PSM Kernel	Cov. Balance	Mah. NN3
Top 1%	-0.0013	1.76	-0.0006	1.37	0.0014
	(0.0071)	(1.00)	(0.0064)	(1.00)	(0.0058)
Top 5%	0.0011	3.41	0.0006	1.48	0.0052
	(0.0077)	(0.97)	(0.0067)	(1.00)	(0.0057)
10th Decile	-0.0013	2.51	0.0014	0.84	0.0060
	(0.0074)	(0.99)	(0.0066)	(1.00)	(0.0051)
9th Decile	-0.0008	3.10	-0.0006	1.49	-0.0007
	(0.0017)	(0.98)	(0.0014)	(1.00)	(0.0012)
8th Decile	-0.0015	2.36	-0.0010	0.99	-0.0012
	(0.0012)	(0.99)	(0.0010)	(1.00)	(0.0009)
7th Decile	-0.0006	4.14	-0.0008	1.26	-0.0012*
	(0.0011)	(0.94)	(0.0009)	(1.00)	(0.0007)
6th Decile	-0.0002	2.46	-0.0005	0.94	-0.0012*
	(0.0010)	(0.99)	(0.0009)	(1.00)	(0.0007)
5th Decile	-0.0003	3.91	-0.0003	0.88	-0.0010
	(0.0011)	(0.95)	(0.0010)	(1.00)	(0.0007)
4th Decile	-0.0003	2.67	0.00001	1.10	-0.0007
	(0.0011)	(0.99)	(0.0010)	(1.00)	(0.0008)
3rd Decile	0.0001	4.51	0.0003	1.10	-0.0003
	(0.0011)	(0.92)	(0.0010)	(1.00)	(0.0008)
2nd Decile	0.0011	2.82	0.0007	1.20	0.0002
	(0.0011)	(0.99)	(0.0009)	(1.00)	(0.0008)
1st Decile	0.0007	2.03	0.0009	0.97	0.0007
	(0.0011)	(1.00)	(0.0009)	(1.00)	(0.0008)

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching (Mah.), Abadie-Imbens biased adjusted standard errors are recorded in parentheses. "NN" stands for nearest neighbord matching. "Cov. Balance" columns report the Chi-square tests where the null is that covariates are on average balanced between treated countries and their matches. The chi-square tests are available for PSM only.

Table 5: Effect of Economic Reform on Income Decile Growth (5-year change)

	Matching Method				
Income Group	PSM NN3	Cov. Balance	PSM Kernel	Cov. Balance	Mah. NN3
Top 1%	0.2177**	3.44	0.2063**	1.74	0.2405***
	(0.1077)	(0.97)	(0.0994)	(1.00)	(0.0754)
Top 5%	0.1471*	3.43	0.2085***	1.84	0.2422***
	(0.0874)	(0.97)	(0.0746)	(1.00)	(0.0570)
10th Decile	0.1974***	5.00	0.1764***	1.01	0.1724***
	(0.0765)	(0.89)	(0.0605)	(1.00)	(0.0466)
9th Decile	0.2010***	2.40	0.1883***	1.49	0.1664***
	(0.0615)	(0.99)	(0.0501)	(1.00)	(0.0447)
8th Decile	0.1469**	2.99	0.1633***	1.14	0.1456***
	(0.0662)	(0.98)	(0.0544)	(1.00)	(0.0443)
7th Decile	0.1199**	2.72	0.1482***	1.24	0.1371***
	(0.0683)	(0.99)	(0.0548)	(1.00)	(0.0436)
6th Decile	0.1269*	4.67	0.1487***	1.04	0.1320***
	(0.0722)	(0.91)	(0.0569)	(1.00)	(0.0426)
5th Decile	0.1631**	2.64	0.1542***	0.99	0.1350***
	(0.0679)	(0.99)	(0.0573)	(1.00)	(0.0431)
4th Decile	0.1543**	3.58	0.1615***	1.02	0.1400***
	(0.0736)	(0.96)	(0.0589)	(1.00)	(0.0437)
3rd Decile	0.1886**	3.29	0.1807***	0.89	0.1493***
	(0.0780)	(0.97)	(0.0625)	(1.00)	(0.0461)
2nd Decile	0.1916**	1.57	0.2077***	1.39	0.1607***
	(0.0798)	(1.00)	(0.0657)	(1.00)	(0.0497)
1st Decile	0.2274**	2.16	0.2435***	1.41	0.1734***
	(0.0905)	(1.00)	(0.0725)	(1.00)	(0.0613)

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching (Mah.), Abadie-Imbens biased adjusted standard errors are recorded in parentheses. "NN" stands for nearest neighbor matching. "Cov. Balance" columns report the Chi-square tests where the null is that covariates are on average balanced between treated countries and their matches. The chi-square tests are available for PSM only.

Table 6: Effect of Economic Reform on the Gini Coefficient (5-year change)

Matching Method	Gini (Disp. Income)	Cov. Balance	Gini (Market Income)	Cov. Balance
PSM: Nearest 3 Neighbors	0.9414**	7.76	0.7625**	2.91
	(0.4061)	(0.65)	(0.3804)	(0.98)
PSM: Normal Kernel	0.9114***	4.19	0.6753**	3.63
	(0.3315)	(0.94)	(0.3101)	(0.96)
Mahalanobis: NN3	0.3996	-	0.6598***	-
	(0.2437)	-	(0.2550)	-

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching, Abadie-Imbens biased adjusted standard errors are reported in parentheses. "NN" stands for nearest neighbor matching. " Gini (Disp. Income)" refers to the distribution of income where income is net of taxes, or "post-tax, post-transfer" income. "Gini (Market Income)" refers to the distribution of income where income is defined as the amount of money coming into the household, excluding any government cash or near-cash benefits as well as private transfers. "Cov. Balance" columns report the Chi-square tests where the null is that covariates are on average balanced between treated countries and their matches. The chi-square tests are available for PSM only.

Table 7: Statistically Significant Estimators and Magnitude (Baseline Results)

Panel a: Income Decile Share			*Panel b: Income Decile Growth*		
Income Share	Significant (Sign)	Magnitude	Income Growth	Significant (Sign)	Magnitude
Top 1%	0/3	-	Top 1%	3/3 (+)	73.2%
Top 5%	0/3	-	Top 5%	3/3(+)	84.3%
10th Decile	0/3	-	10th Decile	3/3 (+)	81.5%
9th Decile	0/3	-	9th Decile	3/3 (+)	84.9%
8th Decile	0/3	-	8th Decile	3/3 (+)	69.5%
7th Decile	1/3 (-)	32%	7th Decile	3/3 (+)	61.4%
6th Decile	1/3 (-)	32%	6th Decile	3/3 (+)	61%
5th Decile	0/3	-	5th Decile	3/3 (+)	66.6%
4th Decile	0/3	-	4th Decile	3/3 (+)	65.4%
3rd Decile	0/3	-	3rd Decile	3/3 (+)	71.2%
2nd Decile	0/3	-	2nd Decile	3/3 (+)	70.6%
1st Decile	0/3	-	1st Decile	3/3 (+)	63.6%

Table 8: Summary of Jumps in Areas of Economic Freedom (Income Share and Income Growth)

	Area 1 (Size of Govt)		Area 2 (LSPR)		Area 3 (Sound Money)		Area 4 (Free Trade)		Area 5 (Regulation)	
Income Group	Income Share	Income Growth	Income Share	Income Growth	Income Share	Income Growth	Income Share	Income Growth	Income Share	Income Growth
Top 1%	0/3	0/3	1/3 (-)	0/3	0/3	1/3 (+)	0/3	1/3 (+)	0/3	0/3
Top 5%	0/3	0/3	2/3 (-)	0/3	0/3	1/3 (+)	0/3	1/3 (+)	0/3	0/3
10th Decile	0/3	0/3	1/3 (-)	0/3	0/3	3/3 (+)	0/3	1/3 (+)	0/3	2/3 (+)
9th Decile	0/3	0/3	0/3	0/3	0/3	3/3 (+)	0/3	0/3	2/3 (-)	3/3 (+)
8th Decile	0/3	0/3	3/3 (+)	0/3	0/3	2/3 (+)	0/3	0/3	0/3	3/3 (+)
7th Decile	0/3	0/3	2/3 (+)	0/3	0/3	1/3 (+)	0/3	0/3	1/3 (-)	3/3 (+)
6th Decile	0/3	0/3	3/3 (+)	0/3	0/3	2/3 (+)	0/3	0/3	0/3	2/3 (+)
5th Decile	0/3	0/3	1/3 (+)	0/3	0/3	2/3 (+)	0/3	0/3	0/3	2/3 (+)
4th Decile	0/3	0/3	1/3 (+)	1/3 (+)	0/3	3/3 (+)	0/3	0/3	0/3	0/3
3rd Decile	0/3	0/3	1/3 (+)	0/3	0/3	3/3 (+)	0/3	0/3	0/3	0/3
2nd Decile	0/3	0/3	0/3	0/3	0/3	2/3 (+)	0/3	0/3	0/3	0/3
1st Decile	0/3	0/3	0/3	0/3	0/3	3/3 (+)	0/3	0/3	0/3	0/3

Notes: This table summarizes the findings in Appendix B. The +/- signs correspond to the sign of the ATET, when statistically significant at the 10% level or greater. "LSPR" stands for "Legal Systems and Protection of Property Rights."

Table 9: Summary of Jumps in Areas of Economic Freedom (Gini Coefficients)

	Area 1 (Size of Govt)	Area 2 (LSPR)	Area 3 (Sound Money)	Area 4 (Free Trade)	Area 5 (Regulation)
Gini (Disp. Income)	2/3 (+)	0/3	0/3	3/3 (+)	0/3
Gini (Mrkt Income)	2/3 (+)	0/3	0/3	3/3 (+)	0/3

Notes: "Gini (Disp. Income)" refers to the distribution of income where income is net of taxes, or "post-tax, post-transfer" income. "Gini (Mrkt Income) refers to the distribution of income where income is defined as the amount of money coming into the household, excluding any government cash or near-cash benefits as well as private transfers. This table summarizes the findings in Appendix B. The +/- signs correspond to the sign of the ATET, when statistically significant at the 10% level or greater.

FIGURES

Figure 1a: Scatter Plot (EFW and 1st Decile Share)

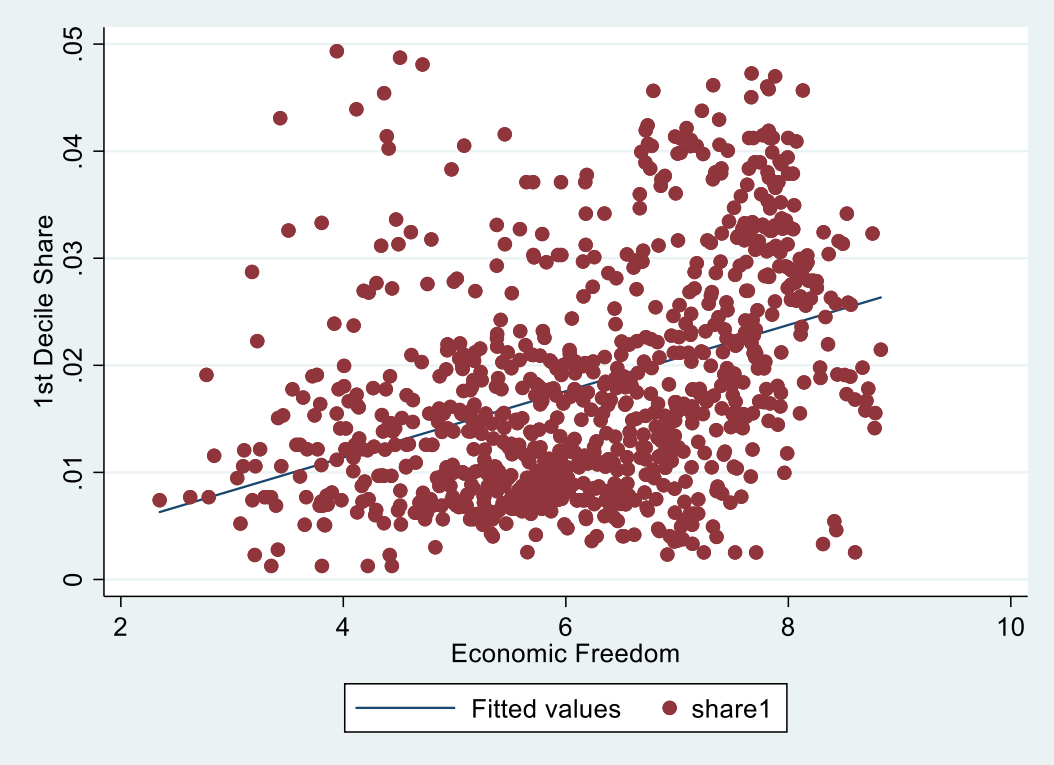


Figure 1b: Scatter Plot (EFW and 10th Decile Share)

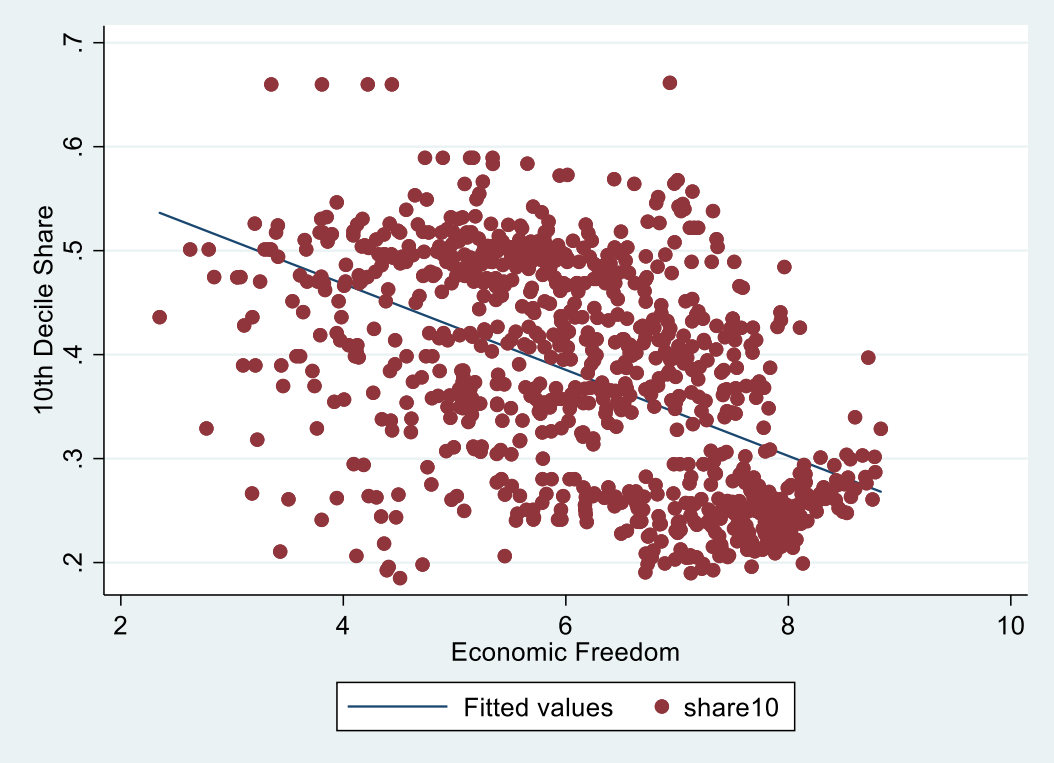


Figure 2a: Scatter Plot (EFW and 1st Decile Income Level)

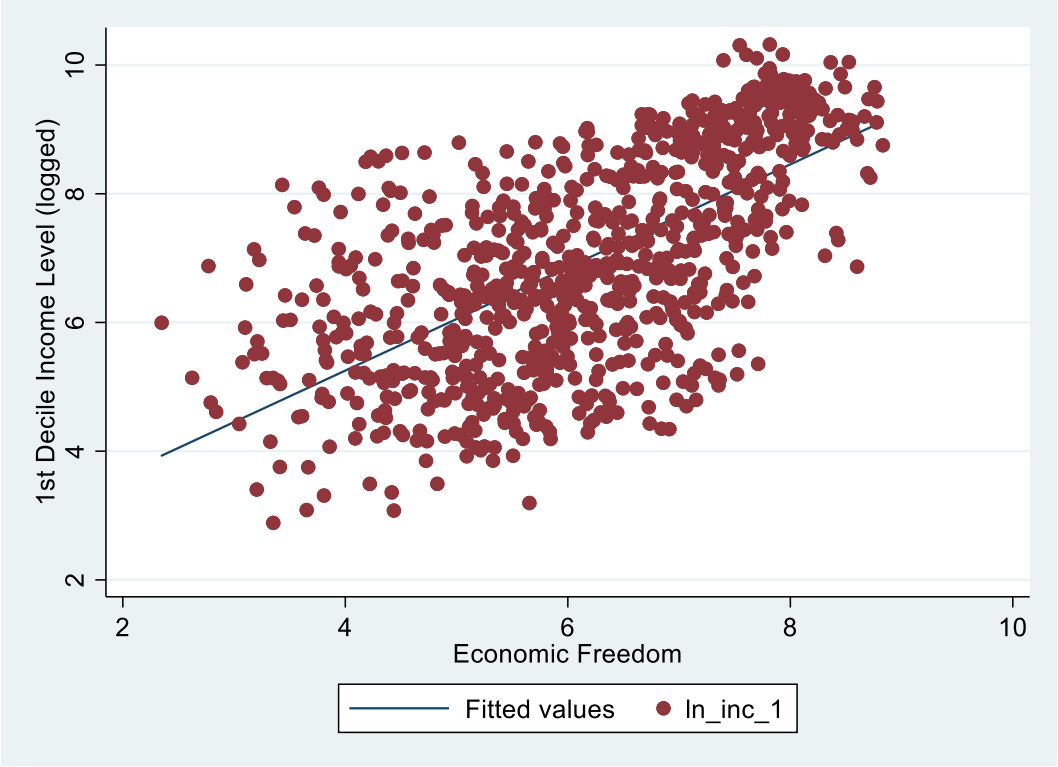


Figure 2b: Scatter Plot (EFW and 10th Decile Income Level)

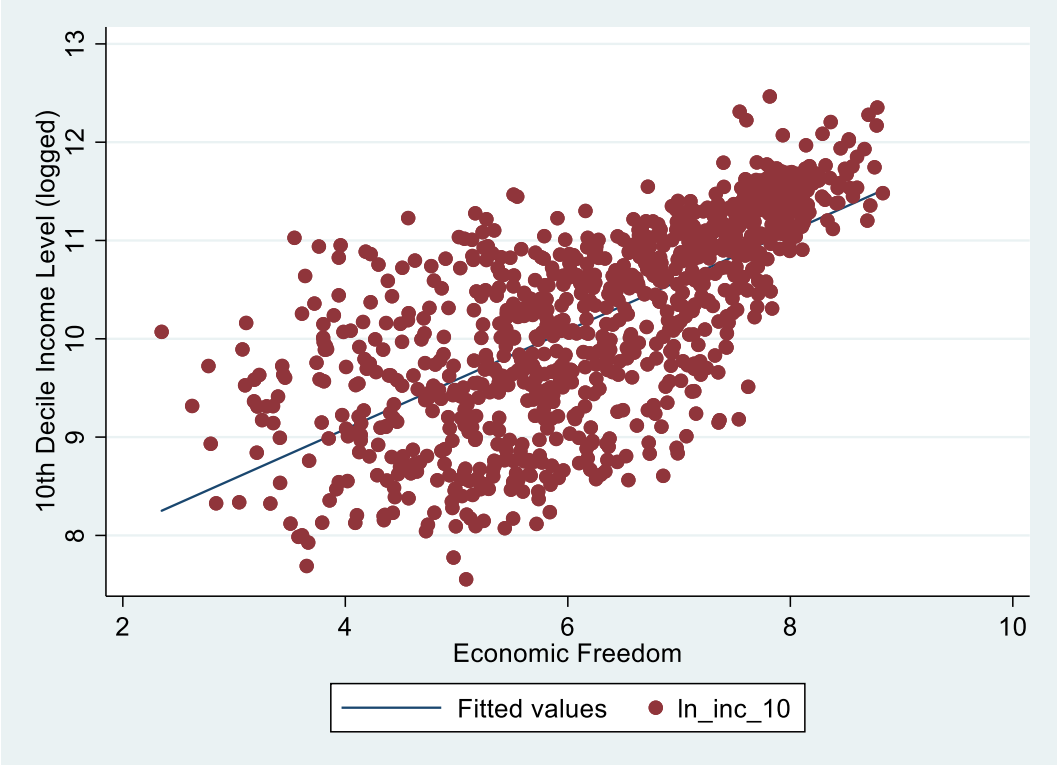


Figure 3a: Scatter Plot (EFW and Disposable Income Gini)

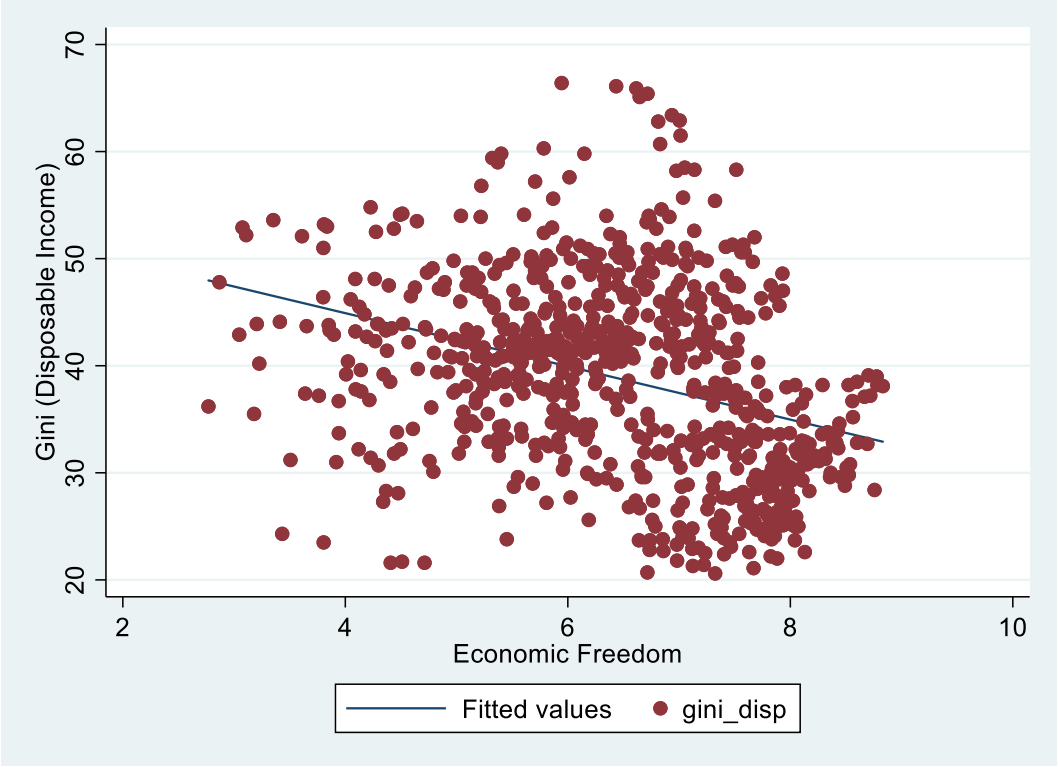
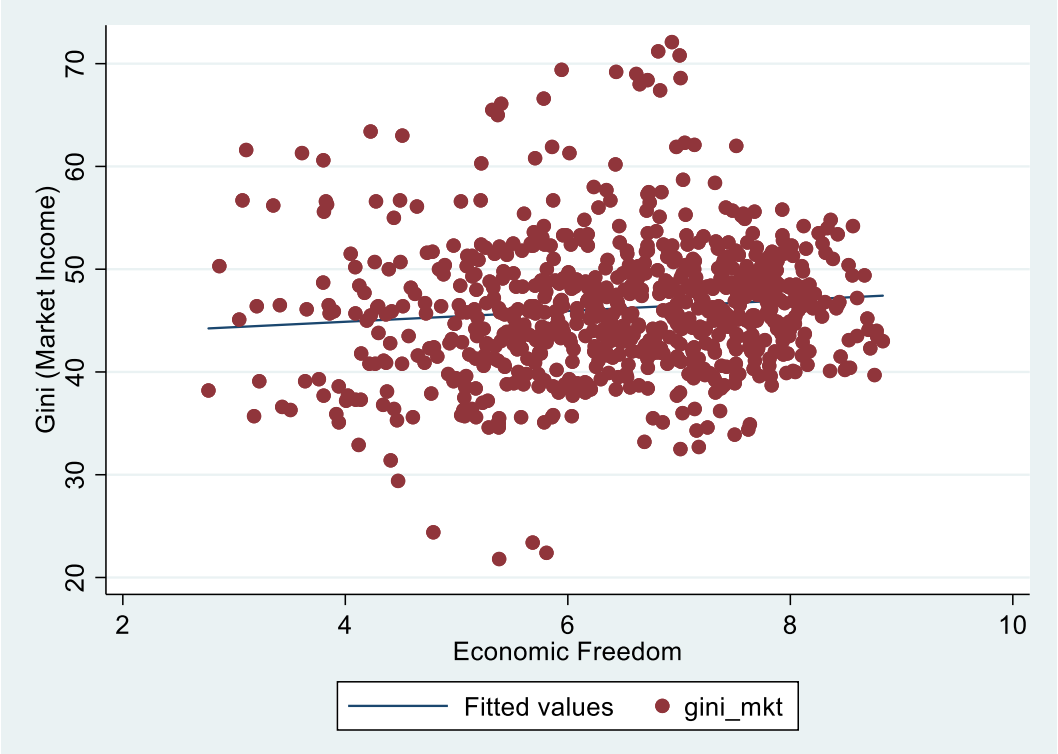


Figure 3b: Scatter Plot (EFW and Market Income Gini)



APPENDIX A—Smaller and Larger Jumps in Economic Freedom, Removing OECD Countries, Replacing GDP with GNI, Including more Covariates

Table A1: Effect of Economic Reform on Income Decile Shares (5-year change; Smaller Jumps in Economic Freedom)

	Matching Method		
Income Group	PSM NN3	PSM Kernel	Mah. NN3
Top 1%	0.0013	0.0035	0.0054
	(0.0056)	(0.0049)	(0.0044)
Top 5%	0.0034	0.0015	0.0059
	(0.0065)	(0.0059)	(0.0045)
10th Decile	-0.0018	-0.0010	0.0063
	(0.0053)	(0.0047)	(0.0040)
9th Decile	-0.0013	-0.0009	-0.0015
	(0.0013)	(0.0011)	(0.0010)
8th Decile	0.0001	-0.0002	-0.0015**
	(0.0011)	(0.0009)	(0.0007)
7th Decile	-0.0003	0.00003	-0.0013**
	(0.0008)	(0.0008)	(0.0006)
6th Decile	0.0003	0.00002	-0.0011**
	(0.0008)	(0.0007)	(0.0006)
5th Decile	0.0001	0.00005	-0.0010*
	(0.0007)	(0.0007)	(0.0005)
4th Decile	-0.0002	0.00004	-0.0009
	(0.0008)	(0.0007)	(0.0006)
3rd Decile	0.0001	0.0001	-0.0006
	(0.0008)	(0.0007)	(0.0006)
2nd Decile	0.0003	0.0002	-0.0002
	(0.0008)	(0.0007)	(0.0006)
1st Decile	0.0006	0.0004	0.0002
	(0.0008)	(0.0006)	(0.0006)

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching (Mah.), Abadie-Imbens biased adjusted standard errors are recorded in parentheses. "NN" stands for nearest neighbor matching.

Table A2: Effect of Economic Reform on Income Decile Growth (5-year change; Smaller Jumps in Economic Freedom)

	Matching Method		
Income Group	PSM NN3	PSM Kernel	Mah. NN3
Top 1%	0.1397*	0.1534**	0.2273***
	(0.0843)	(0.0732)	(0.0571)
Top 5%	0.1391*	0.1539**	0.1979***
	(0.0736)	(0.0651)	(0.0483)
10th Decile	0.1043*	0.1435***	0.1261***
	(0.0603)	(0.0520)	(0.0383)
9th Decile	0.1188**	0.1212***	0.0936***
	(0.0502)	(0.0432)	(0.0323)
8th Decile	0.1159**	0.1332***	0.0949***
	(0.0561)	(0.0496)	(0.0347)
7th Decile	0.0997*	0.1209**	0.0949***
	(0.0573)	(0.0493)	(0.0363)
6th Decile	0.1101*	0.1169**	0.0804**
	(0.0576)	(0.0503)	(0.0356)
5th Decile	0.1276**	0.1178**	0.0812**
	(0.0578)	(0.0485)	(0.0351)
4th Decile	0.1367**	0.1193**	0.0845**
	(0.0620)	(0.0505)	(0.0355)
3rd Decile	0.1020	0.1177**	0.0884**
	(0.0625)	(0.0515)	(0.0373)
2nd Decile	0.1274**	0.1227**	0.0966**
	(0.0627)	(0.0551)	(0.0411)
1st Decile	0.1090	0.1324**	0.1074**
	(0.0762)	(0.0668)	(0.0527)

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching (Mah.), Abadie-Imbens biased adjusted standard errors are recorded in parentheses. "NN" stands for nearest neighbor matching.

Table A3: Effect of Economic Reform on the Gini Coefficient (5-year change; Smaller Jumps in Economic Freedom)

Matching Method	Gini (Disp. Income)	Cov. Balance	Gini (Market Income)	Cov. Balance
PSM: Nearest 3 Neighbors	0.4436	4.51	0.3399	4.74
	(0.2992)	(0.92)	(0.3037)	(0.91)
PSM: Normal Kernel	0.3786	3.88	0.3823	2.65
	(0.2458)	(0.95)	(0.2483)	(0.99)
Mahalanobis: NN3	0.2548	-	0.3839*	-
	(0.1714)	-	(0.1974)	-

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching, Abadie-Imbens biased adjusted standard errors are reported in parentheses. "NN" stands for nearest neighbor matching. " Gini (Disp. Income)" refers to the distribution of income where income is net of taxes, or "post-tax, post-transfer" income. "Gini (Market Income)" refers to the distribution of income where income is defined as the amount of money coming into the household, excluding any government cash or near-cash benefits as well as private transfers. "Cov. Balance" columns report the Chi-square tests where the null is that covariates are on average balanced between treated countries and their matches. We use smaller jumps (greater than a 0.75 increase in economic freedom over 5-years) as the treatment in this analysis.

Table A4: Effect of Economic Reform on Income Decile Shares (5-year change; Larger Jumps in Economic Freedom)

	Matching Method		
Income Group	PSM NN3	PSM Kernel	Mah. NN3
Top 1%	-0.0025	0.0002	0.0003
	(0.0102)	(0.0088)	(0.0092)
Top 5%	-0.0012	0.0008	0.0023
	(0.0129)	(0.0114)	(0.0092)
10th Decile	0.0008	-0.0039	0.0021
	(0.0132)	(0.0115)	(0.0095)
9th Decile	-0.0009	-0.0012	-0.0006
	(0.0026)	(0.0022)	(0.0020)
8th Decile	-0.0012	-0.0006	-0.0009
	(0.0021)	(0.0018)	(0.0015)
7th Decile	-0.0001	-0.0003	-0.0007
	(0.0020)	(0.0017)	(0.0013)
6th Decile	0.0005	0.00003	-0.0007
	(0.0019)	(0.0017)	(0.0012)
5th Decile	-0.0001	0.0005	-0.0005
	(0.0019)	(0.0016)	(0.0012)
4th Decile	0.0006	0.0009	-0.0001
	(0.0018)	(0.0016)	(0.0013)
3rd Decile	0.0006	0.0012	0.0005
	(0.0017)	(0.0015)	(0.0012)
2nd Decile	0.0009	0.0016	0.0009
	(0.0016)	(0.0014)	(0.0011)
1st Decile	0.0010	0.0017	0.0009
	(0.0014)	(0.0013)	(0.0012)

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching (Mah.), Abadie-Imbens biased adjusted standard errors are recorded in parentheses. "NN" stands for nearest neighbor matching.

Table A5: Effect of Economic Reform on Income Decile Growth (5-year change; Larger Jumps in Economic Freedom)

	Matching Method		
Income Group	PSM NN3	PSM Kernel	Mah. NN3
Top 1%	0.0893	0.1470	0.2255**
	(0.1923)	(0.1719)	(0.1046)
Top 5%	0.1633	0.1386	0.1940**
	(0.1372)	(0.1256)	(0.0766)
10th Decile	0.0552	0.0704	0.2030***
	(0.1053)	(0.0904)	(0.0751)
9th Decile	0.0817	0.0449	0.1769**
	(0.0916)	(0.0793)	(0.0718)
8th Decile	0.0736	0.0706	0.1709**
	(0.1023)	(0.0900)	(0.0708)
7th Decile	0.0780	0.0746	0.1552**
	(0.1073)	(0.0890)	(0.0758)
6th Decile	0.0978	0.1486	0.1572**
	(0.1018)	(0.0907)	(0.0769)
5th Decile	0.0868	0.1585*	0.1588**
	(0.1041)	(0.0924)	(0.0777)
4th Decile	0.1180	0.1715*	0.1698**
	(0.1077)	(0.0939)	(0.0796)
3rd Decile	0.1294	0.1830*	0.1863**
	(0.1150)	(0.0974)	(0.0867)
2nd Decile	0.1378	0.1945*	0.1984**
	(0.1239)	(0.1087)	(0.0960)
1st Decile	0.1494	0.1626	0.2334**
	(0.1507)	(0.1228)	(0.1149)

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching (Mah.), Abadie-Imbens biased adjusted standard errors are recorded in parentheses. "NN" stands for nearest neighbor matching.

Table A6: Effect of Economic Reform on the Gini Coefficient (5-year change; Larger Jumps in Economic Freedom)

Matching Method	Gini (Disp. Income)	Cov. Balance	Gini (Market Income)	Cov. Balance
PSM: Nearest 3 Neighbors	-0.2111	2.28	0.1738	1.47
	(0.6017)	(0.99)	(0.5296)	(1.00)
PSM: Normal Kernel	0.0070	1.19	0.0572	0.98
	(0.5162)	(1.00)	(0.4932)	(1.00)
Mahalanobis: NN3	0.1720	-	0.3367	-
	(0.3217)	-	(0.3061)	-

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching, Abadie-Imbens biased adjusted standard errors are reported in parentheses. "NN" stands for nearest neighbor matching. " Gini (Disp. Income)" refers to the distribution of income where income is net of taxes, or "post-tax, post-transfer" income. "Gini (Market Income)" refers to the distribution of income where income is defined as the amount of money coming into the household, excluding any government cash or near-cash benefits as well as private transfers. "Cov. Balance" columns report the Chi-square tests where the null is that covariates are on average balanced between treated countries and their matches. We use larger jumps (greater than a 1.25 increase in economic freedom over 5-years) as the treatment in this analysis.

Table A7: Effect of Economic Reform on Income Decile Shares (5-year change; Removing OECD Countries)

	Matching Method		
Income Group	PSM NN3	PSM Kernel	Mah. NN3
Top 1%	-0.0087	-0.0035	-0.0058
	(0.0086)	(0.0074)	(0.0064)
Top 5%	-0.0128	-0.0061	-0.0035
	(0.0103)	(0.0085)	(0.0069)
10th Decile	-0.0070	-0.0085	-0.0015
	(0.0089)	(0.0083)	(0.0067)
9th Decile	-0.0003	0.0005	0.0019
	(0.0021)	(0.0017)	(0.0015)
8th Decile	-0.0006	0.0003	0.0008
	(0.0015)	(0.0013)	(0.0009)
7th Decile	0.0003	0.0006	0.0001
	(0.0014)	(0.0011)	(0.0008)
6th Decile	0.0012	0.0010	-0.0001
	(0.0014)	(0.0012)	(0.0009)
5th Decile	0.0008	0.0010	-0.0002
	(0.0014)	(0.0012)	(0.0010)
4th Decile	0.0008	0.0009	-0.0004
	(0.0013)	(0.0012)	(0.0010)
3rd Decile	0.0011	0.0009	-0.0007
	(0.0014)	(0.0012)	(0.0010)
2nd Decile	0.0007	0.0009	-0.0005
	(0.0013)	(0.0011)	(0.0009)
1st Decile	0.0002	0.0004	-0.0010
	(0.0012)	(0.0010)	(0.0008)

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching (Mah.), Abadie-Imbens biased adjusted standard errors are recorded in parentheses. "NN" stands for nearest neighbor matching.

Table A8: Effect of Economic Reform on Income Decile Growth (5-year change; Removing OECD Countries)

	Matching Method		
Income Group	PSM NN3	PSM Kernel	Mah. NN3
Top 1%	0.1275	0.1558	0.3199***
	(0.1255)	(0.1156)	(0.0866)
Top 5%	0.1445	0.1495	0.2987***
	(0.1062)	(0.0908)	(0.0672)
10th Decile	0.1429*	0.1515**	0.2602***
	(0.0747)	(0.0651)	(0.0637)
9th Decile	0.1502**	0.1783***	0.2848***
	(0.0737)	(0.0647)	(0.0615)
8th Decile	0.1912**	0.2071***	0.2607***
	(0.0807)	(0.0665)	(0.0562)
7th Decile	0.2090***	0.1763***	0.2416***
	(0.0767)	(0.0611)	(0.0555)
6th Decile	0.2925***	0.2331***	0.2415***
	(0.0776)	(0.0639)	(0.0563)
5th Decile	0.2334***	0.2393***	0.2476***
	(0.0785)	(0.0621)	(0.0568)
4th Decile	0.2534***	0.2358***	0.2461***
	(0.0797)	(0.0639)	(0.0577)
3rd Decile	0.2256***	0.2449***	0.2512***
	(0.0825)	(0.0670)	(0.0642)
2nd Decile	0.2079**	0.2517***	0.2528***
	(0.0931)	(0.0699)	(0.0679)
1st Decile	0.1533	0.2540***	0.2148***
	(0.1115)	(0.0893)	(0.0827)

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching (Mah.), Abadie-Imbens biased adjusted standard errors are recorded in parentheses. "NN" stands for nearest neighbor matching.

Table A9: Effect of Economic Reform on the Gini Coefficient (5-year change; Removing OECD countries)

Matching Method	Gini (Disp. Income)	Cov. Balance	Gini (Market Income)	Cov. Balance
PSM: Nearest 3 Neighbors	0.2800	4.36	0.3533	3.47
	(0.5464)	(0.93)	(0.4902)	(0.97)
PSM: Normal Kernel	0.2411	2.35	0.3213	3.09
	(0.4547)	(0.99)	(0.4262)	(0.98)
Mahalanobis: NN3	0.3812	-	0.4070	-
	(0.3253)	-	(0.2918)	-

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching, Abadie-Imbens biased adjusted standard errors are reported in parentheses. "NN" stands for nearest neighbor matching. " Gini (Disp. Income)" refers to the distribution of income where income is net of taxes, or "post-tax, post-transfer" income. "Gini (Market Income)" refers to the distribution of income where income is defined as the amount of money coming into the household, excluding any government cash or near-cash benefits as well as private transfers. "Cov. Balance" columns report the Chi-square tests where the null is that covariates are on average balanced between treated countries and their matches. We exclude all OECD countries (both treated and control) from this analysis.

Table A10: Effect of Economic Reform on Income Decile Growth (5-year change; Using GNI instead of GDP)

	Matching Method		
Income Group	PSM NN3	PSM Kernel	Mah. NN3
Top 1%	0.3114**	0.2346*	0.2790***
	(0.1380)	(0.1304)	(0.0972)
Top 5%	0.2006*	0.2090**	0.2858***
	(0.1143)	(0.1018)	(0.0777)
10th Decile	0.1537**	0.1423**	0.0900
	(0.0753)	(0.0654)	(0.0718)
9th Decile	0.0988	0.1187*	0.0742
	(0.0730)	(0.0670)	(0.0667)
8th Decile	0.1166	0.1342*	0.0764
	(0.0754)	(0.0698)	(0.0662)
7th Decile	0.1257	0.1323*	0.0898
	(0.0782)	(0.0681)	(0.0718)
6th Decile	0.1458*	0.1288*	0.0605
	(0.0790)	(0.0691)	(0.0675)
5th Decile	0.1373*	0.1340*	0.0595
	(0.0767)	(0.0695)	(0.0679)
4th Decile	0.1295	0.1361*	0.0506
	(0.0792)	(0.0728)	(0.0693)
3rd Decile	0.1264	0.1380*	0.0458
	(0.0895)	(0.0752)	(0.0679)
2nd Decile	0.1410	0.1502*	0.0504
	(0.0971)	(0.0846)	(0.0682)
1st Decile	0.1795	0.1631	0.0928
	(0.1149)	(0.1006)	(0.0747)

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching (Mah.), Abadie-Imbens biased adjusted standard errors are recorded in parentheses. "NN" stands for nearest neighbor matching.

Table A11: Effect of Economic Reform on Income Decile Shares (5-year change; Additional Controls)

	Matching Method		
Income Group	PSM NN3	PSM Kernel	Mah. NN3
Top 1%	-0.0064	-0.0113	0.0043
	(0.0130)	(0.0117)	(0.0074)
Top 5%	0.0051	0.0016	-0.0002
	(0.0152)	(0.0124)	(0.0085)
10th Decile	0.0015	0.0007	0.0008
	(0.0137)	(0.0122)	(0.0076)
9th Decile	0.0011	0.0017	0.0004
	(0.0043)	(0.0042)	(0.0020)
8th Decile	-0.0017	-0.0016	0.0002
	(0.0027)	(0.0025)	(0.0013)
7th Decile	0.0003	0.00001	-0.0011
	(0.0025)	(0.0017)	(0.0010)
6th Decile	-0.0002	-0.0002	-0.0015
	(0.0019)	(0.0019)	(0.0010)
5th Decile	-0.0013	-0.0009	-0.0016*
	(0.0023)	(0.0021)	(0.0010)
4th Decile	-0.0013	-0.0016	-0.0022**
	(0.0023)	(0.0022)	(0.0010)
3rd Decile	-0.0008	-0.0016	-0.0021**
	(0.0024)	(0.0022)	(0.0010)
2nd Decile	-0.0006	-0.0012	-0.0018*
	(0.0026)	(0.0022)	(0.0010)
1st Decile	-0.0013	-0.0014	-0.0012
	(0.0026)	(0.0024)	(0.0013)

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching (Mah.), Abadie-Imbens biased adjusted standard errors are recorded in parentheses. "NN" stands for nearest neighbor matching.

Table A12: Effect of Economic Reform on Income Decile Growth (5-year change; Additional Controls)

	Matching Method		
Income Group	PSM NN3	PSM Kernel	Mah. NN3
Top 1%	0.0840	0.0742	0.1737*
	(0.2075)	(0.1813)	(0.1049)
Top 5%	0.1188	0.1178	0.1856**
	(0.1515)	(0.1374)	(0.0758)
10th Decile	0.0933	0.1085	0.1891***
	(0.123)	(0.1208)	(0.0675)
9th Decile	0.0960	0.1075	0.1723***
	(0.1262)	(0.1214)	(0.0642)
8th Decile	0.0567	0.0943	0.1991***
	(0.1398)	(0.1247)	(0.0624)
7th Decile	0.1177	0.1173	0.1528***
	(0.1206)	(0.1113)	(0.0595)
6th Decile	0.1213	0.1224	0.1306**
	(0.1380)	(0.1211)	(0.0575)
5th Decile	0.0602	0.0979	0.1402**
	(0.1407)	(0.1261)	(0.0594)
4th Decile	0.0685	0.0847	0.0505
	(0.1468)	(0.1381)	(0.0587)
3rd Decile	0.0321	0.0428	0.0559
	(0.1582)	(0.1381)	(0.0651)
2nd Decile	-0.0305	0.0004	0.1023
	(0.1698)	(0.1531)	(0.0718)
1st Decile	0.0408	0.0213	0.1031
	(0.2411)	(0.2210)	(0.0924)

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching (Mah.), Abadie-Imbens biased adjusted standard errors are recorded in parentheses. "NN" stands for nearest neighbor matching.

Table A13: Effect of Economic Reform on the Gini Coefficient (5-year change; Additional Controls)

Matching Method	Gini (Disp. Income)	Cov. Balance	Gini (Market Income)	Cov. Balance
PSM: Nearest 3 Neighbors	0.9683	5.16	0.8463	1.38
	(1.1595)	(0.98)	(1.0580)	(1.00)
PSM: Normal Kernel	0.7230	3.21	0.9120	1.31
	(1.1697)	(0.98)	(0.9630)	(1.00)
Mahalanobis: NN3	0.0956	-	0.2125	-
	(0.3503)	-	(0.3460)	-

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching, Abadie-Imbens biased adjusted standard errors are reported in parentheses. "NN" stands for nearest neighbor matching. " Gini (Disp. Income)" refers to the distribution of income where income is net of taxes, or "post-tax, post-transfer" income. "Gini (Market Income)" refers to the distribution of income where income is defined as the amount of money coming into the household, excluding any government cash or near-cash benefits as well as private transfers. "Cov. Balance" columns report the Chi-square tests where the null is that covariates are on average balanced between treated countries and their matches. We exclude all OECD countries (both treated and control) from this analysis.

APPENDIX B—Jumps in Areas of Economic Freedom

Table B1: Effect of Economic Reform on Income Decile Shares (5-year change; Jumps in Size of Government)

	Matching Method		
Income Group	PSM NN3	PSM Kernel	Mah. NN3
Top 1%	-0.0028	-0.0026	-0.0036
	(0.0059)	(0.0052)	(0.0048)
Top 5%	-0.0016	-0.0023	-0.0010
	(0.0067)	(0.0060)	(0.0054)
10th Decile	-0.0025	0.0010	0.0034
	(0.0061)	(0.0052)	(0.0048)
9th Decile	0.0007	0.0004	-0.0002
	(0.0014)	(0.0011)	(0.0010)
8th Decile	-0.0006	-0.0002	-0.0006
	(0.0009)	(0.0008)	(0.0007)
7th Decile	-0.0002	-0.0003	-0.0008
	(0.0009)	(0.0007)	(0.0006)
6th Decile	0.0004	-0.0002	-0.0007
	(0.0009)	(0.0007)	(0.0007)
5th Decile	-0.0009	-0.0002	-0.0007
	(0.0008)	(0.0007)	(0.0007)
4th Decile	-0.0003	-0.0002	-0.0005
	(0.0009)	(0.0008)	(0.0007)
3rd Decile	0.0003	-0.0001	-0.0003
	(0.0008)	(0.0007)	(0.0007)
2nd Decile	-0.00003	-0.0002	-0.0001
	(0.0008)	(0.0007)	(0.0007)
1st Decile	-0.0002	-0.0003	0.0002
	(0.0008)	(0.0006)	(0.0006)

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching (Mah.), Abadie-Imbens biased adjusted standard errors are recorded in parentheses. "NN" stands for nearest neighbor matching.

Table B2: Effect of Economic Reform on Income Decile Growth (5-year change; Jumps in Size of Government)

	Matching Method		
Income Group	PSM NN3	PSM Kernel	Mah. NN3
Top 1%	0.0226	0.0114	-0.0511
	(0.0796)	(0.0742)	(0.0622)
Top 5%	0.0376	0.0151	-0.0154
	(0.0688)	(0.0611)	(0.0463)
10th Decile	-0.0135	0.0142	0.0009
	(0.0535)	(0.0387)	(0.0391)
9th Decile	0.0243	0.0084	0.0071
	(0.0462)	(0.0374)	(0.0357)
8th Decile	0.0004	0.0134	-0.0039
	(0.0489)	(0.0357)	(0.0371)
7th Decile	0.0289	0.0170	-0.0149
	(0.0499)	(0.0357)	(0.0366)
6th Decile	0.0215	0.0138	-0.0193
	(0.0486)	(0.0368)	(0.0381)
5th Decile	0.0205	0.0085	-0.0276
	(0.0526)	(0.0392)	(0.0419)
4th Decile	0.0425	0.0059	-0.0135
	(0.0588)	(0.0404)	(0.0442)
3rd Decile	0.0427	0.0017	-0.0260
	(0.0612)	(0.0441)	(0.0455)
2nd Decile	0.0192	-0.0011	-0.0301
	(0.0656)	(0.0511)	(0.0497)
1st Decile	0.0714	-0.0151	-0.0196
	(0.0770)	(0.0649)	(0.0605)

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching (Mah.), Abadie-Imbens biased adjusted standard errors are recorded in parentheses. "NN" stands for nearest neighbor matching.

Table B3: Effect of Economic Reform on the Gini Coefficient (5-year change; Jumps in Size of Government)

Matching Method	Gini (Disp. Income)	Cov. Balance	Gini (Market Income)	Cov. Balance
PSM: Nearest 3 Neighbors	0.293	2.21	0.841**	6.90
	(0.309)	(0.99)	(0.344)	(0.74)
PSM: Normal Kernel	0.546**	2.22	0.561*	2.63
	(0.256)	(0.99)	(0.289)	(.099)
Mahalanobis: NN3	0.474**	-	0.224	-
	(0.195)	-	(0.224)	-

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching, Abadie-Imbens biased adjusted standard errors are reported in parentheses. "NN" stands for nearest neighbor matching. " Gini (Disp. Income)" refers to the distribution of income where income is net of taxes, or "post-tax, post-transfer" income. "Gini (Market Income)" refers to the distribution of income where income is defined as the amount of money coming into the household, excluding any government cash or near-cash benefits as well as private transfers. "Cov. Balance" columns report the Chi-square tests where the null is that covariates are on average balanced between treated countries and their matches.

Table B4: Effect of Economic Reform on Income Decile Shares (5-year change; Jumps in Legal Systems and Protection of Property Rights)

	Matching Method		
Income Group	PSM NN3	PSM Kernel	Mah. NN3
Top 1%	-0.0060	-0.0076*	-0.0059
	(0.0065)	(0.0044)	(0.0040)
Top 5%	-0.0094	-0.0107*	-0.0149***
	(0.0085)	(0.0059)	(0.0056)
10th Decile	-0.0105	-0.0067	-0.0136***
	(0.0071)	(0.0050)	(0.0041)
9th Decile	0.0001	0.0014	0.0014
	(0.0014)	(0.0011)	(0.0011)
8th Decile	0.0019*	0.0017**	0.0015**
	(0.0010)	(0.0007)	(0.0007)
7th Decile	0.0016	0.0017**	0.0018**
	(0.0010)	(0.0007)	(0.0007)
6th Decile	0.0020**	0.0016**	0.0016**
	(0.0010)	(0.0007)	(0.0007)
5th Decile	0.0003	0.0009	0.0017**
	(0.0009)	(0.0008)	(0.0007)
4th Decile	0.0003	0.0006	0.0016**
	(0.0011)	(0.0008)	(0.0007)
3rd Decile	-0.0001	0.0004	0.0016*
	(0.0011)	(0.0009)	(0.0009)
2nd Decile	0.0003	0.0002	0.0012
	(0.0011)	(0.0009)	(0.0010)
1st Decile	-0.0006	-0.0001	0.0005
	(0.0013)	(0.0011)	(0.0010)

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching (Mah.), Abadie-Imbens biased adjusted standard errors are recorded in parentheses. "NN" stands for nearest neighbor matching.

Table B5: Effect of Economic Reform on Income Decile Growth (5-year change; Jumps in Legal Systems and Protection of Property Rights)

	Matching Method		
Income Group	PSM NN3	PSM Kernel	Mah. NN3
Top 1%	-0.0440	-0.0399	-0.0288
	(0.1105)	(0.0922)	(0.0656)
Top 5%	-0.0359	0.0149	0.0050
	(0.1094)	(0.0825)	(0.0410)
10th Decile	0.0003	0.0173	-0.0198
	(0.0741)	(0.0505)	(0.0365)
9th Decile	0.0350	0.0450	0.0301
	(0.0792)	(0.0517)	(0.0322)
8th Decile	0.0613	0.0635	0.0543
	(0.0725)	(0.0535)	(0.0386)
7th Decile	0.0860	0.0869	0.0377
	(0.0768)	(0.0544)	(0.0375)
6th Decile	0.0911	0.0876	0.0506
	(0.0765)	(0.0536)	(0.0404)
5th Decile	0.0925	0.0901	0.0430
	(0.0707)	(0.0560)	(0.0411)
4th Decile	0.1317	0.1000*	0.0405
	(0.0814)	(0.0532)	(0.0423)
3rd Decile	0.0803	0.0708	0.0447
	(0.0803)	(0.0576)	(0.0450)
2nd Decile	0.1074	0.0685	0.0455
	(0.0858)	(0.0581)	(0.0506)
1st Decile	-0.0027	0.0318	0.0306
	(0.0995)	(0.0712)	(0.0706)

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching (Mah.), Abadie-Imbens biased adjusted standard errors are recorded in parentheses. "NN" stands for nearest neighbor matching.

Table B6: Effect of Economic Reform on the Gini Coefficient (5-year change; Jumps in Legal Systems and Protection of Property Rights)

Matching Method	Gini (Disp. Income)	Cov. Balance	Gini (Market Income)	Cov. Balance
PSM: Nearest 3 Neighbors	0.2158	1.68	0.2037	0.54
	(0.0500)	(1.00)	(0.7177)	(1.00)
PSM: Normal Kernel	0.3313	0.45	0.3654	0.40
	(0.4339)	(1.00)	(0.6381)	(1.00)
Mahalanobis: NN3	-0.0455	-	-0.0201	-
	(0.3735)	-	(0.4755)	-

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching, Abadie-Imbens biased adjusted standard errors are reported in parentheses. "NN" stands for nearest neighbor matching. " Gini (Disp. Income)" refers to the distribution of income where income is net of taxes, or "post-tax, post-transfer" income. "Gini (Market Income)" refers to the distribution of income where income is defined as the amount of money coming into the household, excluding any government cash or near-cash benefits as well as private transfers. "Cov. Balance" columns report the Chi-square tests where the null is that covariates are on average balanced between treated countries and their matches.

Table B7: Effect of Economic Reform on Income Decile Shares (5-year change; Jumps in Sound Monetary Policy)

	Matching Method		
Income Group	PSM NN3	PSM Kernel	Mah. NN3
Top 1%	-0.0044	-0.0032	-0.0013
	(0.0072)	(0.0067)	(0.0043)
Top 5%	-0.0026	-0.0009	-0.0003
	(0.0068)	(0.0065)	(0.0046)
10th Decile	0.0004	-0.0015	0.0006
	(0.0049)	(0.0046)	(0.0038)
9th Decile	-0.0007	-0.0005	-0.0012
	(0.0012)	(0.0011)	(0.0010)
8th Decile	-0.0005	-0.0005	-0.0011
	(0.0009)	(0.0008)	(0.0008)
7th Decile	-0.0002	-0.0002	-0.0007
	(0.0007)	(0.0007)	(0.0006)
6th Decile	-0.0001	0.0001	-0.0004
	(0.0007)	(0.0006)	(0.0005)
5th Decile	0.0002	0.0003	0.0001
	(0.0006)	(0.0005)	(0.0005)
4th Decile	0.00003	0.0004	0.0003
	(0.0006)	(0.0006)	(0.0005)
3rd Decile	0.0005	0.0004	0.0006
	(0.0006)	(0.0006)	(0.0006)
2nd Decile	0.0003	0.0006	0.0009
	(0.0006)	(0.0006)	(0.0007)
1st Decile	0.0008	0.0008	0.0010
	(0.0007)	(0.0006)	(0.0007)

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching (Mah.), Abadie-Imbens biased adjusted standard errors are recorded in parentheses. "NN" stands for nearest neighbor matching.

Table B8: Effect of Economic Reform on Income Decile Growth (5-year change; Jumps in Sound Monetary Policy)

	Matching Method		
Income Group	PSM NN3	PSM Kernel	Mah. NN3
Top 1%	0.0300	0.0732	0.1038**
	(0.0819)	(0.0760)	(0.0446)
Top 5%	0.0376	0.0795	0.0946***
	(0.0604)	(0.0596)	(0.0328)
10th Decile	0.0877*	0.0761*	0.0881***
	(0.0468)	(0.0435)	(0.0267)
9th Decile	0.0872**	0.0735*	0.0809***
	(0.0428)	(0.0396)	(0.0253)
8th Decile	0.0859**	0.0568	0.0684***
	(0.0410)	(0.0407)	(0.0264)
7th Decile	0.0528	0.0677	0.0792***
	(0.0421)	(0.0412)	(0.0260)
6th Decile	0.0715	0.0732*	0.0864***
	(0.0436)	(0.0409)	(0.0267)
5th Decile	0.0720	0.0769*	0.0931***
	(0.0451)	(0.0416)	(0.0270)
4th Decile	0.0757*	0.0815**	0.0967***
	(0.0420)	(0.0415)	(0.0282)
3rd Decile	0.0791*	0.0844**	0.1084***
	(0.0453)	(0.0422)	(0.0304)
2nd Decile	0.0792	0.0907**	0.1168***
	(0.0492)	(0.0442)	(0.0354)
1st Decile	0.1222**	0.1165**	0.1591***
	(0.0571)	(0.0520)	(0.0517)

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching (Mah.), Abadie-Imbens biased adjusted standard errors are recorded in parentheses. "NN" stands for nearest neighbor matching.

Table B9: Effect of Economic Reform on the Gini Coefficient (5-year change; Jumps in Sound Monetary Policy)

Matching Method	Gini (Disp. Income)	Cov. Balance	Gini (Market Income)	Cov. Balance
PSM: Nearest 3 Neighbors	-0.5502	9.87	-0.2845	8.29
	(0.3458)	(0.45)	(0.3272)	(0.60)
PSM: Normal Kernel	-0.4701	9.56	-0.2616	6.43
	(0.3232)	(0.48)	(0.2931)	(0.78)
Mahalanobis: NN3	-0.2767	-	0.0128	-
	(0.2074)	-	(0.2257)	-

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching, Abadie-Imbens biased adjusted standard errors are reported in parentheses. "NN" stands for nearest neighbor matching. " Gini (Disp. Income)" refers to the distribution of income where income is net of taxes, or "post-tax, post-transfer" income. "Gini (Market Income)" refers to the distribution of income where income is defined as the amount of money coming into the household, excluding any government cash or near-cash benefits as well as private transfers. "Cov. Balance" columns report the Chi-square tests where the null is that covariates are on average balanced between treated countries and their matches.

Table B10: Effect of Economic Reform on Income Decile Shares (5-year change; Jumps in Freedom to Trade Internationally)

	Matching Method		
Income Group	PSM NN3	PSM Kernel	Mah. NN3
Top 1%	0.0043	0.0041	0.0020
	(0.0064)	(0.0058)	(0.0049)
Top 5%	0.0085	0.0077	0.0037
	(0.0064)	(0.0061)	(0.0047)
10th Decile	0.0024	0.0013	0.0069
	(0.0064)	(0.0062)	(0.0048)
9th Decile	-0.0001	-0.00001	-0.0004
	(0.0011)	(0.0010)	(0.0009)
8th Decile	0.000007	0.0001	-0.0007
	(0.0010)	(0.0009)	(0.0008)
7th Decile	0.0002	0.0001	-0.0009
	(0.0009)	(0.0009)	(0.0007)
6th Decile	0.00004	0.0001	-0.0010
	(0.0009)	(0.0008)	(0.0007)
5th Decile	-0.0003	-0.0001	-0.0009
	(0.0009)	(0.0008)	(0.0006)
4th Decile	-0.0004	-0.0004	-0.0007
	(0.0008)	(0.0008)	(0.0006)
3rd Decile	-0.0006	-0.0006	-0.0007
	(0.0007)	(0.0007)	(0.0006)
2nd Decile	-0.0007	-0.0008	-0.0007
	(0.0007)	(0.0006)	(0.0005)
1st Decile	-0.0009	-0.0009	-0.0008
	(0.0006)	(0.0005)	(0.0005)

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching (Mah.), Abadie-Imbens biased adjusted standard errors are recorded in parentheses. "NN" stands for nearest neighbor matching.

Table B11: Effect of Economic Reform on Income Decile Growth (5-year change; Jumps in Freedom to Trade Internationally)

	Matching Method		
Income Group	PSM NN3	PSM Kernel	Mah. NN3
Top 1%	0.0913	0.1015	0.1072*
	(0.0950)	(0.0917)	(0.0586)
Top 5%	0.1012	0.1023	0.1026**
	(0.0790)	(0.0780)	(0.0464)
10th Decile	0.0408	0.0475	0.0801**
	(0.0480)	(0.0446)	(0.0349)
9th Decile	0.0640	0.0478	0.0462
	(0.0460)	(0.0418)	(0.0317)
8th Decile	0.0297	0.0376	0.0353
	(0.0497)	(0.0413)	(0.0320)
7th Decile	0.0235	0.0335	0.0477
	(0.0475)	(0.0422)	(0.0318)
6th Decile	0.0348	0.0330	0.0403
	(0.0485)	(0.0419)	(0.0340)
5th Decile	0.0328	0.0357	0.0395
	(0.0476)	(0.0414)	(0.0341)
4th Decile	0.0237	0.0327	0.0460
	(0.0474)	(0.0416)	(0.0337)
3rd Decile	0.0285	0.0269	0.0465
	(0.0495)	(0.0421)	(0.0346)
2nd Decile	0.0283	0.0175	0.0253
	(0.0530)	(0.0441)	(0.0386)
1st Decile	-0.0173	-0.0029	-0.0151
	(0.0598)	(0.0517)	(0.0480)

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching (Mah.), Abadie-Imbens biased adjusted standard errors are recorded in parentheses. "NN" stands for nearest neighbor matching.

Table B12: Effect of Economic Reform on the Gini Coefficient (5-year change; Jumps in Freedom to Trade Internationally)

Matching Method	Gini (Disp. Income)	Cov. Balance	Gini (Market Income)	Cov. Balance
PSM: Nearest 3 Neighbors	0.5063*	4.91	0.6003**	3.25
	(0.2686)	(0.90)	(0.2561)	(0.98)
PSM: Normal Kernel	0.4202*	2.95	0.5984**	2.60
	(0.2387)	(0.98)	(0.2323)	(0.99)
Mahalanobis: NN3	0.5470***	-	0.7133***	-
	(0.1993)	-	(0.2274)	-

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching, Abadie-Imbens biased adjusted standard errors are reported in parentheses. "NN" stands for nearest neighbor matching. " Gini (Disp. Income)" refers to the distribution of income where income is net of taxes, or "post-tax, post-transfer" income. "Gini (Market Income)" refers to the distribution of income where income is defined as the amount of money coming into the household, excluding any government cash or near-cash benefits as well as private transfers. "Cov. Balance" columns report the Chi-square tests where the null is that covariates are on average balanced between treated countries and their matches.

Table B13: Effect of Economic Reform on Income Decile Shares (5-year change; Jumps in Regulatory Policies)

	Matching Method		
Income Group	PSM NN3	PSM Kernel	Mah. NN3
Top 1%	0.0037	0.0034	0.0058
	(0.0070)	(0.0057)	(0.0061)
Top 5%	0.0040	0.0031	0.0070
	(0.0079)	(0.0067)	(0.0068)
10th Decile	0.0024	0.0057	0.0089
	(0.0073)	(0.0059)	(0.0060)
9th Decile	-0.0019	-0.0018*	-0.0017*
	(0.0014)	(0.0010)	(0.0010)
8th Decile	-0.0012	-0.0011	-0.0013
	(0.0011)	(0.0009)	(0.0009)
7th Decile	-0.0008	-0.0008	-0.0015*
	(0.0010)	(0.0009)	(0.0008)
6th Decile	-0.0007	-0.0006	-0.0012
	(0.0010)	(0.0009)	(0.0009)
5th Decile	-0.0003	-0.0005	-0.0007
	(0.0010)	(0.0008)	(0.0008)
4th Decile	-0.0001	-0.0004	-0.0006
	(0.0010)	(0.0008)	(0.0009)
3rd Decile	-0.0001	-0.0002	-0.00003
	(0.0010)	(0.0008)	(0.0009)
2nd Decile	-0.0003	-0.0003	0.00002
	(0.0010)	(0.0007)	(0.0009)
1st Decile	-0.0004	-0.0001	0.0003
	(0.0011)	(0.0008)	(0.0009)

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching (Mah.), Abadie-Imbens biased adjusted standard errors are recorded in parentheses. "NN" stands for nearest neighbor matching.

Table B14: Effect of Economic Reform on Income Decile Growth (5-year change; Jumps in Regulatory Policies)

	Matching Method		
Income Group	PSM NN3	PSM Kernel	Mah. NN3
Top 1%	0.0373	0.0311	0.0321
	(0.0835)	(0.0681)	(0.0734)
Top 5%	0.0075	0.0404	0.0331
	(0.0637)	(0.0499)	(0.0497)
10th Decile	0.0682	0.0843*	0.0789*
	(0.0520)	(0.0434)	(0.0428)
9th Decile	0.0975*	0.0720*	0.0844**
	(0.0517)	(0.0400)	(0.0390)
8th Decile	0.1032*	0.0695*	0.0743**
	(0.0543)	(0.0410)	(0.0367)
7th Decile	0.0975*	0.0725*	0.0640*
	(0.0545)	(0.0398)	(0.0362)
6th Decile	0.0821*	0.0721*	0.0521
	(0.0497)	(0.0399)	(0.0366)
5th Decile	0.0896*	0.0721*	0.0590
	(0.0510)	(0.0406)	(0.0360)
4th Decile	0.0582	0.0668	0.0551
	(0.0542)	(0.0410)	(0.0385)
3rd Decile	0.0632	0.0651	0.0568
	(0.0558)	(0.0419)	(0.0429)
2nd Decile	0.0300	0.0638	0.0598
	(0.0599)	(0.0450)	(0.0436)
1st Decile	0.0944	0.0716	0.0609
	(0.0796)	(0.0574)	(0.0519)

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching (Mah.), Abadie-Imbens biased adjusted standard errors are recorded in parentheses. "NN" stands for nearest neighbor matching.

Table B15: Effect of Economic Reform on the Gini Coefficient (5-year change; Jumps in Regulatory Policies)

Matching Method	Gini (Disp. Income)	Cov. Balance	Gini (Market Income)	Cov. Balance
PSM: Nearest 3 Neighbors	0.1505	1.47	0.0276	1.18
	(0.3865)	(1.00)	(0.4072)	(1.00)
PSM: Normal Kernel	0.0775	1.95	0.0190	1.80
	(0.3129)	(1.00)	(0.3478)	(1.00)
Mahalanobis: NN3	0.0969	-	-0.1821	-
	(0.2706)	-	(0.2892)	-

Notes: ***, **, * indicate significance at the .01, .05, and .10 levels, respectively. Bootstrapped standard errors are in parentheses using 200 replications for propensity score matching (PSM) only. For Mahalanobis matching, Abadie-Imbens biased adjusted standard errors are reported in parentheses. "NN" stands for nearest neighbor matching. " Gini (Disp. Income)" refers to the distribution of income where income is net of taxes, or "post-tax, post-transfer" income. "Gini (Market Income)" refers to the distribution of income where income is defined as the amount of money coming into the household, excluding any government cash or near-cash benefits as well as private transfers. "Cov. Balance" columns report the Chi-square tests where the null is that covariates are on average balanced between treated countries and their matches.

APPENDIX C—Covariate Balance

Table C1: Covariate balance (Increase in economic freedom; PSM nearest 3 neighbors; outcome: Income Decile Share Change).

		Mean		t-test	
Variable	U/M	Treated	Control	t	p-values
Economic Freedom	U	4.625	6.016	-7.15	0.000***
	M	4.814	4.735	0.34	0.736
Human Capital	U	2.092	2.095	-0.02	0.984
	M	2.091	2.035	0.42	0.675
GDP per capita (logged)	U	8.427	8.778	-2.01	0.045**
	M	8.449	8.459	-0.04	0.967
GDP per capita growth (5-year)	U	-0.067	0.108	-5.91	0.000***
	M	-0.040	-0.058	0.33	0.745
GDP per capita squared (logged)	U	72.184	78.442	-2.04	0.042**
	M	72.691	72.631	0.02	0.988
Fertility Rate	U	3.842	3.904	-0.20	0.840
	M	3.832	3.902	-0.17	0.864
Old Age Dependency	U	10.529	11.341	-0.83	0.406
	M	10.624	10.396	0.18	0.855
Polity 2	U	2.367	2.442	-0.07	0.946
	M	2.093	1.892	0.13	0.895
Urban Population Share	U	52.146	51.331	0.23	0.818
	M	50.557	51.523	-0.20	0.839
10^{th} Decile Share	U	0.380	0.375	0.30	0.762
	M	0.370	0.370	-0.02	0.981

Notes: ***, **, & * indicate significance at the .01, .05, and .10 levels, respectively.

Table C2: Covariate balance (Increase in economic freedom; PSM normal kernel; outcome: Income Decile Share Change).

		Mean		t-test	
Variable	U/M	Treated	Control	t	p-values
Economic Freedom	U	4.625	6.016	-7.15	0.000***
	M	4.780	4.744	0.16	0.877
Human Capital	U	2.092	2.095	-0.02	0.984
	M	2.085	2.024	0.45	0.657
GDP per capita (logged)	U	8.427	8.778	-2.01	0.045**
	M	8.422	8.425	-0.01	0.990
GDP per capita growth (5-year)	U	-0.067	0.108	-5.91	0.000***
	M	-0.048	-0.054	0.11	0.915
GDP per capita squared (logged)	U	72.184	78.442	-2.04	0.042**
	M	72.235	72.191	0.01	0.991
Fertility Rate	U	3.842	3.904	-0.20	0.840
	M	3.891	3.959	-0.17	0.869
Old Age Dependency	U	10.529	11.341	-0.83	0.406
	M	10.497	10.121	0.31	0.760
Polity 2	U	2.367	2.442	-0.07	0.946
	M	1.841	1.695	0.10	0.923
Urban Population Share	U	52.146	51.331	0.23	0.818
	M	50.304	49.653	0.14	0.888
10^{th} Decile Share	U	0.380	0.375	0.30	0.762
	M	0.376	0.379	-0.12	0.903

Notes: ***, **, & * indicate significance at the .01, .05, and .10 levels, respectively.

Table C3: Covariate balance (Increase in economic freedom; Mahalanobis nearest 3 neighbors; outcome: Income Decile Share Change)

	Standardized Difference in Means	
Variable	Raw	Matched
Economic Freedom	-1.151	-0.375
Human Capital	-0.003	0.126
GDP per capita (logged)	-0.308	-0.073
GDP per capita growth (5-year)	-0.730	-0.236
GDP per capita squared (logged)	-0.321	-0.073
Fertility Rate	-0.031	-0.112
Old Age Dependency	-0.128	0.004
Polity 2	-0.010	-0.011
Urban Population Share	0.037	0.043
10^{th} Decile Share	0.046	-0.051

Table C4: Covariate balance (Increase in economic freedom threshold; PSM nearest 3 neighbors; outcome: Income Decile Growth).

		Mean		t-test	
Variable	U/M	Treated	Control	t	p-values
Economic Freedom	U	4.625	6.016	-7.15	0.000***
	M	4.814	4.644	0.77	0.445
Human Capital	U	2.092	2.095	-0.02	0.984
	M	2.091	1.951	1.02	0.308
GDP per capita (logged)	U	8.427	8.778	-2.01	0.045**
	M	8.449	8.406	0.18	0.858
GDP per capita growth (5-year)	U	-0.067	0.108	-5.91	0.000***
	M	-0.040	-0.052	0.21	0.831
GDP per capita squared (logged)	U	72.184	78.442	-2.04	0.042**
	M	72.691	71.767	0.23	0.816
Fertility Rate	U	3.842	3.904	-0.20	0.840
	M	3.832	4.278	-1.08	0.282
Old Age Dependency	U	10.529	11.341	-0.83	0.406
	M	10.624	9.638	0.81	0.419
Polity 2	U	2.367	2.442	-0.07	0.946
	M	2.093	2.132	-0.03	0.979
Urban Population Share	U	52.146	51.331	0.23	0.818
	M	50.557	50.146	0.09	0.931
10^{th} Decile Average Income	U	9.717	10.049	-2.29	0.022**
(logged)	M	9.713	9.723	-0.05	0.961

Notes: ***, **, & * indicate significance at the .01, .05, and .10 levels, respectively.

Table C5: Covariate balance (Increase in economic freedom threshold; PSM normal kernel; outcome: Income Decile Growth).

		Mean		t-test	
Variable	U/M	Treated	Control	t	p-values
Economic Freedom	U	4.625	6.016	-7.15	0.000***
	M	4.814	4.740	0.17	0.864
Human Capital	U	2.092	2.095	-0.02	0.984
	M	2.091	2.029	0.41	0.686
GDP per capita (logged)	U	8.427	8.778	-2.01	0.045**
	M	8.449	8.449	-0.11	0.911
GDP per capita growth (5-year)	U	-0.067	0.108	-5.91	0.000***
	M	-0.040	-0.053	0.09	0.932
GDP per capita squared (logged)	U	72.184	78.442	-2.04	0.042**
	M	72.691	72.573	-0.08	0.933
Fertility Rate	U	3.842	3.904	-0.20	0.840
	M	3.832	4.040	-0.36	0.719
Old Age Dependency	U	10.529	11.341	-0.83	0.406
	M	10.624	10.096	0.33	0.745
Polity 2	U	2.367	2.442	-0.07	0.946
	M	2.093	1.874	-0.02	0.983
Urban Population Share	U	52.146	51.331	0.23	0.818
	M	50.557	49.862	0.10	0.924
10^{th} Decile Average Income	U	9.717	10.049	-2.29	0.022**
(logged)	M	9.713	9.745	-0.22	0.824

Notes: ***, **, & * indicate significance at the .01, .05, and .10 levels, respectively.

Table C6: Covariate balance (Increase in economic freedom; Mahalanobis nearest 3 neighbors; outcome: Income Decile Growth)

	Standardized Difference in Means	
Variable	Raw	Matched
Economic Freedom	-1.151	-0.367
Human Capital	-0.003	0.106
GDP per capita (logged)	-0.308	-0.063
GDP per capita growth (5-year)	-0.730	-0.233
GDP per capita squared (logged)	-0.321	-0.064
Fertility Rate	-0.031	-0.125
Old Age Dependency	-0.128	0.022
Polity 2	-0.010	-0.019
Urban Population Share	0.037	0.056
10^{th} Decile Average Income (logged)	-0.354	-0.098

Table C7: Covariate balance (Increase in economic freedom threshold; PSM nearest 3 neighbors; outcome: Five-Year change in Disposable Income Gini Coefficient).

		Mean		t-test	
Variable	U/M	Treated	Control	t	p-values
Economic Freedom	U	4.779	6.392	-7.61	0.000***
	M	5.199	4.856	1.22	0.226
Human Capital	U	2.226	2.303	-0.65	0.519
	M	2.246	1.973	1.54	0.128
GDP per capita (logged)	U	8.636	9.049	-2.09	0.037**
	M	8.806	8.643	0.63	0.533
GDP per capita growth (5-year)	U	-0.089	0.127	-6.58	0.000***
	M	-0.026	-0.103	1.01	0.319
GDP per capita squared (logged)	U	75.673	83.254	-2.16	0.031**
	M	78.603	75.532	0.70	0.489
Fertility Rate	U	3.479	3.251	0.74	0.458
	M	3.381	4.071	-1.34	0.186
Old Age Dependency	U	11.586	12.333	-0.64	0.525
	M	12.189	9.692	1.52	0.133
Polity 2	U	3.079	4.398	-1.16	0.246
	M	3.759	1.293	1.58	0.152
Urban Population Share	U	55.779	55.821	-0.01	0.992
	M	54.672	51.391	0.61	0.543
Gini (Disposable Income)	U	38.987	37.691	0.81	0.417
	M	37.621	39.071	-0.61	0.546

Notes: ***, **, & * indicate significance at the .01, .05, and .10 levels, respectively.

Table C8: Covariate balance (Increase in economic freedom threshold; PSM normal kernel; outcome: Five-Year change in Disposable Income Gini Coefficient).

		Mean		t-test	
Variable	U/M	Treated	Control	t	p-values
Economic Freedom	U	4.779	6.392	-7.61	0.000***
	M	5.137	4.963	0.60	0.554
Human Capital	U	2.226	2.303	-0.65	0.519
	M	2.232	2.053	1.02	0.312
GDP per capita (logged)	U	8.636	9.049	-2.09	0.037**
	M	8.754	8.764	-0.04	0.970
GDP per capita growth (5-year)	U	-0.089	0.127	-6.58	0.000***
	M	-0.039	-0.077	0.51	0.613
GDP per capita squared (logged)	U	75.673	83.254	-2.16	0.031**
	M	77.738	77.746	-0.00	0.999
Fertility Rate	U	3.479	3.251	0.74	0.458
	M	3.483	3.857	-0.74	0.460
Old Age Dependency	U	11.586	12.333	-0.64	0.525
	M	11.951	10.594	0.81	0.421
Polity 2	U	3.079	4.398	-1.16	0.246
	M	3.333	1.750	0.91	0.368
Urban Population Share	U	55.779	55.821	-0.01	0.992
	M	54.163	53.632	0.10	0.992
Gini (Disposable Income)	U	38.987	37.691	0.81	0.417
	M	38.153	38.522	-0.16	0.877

Notes: ***, **, & * indicate significance at the .01, .05, and .10 levels, respectively.

Table C9: Covariate balance (Increase in economic freedom; Mahalanobis nearest 3 neighbors; outcome: Five-Year change in Disposable Income Gini Coefficient)

	Standardized Difference in Means	
Variable	Raw	Matched
Economic Freedom	-1.343	-0.409
Human Capital	-0.117	0.061
GDP per capita (logged)	-0.369	-0.091
GDP per capita growth (5-year)	-0.851	-0.329
GDP per capita squared (logged)	-0.391	-0.095
Fertility Rate	0.125	-0.035
Old Age Dependency	-0.111	-0.057
Polity 2	-0.198	-0.104
Urban Population Share	-0.002	-0.017
Gini (Disposable Income)	0.135	0.104